Akademia WSB
Dąbrowa Górnicza, Cieszyn, Olkusz, Żywiec, Kraków

Mgr, LAEEQ RAZZAK JANJUA

SUSTAINABILITY IN MIDDLE-INCOME COUNTRIES

The doctoral dissertation written under the
supervision of: Professor Hab, Jacek Szoltysek

Dąbrowa Górnicza 2023

(Annex 2)

Akademia WSB
Dąbrowa Górnicza, Cieszyn, Olkusz, Żywiec, Kraków

STATEMENT OF THE SUPERVISOR OF THE DOCTORAL DISSERTATION

I declare that the doctoral dissertation entitled **SUSTAINABILITY IN MIDDLE-INCOME COUNTRIES** written by **LAEEQ RAZZAK JANJUA** has been prepared under my supervision and hereby state that it fulfills the conditions for presentation in the PhD degree conferral procedure.

Date: **01-12-2023**

Signature of the dissertation supervisor
Professor Jacek Szoltysek

(Annex 3)

Akademia WSB
Dąbrowa Górnicza, Cieszyn, Olkusz, Żywiec, Kraków

LAEEQ RAZZAK JANJUA
First name and surname of the doctoral student

Dąbrowa Górnicza,12-12-2023

Gorna Droga 4, M705 ,02-495-Warsaw
Address

STATEMENT

I declare that the submitted doctoral dissertation entitled: **SUSTAINABILITY IN MIDDLE-INCOME COUNTRIES**, was independently written by me and am fully aware of my legal responsibility in making the selfsame declaration.

I also declare that the doctoral dissertation does not infringe copyright within the meaning of the Act of 4 February 1994 on Copyright and Related Rights (Journal of Laws of 1994, No. 24, item 83) and upon personal interests protected by civil law.

In addition, the doctoral dissertation does not contain information and data obtained illegally and has not previously been the subject of other official procedures related to obtaining diplomas or higher education degrees.

I also agree to make the doctoral dissertation available without remuneration for the research or cognitive purposes of the Professor J. Altkorn WSB University Library, with the proviso that this will take place only on the premises of the Library.

.....
signature of the doctoral student

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviation	**Full form**
MIC-FS	Middle-income countries full sample
UMIC	Upper-middle income countries
LMIC	Lower-middle income countries
HIC	High-income countries
MIT	Middle-income trap

PREFACE

ENGLISH

The aim of this thesis is to investigate the role of international finance and trade in promoting sustainability in middle-income countries. This research seeks to explore the dynamics, challenges, and opportunities in harnessing international financial mechanisms and trade policies to foster economic, social, and environmental sustainability in these nations. The thesis aims to provide insights and recommendations for policymakers, businesses, and stakeholders, contributing to the achievement of sustainable development goals in middle-income countries through effective international finance and trade strategies. To explore the impact of international finance and trade on economic growth and other sustainable development pillars in middle-income countries the findings of my thesis reveals that,

a) Foreign direct investment as part of international finance has a significant positive impact on accelerated economic growth in middle-income nations. Similarly, official development aid appears to exhibit positive effects primarily in lower middle-income countries and middle-income countries with sea ports. However remittance inflow as part of internal finance does reveals any association with economic growth,

b) Similarly, international trade has a positive influence on economic growth, particularly in upper middle-income countries, middle-income countries with sea ports, and high-income countries.

c) Furthermore according to the empirical findings this research work also confirms, a higher level of corruption control correlates with increased economic growth in middle-income nations. It also highlights that, for accelerated economic growth, lower middle-income countries benefit from an effective government role, while high-income countries require strong regulatory quality and adherence to the rule of law.

The research also reveals that economic growth, when coupled with international finance and trade, often has detrimental effects on the environment in middle-income countries. According of the empirical findings,

d) Economic growth appear to harm environment in middle-income and high income countries ; whereas Pollution-Heaven hypothesis found to be true to overall middle income countries and lower middle income countries thus foreign direct investment as part of internal finance harm environment. Moreover, the empirical findings indicate that the impact of international finance as official development aid and remittance on environmental pollution varies across different panels of middle-income countries.

e) International trade tends to exacerbate environmental sustainability issues in middle-income countries.

The research demonstrates that economic growth plays a pivotal role in enhancing social sustainability by alleviating poverty and improving health outcomes and education.

f) The empirical findings of the research work indicate that economic growth increases the income baskets of the individuals of the habitant of middle-income countries thus decreases poverty.

g) International finance's influence on various social dimensions is subject to governance factors, resulting in varying outcomes. Foreign aid appears to remove poverty in upper and lower-middle income countries; whereas remittance inflow decreases poverty in lower middle-income countries and middle-income countries with seaports. The empirical findings also confirm that foreign direct investment appear to decrease poverty in overall middle-income countries and middle-income countries with seaport.

h) International trade generally contributes positively to social pillar outcomes in middle-income countries as a whole.

i) However, the extent of its impact on income inequality varies across different panels of middle-income nations, contingent upon governance and the rule of law.

Furthermore, empirical findings also highlight the heterogeneous effects of governance indicators in both middle-income countries as a whole and their sub-panels. These findings emphasize the critical role of government effectiveness in enhancing the social aspects of middle-income countries. Likewise, they underscore that the promotion of environmental sustainability hinges on the presence of a robust rule of law. This research highlights that achieving social and environmental sustainability isn't possible solely through sustainable economic growth. It also finds that middle-income countries can escape the middle-income trap through trade, provided they control corruption. Economic growth positively impacts social sustainability in these countries but negatively affects environmental sustainability due to governance issues.

This PhD thesis comprises six chapters that collectively address the intricate relationship between economic growth and sustainability within middle-income countries and their sub-groups, all in the context of international finance and trade. Chapter 1 lays the foundation by presenting the research background, articulating research questions, and explaining their significance. Chapter 2 delves into economic growth theories and drivers, establishing a research framework. Chapter 3 conducts empirical investigations into the factors influencing growth in middle-income countries and their sub-groups,

detailing the empirical analysis method and discussing findings. Chapter 4 focuses on the empirical analysis of the connection between economic and environmental sustainability. Chapter 5 explores how economic growth impacts social sustainability goals, encompassing poverty, health, education, and income inequality. Chapter 6 concludes the thesis by summarizing the empirical findings and their implications for macroeconomic variables, economic, social, and sustainable development goals in middle-income countries and sub-groups. It also provides policy recommendations, particularly addressing the challenges faced by upper-middle-income countries grappling with the middle-income trap. This study contributes to a nuanced understanding of how governance indicators interact and impact social and environmental dimensions within middle-income countries, offering valuable insights for policy formulation and decision-making. Additionally, the thesis provides a comprehensive analysis and practical insights into promoting economic growth and sustainability within the diverse middle-income country context.

POLISH

Celem niniejszej rozprawy jest zbadanie roli międzynarodowych finansów i handlu w promowaniu zrównoważonego rozwoju w krajach o średnich dochodach. Badania te mają na celu wyzwań i zbadanie dynamiki oraz możliwości wykorzystania międzynarodowych mechanizmów finansowych i polityki handlowej w celu wspierania zrównoważonego rozwoju gospodarczego, społecznego i środowiskowego w tych krajach. Celu dostarczenia spostrzeżeń i zaleceń dla decydentów, przedsiębiorstw i interesariuszy.

a) Bezpośrednie inwestycje zagraniczne jako część międzynarodowego finansowania mają znaczący pozytywny wpływ na przyspieszenie wzrostu gospodarczego w krajach o średnim dochodzie. Podobnie, oficjalna pomoc rozwojowa wydaje się wykazywać pozytywne efekty przede wszystkim w krajach o niższym średnim dochodzie i krajach o średnim dochodzie, które dodatkowo posiadają porty morskie Niemniej, napływ środków pieniężnych w ramach finansowania wewnętrznego nie wykazuje żadnego związku ze wzrostem gospodarczym,

b) Handel międzynarodowy ma pozytywny wpływ na wzrost gospodarczy, szczególnie w krajach o wyższym średnim dochodzie, krajach o średnim dochodzie z portami morskimi i krajach o wysokim dochodzie,

c) Wyższy poziom kontroli korupcji koreluje ze zwiększonym wzrostem gospodarczym w krajach o średnich dochodach. W celu przyspieszenia wzrostu gospodarczego kraje o niższym średnim dochodzie korzystają ze skutecznej roli rządu, podczas gdy kraje o wysokim dochodzie wymagają silnej jakości regulacji i przestrzegania rządów prawa. Badania ujawniają również, że wzrost gospodarczy, w połączeniu z międzynarodowymi finansami i handlem, często ma szkodliwy wpływ na środowisko w krajach o średnim dochodzie.

d) Wzrost gospodarczy wydaje się szkodzić środowisku naturalnemu w krajach o średnim i wysokim dochodzie, podczas gdy hipoteza o zanieczyszczeniu (pollution heaven hypothesis) okazała się prawdziwa dla wszystkich krajów o średnim i niższym średnim dochodzie, a zatem bezpośrednie inwestycje zagraniczne jako część finansów. Co więcej, wyniki badań empirycznych wskazują, że wpływ międzynarodowego finansowania jako oficjalnej pomocy rozwojowej i środków pieniężnych na zanieczyszczenie środowiska jest różny w różnych grupach krajów o średnim dochodzie;

e) Handel międzynarodowy ma tendencję do zaostrzania kwestii zrównoważonego rozwoju środowiska w krajach o średnim dochodzie. Badania pokazują, że wzrost

gospodarczy odgrywa kluczową rolę w zwiększaniu zrównoważonego rozwoju społecznego poprzez łagodzenie ubóstwa i poprawę wyników zdrowotnych i edukacyjnych;

f) Wyniki badań empirycznych wskazują, że wzrost gospodarczy zwiększa zbiorczą strukturę dochodów mieszkańców w krajach o średnim dochodzie, zmniejszając tym samym ubóstwo.

g) Wpływ finansów międzynarodowych na różne wymiary co skutkuje różnymi wynikami. Pomoc zagraniczna w krajach o wyższym i niższym średnim dochodzie podczas gdy napływ pieniężnych zmniejsza ubóstwo w krajach o niższym średnim dochodzie i krajach o średnim dochodzie z portami morskimi. Empiryczne potwierdzają również, że bezpośrednie inwestycje zagraniczne zmniejszają ubóstwo w krajach o średnim dochodzie i krajach o średnim dochodzie z portami morskimi;

h) Handel międzynarodowy generalnie pozytywnie wpływa na wyniki filarów społecznych w krajach o średnim dochodzie jako całości;

i) Zakres na nierówności dochodowe różni się w różnych grupach krajów o średnim dochodzie, w zależności od rządów i praworządności.

Co więcej, wyniki badań empirycznych podkreślają również niejednorodny wpływ zarządzania zarówno w krajach o średnim dochodzie jako całości, jak i w ich podgrupach. Wyniki te podkreślają kluczową rolę skuteczności rządów we wzmacnianiu społecznych aspektów krajów o średnim dochodzie. Badania te podkreślają, że osiągnięcie zrównoważonego rozwoju społecznego i środowiskowego nie jest możliwe wyłącznie poprzez zrównoważony wzrost gospodarczy. Okazuje się również, że kraje o średnim dochodzie mogą pułapki średniego dochodu poprzez pod warunkiem. Wzrost gospodarczy pozytywnie wpływa na zrównoważony rozwój społeczny w tych krajach, ale negatywnie wpływa na zrównoważony rozwój środowiska ze.

Niniejsza rozprawa doktorska składa się z sześciu rozdziałów, zy wzrostem gospodarczym a zrównoważonym rozwojem w krajach o średnim dochodzie i ich poszczególnych podgrupach. Rozdział 1 kładzie nacisk na prezentację kontekstu badawczego, sformułowanie pytań badawczych i wyjaśnienie ich istoty. Rozdział 2 czynniki wzrostu gospodarczego, ustanawiając ramy badawcze. W rozdziale 3 przedstawiono badania empiryczne dotyczące czynników wpływających na wzrost w krajach o średnim dochodzie i ich podgrupach, szczegółowo opisując metodę analizy empirycznej i omawiając wyniki. Rozdział 4 koncentruje się na empirycznej analizie związku między zrównoważonym rozwojem gospodarczym i środowiskowym. W

rozdziale 5 zbadano, w jaki sposób wzrost gospodarczy wpływa na cele zrównoważonego rozwoju społecznego, obejmujące ubóstwo, zdrowie, edukację i nierówności dochodowe. Niniejsze badanie przyczynia się do pogłębionego zrozumienia, w jaki sposób instrumenty zarządzania oddziałują na wymiar społeczny i środowiskowy w krajach o średnim dochodzie, oferując cenne informacje na temat formułowania i podejmowania decyzji. Ponadto rozprawa dostarcza kompleksowej analizy i praktycznych spostrzeżeń na temat promowania wzrostu gospodarczego i zrównoważonego.

CHAPTER. 1 INTRODUCTION

1.1 AN ONGOING DEBATE ABOUT ECONOMIC GROWTH IN MIDDLE-INCOME COUNTRIES AND INTERNATIONAL COOPERATION

Economic growth describes an increase or improvement in the inflation adjusted market value of economic goods and services that a society produces and consumes, whereas economic development refer to the improvement in the quality of living standard of inhabitant of any country over a certain period of time[1] (Brinkman,1995). Furthermore it is true to argue that, development strongly associated with economic growth, allowing the differences in the level of development to be conclusively explained by different in growth rates. Nonetheless, economic growth interacts with other dimension of different nature shaping the level of development of a country[2] (Heras Recuero & Pascual González, 2019). Middle income countries (MIC) are a diverse group by size, natural resources, demography and income level. Furthermore, MIC represent s about one third of the global GDP and appeared to be the major engine of global growth. Furthermore, the global landscape and economic structure of the world is extremely volatile therefore middle income country's economy more vulnerable to external shocks. Nevertheless, slow down of the global trade during any crisis, there is evidence that growth spill-overs from the trade partners significantly determinant of a middle income country's growth. Likewise, Makin & Layton (2021) stated that recession at a major trading partner during crisis situation has bigger repercussion[3].

TABLE 1. ANNUAL GDP GROWTH RATE IN VARIOUS INCOME GROUPS

ANNUAL GDP GROWTH						
INCOME GROUP	2000-05	2006-10	2011-15	2016-19	Average	2020
MIDDLE INCOME	5.89	6.82	5.34	4.67	5.68%	-1.37966
OECD MEMBERS	2.55	1.13	1.91	2.11	1.92%	-4.46933
LOW INCOME	4.87	5.67	0.95	3.32	3.29%	0.621414
HIGH INCOME	2.62	1.21	1.89	2.08	1.81%	-4.48779
WORLD	3.42	2.82	3.02	3.022	2.98%	-3.29368

[1]R.Brinkman, "Economic growth versus economic development: Toward a conceptual clarification." *Journal of Economic Issues* 29.4, 1995,p. 1171-1188.
[2]L.Heras Recuero and G.P.Roberto, "Economic growth, institutional quality and financial development in middle-income countries.",2019.
[3]A.J Makin, and Allan Layton. "The global fiscal response to COVID-19: Risks and repercussions." *Economic Analysis and Policy* 69,2021,p.340-349.

Table 1 indicate growth pattern in different income group of the world. The average annual growth in middle income countries recorded as 5.68 % although it is highest among the above mention table however; numerous upper-middle income countries and lower-middle income countries hold stagnant economic growth from long time without any improvement in their economic and social structure.Furthermore, unskilled labour force in middle-income countries usually engaged with agriculture sector however; once the new MNC are formed due to cross border technology transfer unskilled labour smoothly adopted and learn the new technological skills which become an active ingredient of economic growth. Manufacturing sector also plays significant role in empowering growth in middle-income countries. However, it has been observed that service sector by pass manufacturing and leapfrog from agriculture directly to service sector[4].These notable sectors are information and communication technology and tourism. Likewise, one of the key factor which contribute positively in economic growth process of middle-income countries is contribution of total gross capital formation that's has risen dramatically recently. The key issue which directly impact on the economic growth of majority of middle-income countries are fiscal budget deficits which are due to less tax revenue and more government spending. Therefore; middle-income countries usually depend on external borrowing for their social spending such as medical care, health and government employees pension spending which also lower the economic growth rate.

Middle-income countries rely heavily on international trade[5]. Their economic well-being is closely tied to trade agreements, tariffs, and international economic conditions. Trade relations with other countries can significantly affect their economic growth and stability[6]. On the other hand, MICs seek FDI from other countries to fuel economic growth and development[7]. The strength of their international relationships can influence the amount and stability of FDI they receive. Furthermore, with the help of FDI flow under the shadow of international relations among the countries, International relationships can facilitate the transfer of technology, knowledge, and best practices,

[4] M. Noland,P. Donghyun, and B.E Gemma, "Developing the service sector as engine of growth for Asia: an overview." *Asian Development Bank Economics Working Paper Series* 320,2012

[5] J-F, Arvis,[et al.], "Connecting to compete 2018: trade logistics in the global economy." 2018.

[6] X.Yao [et al.]. Free trade agreements and environment for sustainable development: a gravity model analysis. *Sustainability*, *11*-3, 2019, p. 597.

[7] X.Wang, W.Yanhua, and X.Chunxin. "The impact of natural resource abundance on green economic growth in the belt and road countries: The role of institutional quality." *Environmental Impact Assessment Review* 98, 2023,p 106977.

which can boost the capacity and development of Middle-income countries[8] [9]. Likewise, the ability of MICs to access international markets and resources, including energy and raw materials, can be influenced by their relationships with other nations[10]. International relationships of middle-income countries among each other also cause financial stability for their financial system[11]. International creditors and lenders can play a role in the financial stability of MICs, and the terms of loans are influenced by international relationships[12].Middle-income countries are often affected by global issues like climate change, health pandemics, and migration. Collaboration with other countries is vital in addressing these challenges[13].Likewise, middle-income countries often receive development aid from wealthier nations and international organizations. The nature and amount of aid can be influenced by diplomatic and geopolitical relationships[14].

1.2 MIDDLE-INCOME TRAP

Numerous upper-middle-income countries have experienced stagnant economic growth for a long time and cannot graduate as high-income countries generally that state is known as the middle-income trap. The concept of the middle-income trap (MIT) is relatively new and spurred some controversy in the literature. There are two groups of definitions of MIT exit in literature, theoretical and quantitative. Quantitative definition later divided into sub categories absolute and relative definitions of MIT[15]. The absolute definitions are based on absolute middle-income thresholds thus numeric threshold in terms of dollar income[16] [17] [18]. On the other hand, under the shadow relative approach the

[8]A. Silverstein,[et al.], "Global community of practice: A means for capacity and community strengthening for health professionals in low-and middle-income countries." *Journal of Global Health* 12,2022.

[9]F.H, Wandera,[et al.]"Learning from global suppliers: the diffusion of small wind in low-and middle-income countries." *International Journal of Technological Learning, Innovation and Development* 13.1,2021,p 24-49.

[10] S.Jaffee,[et al.], *The safe food imperative: Accelerating progress in low-and middle-income countries*. World Bank Publications, 2018.

[11]K.Ebire, Kolawole,[et al.], "Effect of capital flows on financial stability in middle-income countries." *Journal of Financial Regulation and Compliance* 29.5,2021,p.491-513.

[12] N.Samargandi, Nahla,J. Fidrmuc, and S. Ghosh. "Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries." *World development* 68,2015,p.66-81.

[13] S.Sellers, Samuel, K.L. Ebi, and J.Hess. "Climate change, human health, and social stability: addressing interlinkages." *Environmental health perspectives* 127.04,2019,p.045002.

[14]K.Dupuy, J. Ron, and A.Prakash. "Hands off my regime! Governments' restrictions on foreign aid to non-governmental organizations in poor and middle-income countries." *World Development* 84,2016,p. 299-311.

[15]I.S.Gill, and H.Kharas. "The middle-income trap turns ten." *World Bank Policy Research Working Paper* 7403,2015.

[16] J.Felipe,A. Abdon, and U. Kumar. "Tracking the middle-income trap: What is it, who is in it, and why?." *Levy Economics Institute, Working Paper* 715 ,2012.

[17] S.Aiyar,[et al.], *Growth slowdowns and the middle-income trap*. International Monetary Fund, 2013.

MIT definition revolve around the catch up process (failed) relatively or comparing to other develop countries[19] [20]. However, in this research work, will follow the definition provided by Glawe & Wagner[21]. According to them a middle-income trap is defined as a group of middle-income countries that have been in a stable, steady-state in terms of their economic growth for a long time, difficulty breaking out of it, and trapped due to self-perpetuating or self-reinforcing mechanisms[22] . Self-perpetuating or self-reinforcing mechanism refer to the conditions in which an economy suffer from persistent underdevelopment due to vicious factor such as poverty , inequalities , human development and other demographical factors. These factors are created by circular causation due to the presence of some external economies or strategic complementarities[23]. The reason for following Glawe & Wagner[24] definition is due to the fact that they highlighted that the cause of middle-income trap, which are due to vicious social and economic factor. This factor such as economic growth itself, poverty, environment, health and other social factors represent sustainable development goals and further easy to impute in statistical models for statistical analysis and then further easy to interpret the conclusion for policy recommendation.

1.3 SUSTAINABLE DEVELOPMENT IN MIDDLE-INCOME COUNTRIES UNDER THE SHADOW OF INTERNATIONAL RELATIONS

International relationships between countries can be crucial in enhancing progress towards achieving the United Nations Sustainable Development Goals (SDGs). International relationships among countries promote regional trade, and in the long run, it positively influences economic prosperity[25]. Similarly, bilateral and multilateral agreements can encourage countries to align their policies and strategies with the SDGs. This helps ensure national policies are consistent with the global sustainability agenda[26]

---

[18]B. Eichengreen,D. Park, and K.Shin. *Growth slowdowns redux: New evidence on the middle-income trap*. No. w18673. National Bureau of Economic Research, 2013.
[19] P-R.Agénor, O.Canuto, and M.Jelenic. "Avoiding middle-income growth traps." 2012.
[20]W. Woo, "The major types of middle-income trap that threaten China." *WT Woo, M. Lu, JD Sachs, and Z. Chen, A New Economic Growth Engine for China. Escaping the Middle-income Trap by Not Doing More of the Same*,2012,p 3-39.
[21] L.Glawe, and H.Wagner. *The People's Republic of China in the middle-income trap?*. No. 749. ADBI working paper, 2017.
[22]Ibid, 21.
[23] K.Matsuyama, "Poverty traps." *Economic Growth*. London: Palgrave Macmillan UK, 2008.p.215-221.
[24] Ibid 21
[25] Ji, Xiuping, et al. "The influences of international trade on sustainable economic growth: An economic policy perspective." *Sustainability* 14.5 (2022): 2781.
[26] W.Yin, "Integrating Sustainable Development Goals into the Belt and Road Initiative: would it be a new model for green and sustainable investment?." *Sustainability* 11.24,2019,p.,6991.

[27]. Collaborative relationships between countries facilitate cooperation in areas such as trade, development aid[28], and knowledge sharing[29]. Similarly, International relationships can lead to resource sharing, including financial aid and technology transfer, to help countries with limited resources work toward SDGs, especially in poverty reduction, health, and education. Open and fair international trade can stimulate economic growth and create opportunities for countries to access new markets[30]. International relationships promote the exchange of best practices, research, and innovation, which can support SDGs. Furthermore, collaborative international relationships strengthen the influence of countries in global governance structures, enabling them to advocate for and shape global policies and initiatives that promote sustainable development[31]. International cooperation and relationship also cause the flow of labour force and human capital from one country to another country which causes the flow of remittance and improves the socio-economic condition of the recipient country[32]. International agreements on climate change, biodiversity, and pollution control are vital for addressing environmental sustainability, which is a critical component of the SDGs[33]. Therefore, it is proper to endorse that international relationships between countries can enhance the implementation of the SDGs by promoting cooperation, resource sharing, policy alignment, and global governance.

However, sustainability does not represent only the environment; it is an interrelated phenomenon representing economic activities and social outcomes. In terms of economic sustainability, stagnant economic growth in most upper-middle-income countries appears to be a significant issue due to upper-middle-income countries being unable to graduate to high-income countries and caught into middle-income trap. Stagnant economic growth induces a steady unemployment rate. In middle-income countries, the average unemployment rate was recorded as 5.3% from 2000 to 2010 and

[27]J.Lewis, "Green industrial policy after Paris: renewable energy policy measures and climate goals." *Global Environmental Politics* 21.4,2021,p.42-63.
[28]E.M.Ekanayake,and D.Chatrna. "The effect of foreign aid on economic growth in developing countries." *Journal of International Business and cultural studies* 3,2010.p.1.
[29]I.Reychav, Iris, and J.Weisberg. "Good for workers, good for companies: How knowledge sharing benefits individual employees." *Knowledge and process Management* 16.4,2009.p.186-197.
[30] S.Cavusgil, P.N. Ghauri, and A.A. Akcal. *Doing business in emerging markets*. Sage, 2012.
[31]R.O'brien, *Contesting global governance: Multilateral economic institutions and global social movements*. Vol. 71. Cambridge University Press, 2000.
[32]I.Chowdhury. "Impacts of remittance on the socioeconomic condition of Bangladesh: an analysis." *Innovative Issues and Approaches in Social Sciences* 7.3,2014,p.23-43.
[33]A. Arneth,[et al.], "Post-2020 biodiversity targets need to embrace climate change." *Proceedings of the National Academy of Sciences* 117.49, 2020.p30882-30891.

then 5.2% from 2011 to 2019; furthermore, 156 million youth in middle-income countries are working poor.[34]

Stagnant economic growth and unemployment directly impact the social pillar of sustainable development. In middle-income countries, unemployment increases poverty incidence. Middle-income countries are home to 75% of the world's population and 62% of the world's poor. On the other hand, middle-income countries represent one-third of the global GDP. A high concentration of poor people directly impacts their well-being of life. In terms of infant mortality rate at birth (per 1000 births), it has been well improved in middle-income countries recently and recorded as 25.9; however, in 2000, it was 52.8. In 2018-19 in middle-income countries, 90% of children enrolled in primary schools; however, their learning ability is extremely poor. Furthermore, many children left school after secondary schooling and joined the employment sector. High-level poverty, high-pollution growing rate, and uneven health and education sector cause the increase the income inequalities in middle-income countries.

Lastly, the high-pollution growth, urban expansion, and unsustainable use of natural resources impact the environment and cause climate change. Climate change is further affecting the productivity of the agriculture sector. In the case of middle-income countries agriculture sector provides 30% of employment. Therefore, contraction in the agriculture sector due to climate change negatively impacts the employment sector. Due to the unsustainable consumption and production pattern, middle-income countries are responsible for 63% of greenhouse gases, which further induces health and economic issues.

1.4 RESEARCH PROBLEM

The majority of middle-income countries (referring to upper and lower-middle-income countries) face issues related stagnant growth, numerous upper-middle-income countries is caught in the middle-income trap. The issues in middle-income countries are derived from a lack of sustained economic policies. The absence of effective and long term economic policies along with ineffective utilization of resources further create economic instability in middle-income countries. The major issues related to the

[34] Youth- the 2030 Agenda for Sustainable Development

economic dimension are lack of financial resources[35], financial instability[36] [37], the high employment rate[38], lack of technology[39], and stagnant economic growth.

The lack of sustained economic growth usually increases social issues and regional disparities[40]. Social issues are related to lack of health and education facilities[41] , high inequalities[42], and poverty. However, in a recent period high level of economic growth has been recorded in middle-income countries, but on the other hand, poverty incidence and especially inequalities have been widely observed[43]. Well-being can be achieved by equal access of every individual in the society to education and health services[44].

Nevertheless, environmental issues related to the high emission of greenhouse gases are interrelated to the social and economic problems stated before.Progressive economic growth harms most middle-income countries' environment and natural resources, which further induces poverty and income inequalities[45].

The primary goal of the thesis is to identify and quantify factors that affect leading indicators of sustainability in countries classified as being caught by the middle-income trap. Identifying these factors helps illustrate the graduation mechanism from the middle-income group to the high-income group. Numerous studies investigated the

[35] V.Tangcharoensathien,[et al.], "The political economy of UHC reform in Thailand: lessons for low-and middle-income countries." *Health Systems & Reform* 5.3,2019, p.195-208.
[36] N.Samargandi, J.Fidrmuc, and S.Ghosh. "Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries." *World development* 68,2015,p.66-81.
[37] A.Hunjra,[et al.], "Role of financial development for sustainable economic development in low middle income countries." *Finance Research Letters* 47,2022,p.102793.
[38] Y.Cho, and D.Newhouse. "How did the great recession affect different types of workers? Evidence from 17 middle-income countries." *World Development* 41,2013,p.31-50.
[39] G.Quaglio,[et al.], "Information and communications technologies in low and middle-income countries: Survey results on economic development and health." *Health Policy and Technology* 5.4.2016,p.318-329.
[40] T.Soubbotina, *Beyond economic growth: An introduction to sustainable development*. World Bank Publications, 2004.
[41] F.Rabbani,[et al.], "Schools of public health in low and middle-income countries: an imperative investment for improving the health of populations?." *BMC public health* 16.1,2016,p.1-12.
[42] Vo, Duc Hong, et al. "What factors affect income inequality and economic growth in middle-income countries?." *Journal of Risk and Financial Management* 12.1 (2019): 40.
[43] F.Clementi,M. Fabiani, and V. Molini. "The devil is in the detail: growth, inequality and poverty reduction in Africa in the last two decades." *Journal of African Economies* 28.4,2019,p.408-434.
[44] T.Vavik, and M.M. Keitsch. "Exploring relationships between universal design and social sustainable development: some methodological aspects to the debate on the sciences of sustainability." *Sustainable development* 18.5,2010,p.295-305.
[45] M.Destek, and A.Sinha. "Renewable, non-renewable energy consumption, economic growth, trade openness and ecological footprint: Evidence from organisation for economic Co-operation and development countries." *Journal of cleaner production* 242,2020,p.118537.

impact of international or international finance on economic growth and development[46] [47]. On the other hand, external finances positively stimulate social pillars and attributes such as education, health, income inequalities, and poverty. Foreign direct investment and remittances positively increase health outcomes[48] and, likewise, foreign aid as well[49] [50]. Similarly, on the other hand, trade also increases health outcomes[51]. However, in terms of education, international finance also positively impacts educational outcomes; for foreign direct investment[52]; for remittance[53], and for foreign aid[54]. Furthermore, other studies also suggest that external financial inflows and trade openness reduce poverty and income inequalities[55] [56]. However, numerous studies also highlighted that lack of proper governance negatively impacts social sustainability and causes poverty via corruption[57].

Nevertheless the above mentioned issues seem to be unresolved in majority of middle income countries and more specifically in middle-income trap countries. Therefore; in this research work I will attempt to provide partial solution of issues related with sustainability in middle-income countries. This thesis work also road map related with the policy recommendation for middle income countries and middle income trap countries for achieving the sustainable development in long-run.

1.5 RESEARCH AIM AND GOAL

[46] G.Bird, and Y.Choi. "The effects of remittances, foreign direct investment, and foreign aid on economic growth: An empirical analysis." *Review of Development Economics* 24.1,2020,p.1-30.
[47] A.Zardoub, and F. Sboui. "Impact of foreign direct investment, remittances and official development assistance on economic growth: panel data approach." *PSU Research Review* 7.2,2023,p 73-89.
[48] P.Kumar,[et al.], "The nexus between air pollution, green infrastructure and human health." *Environment international* 133,2019,p.105181.
[49] A.Kotsadam, [et al.], "Development aid and infant mortality. Micro-level evidence from Nigeria." *World Development* 105,2018,p. 59-69.
[50] M.Haq, M. Luqman, and A. Cheema. "DOES FOREIGN ASSISTANCE COMPLEMENT SAVINGS IN THE GROWTH PROCESS: EMPIRICAL EVIDENCE FROM SELECTED ASIAN COUNTRIES." *Global & Local Economic Review* 25.2: 37.
[51] A.Owen, and S. Wu. "Is trade good for your health?." *Review of International Economics* 15.4,2007,p. 660-682.
[52] M.Mughal, and .Vechiu. "Does FDI promote higher education? Evidence from developing countries." *10th Nordic Conference in Development Economics (NCDE)*. 2009.
[53] M.Zhunio [et al.],"The influence of remittances on education and health outcomes: a cross country study." *Applied Economics* 44.35,2012,p.4605-4616.
[54] A.Riddell, and M. Niño-Zarazúa. "The effectiveness of foreign aid to education: What can be learned?." *International Journal of Educational Development* 48,2016,p.23-36.
[55] Y.Subramaniam,[et al.], "The impact of microfinance on poverty and income inequality in developing countries." *Asian-Pacific Economic Literature* 35.1, 2021,p 36-48.
[56] S.Kousar, Shazia,[et al.], "Impact of economic and green growth on poverty, income inequalities, and environmental degradation: a case of South Asian economies." *Environmental Science and Pollution Research* 30.12,2023,p.35200-35213.
[57] J.Negin, and R. Cumming. "HIV infection in older adults in sub-Saharan Africa: extrapolating prevalence from existing data." *Bulletin of the World Health Organization* 88.11,2010,p.847-853.

This Ph.D. thesis aims to comprehensively examine and analyze the multifaceted relationships between international finance and international trade and their impact on economic growth, poverty alleviation, health outcomes, income inequality, and environmental sustainability. This research seeks a nuanced understanding of how sustainability can be achieved via international finance and trade in middle-income countries. The detailed aim of this research work listed below,

- To empirically analyze the impact of foreign direct investment, remittance, and official development aid on economic growth, social sustainability, and the environment
- To empirically analyze economic growth driven by international trade and finance can provide additional resources for investment in healthcare, education, and social safety nets, improving social well-being.
- To empirical analyze the role of internatial finance, trade and financial development in the graduation mechanison of middle-income countries thus leaving the middle-income trap.
- Furthermore, empirically analyze the impact of governance indicators on sustainable development goals and their effectiveness under the shadow of international financial and trade.

1.6 RESEARCH HYPOTHESIS

Based on our research problem discussed in previous section following below hypothesis will be tested in my thesis work,

1. *Ho_a: Leaving the middle income trap; the necessary condition requires economic, social and environmental sustainability.*
2. *Ho_b: The necessary condition for achieving sustainable social and environmental sustainability requires economic growth.*
3. *Ho_c: The necessary condition under the shadow of **political, economic and institutional governance;** for achieving sustainable economic growth requires external international finance, international trade and financial development.*

1.7 RESEARCH QUESTION

Stagnant economic growth appears to be a significant issue in middle-income countries. Middle-income countries require sustained economic growth and development to meet the challenges raised by stagnant economic growth[58].Effective use of human

[58] P.Hess, *Economic growth and sustainable development*. Routledge, 2016.

capital, export-led growth, stable financial sector, and increased manufacturing using advanced technologies are beneficial for sustained economic growth in middle-income countries[59]. Likewise, governance, economic policies, and strategies were critical for sustainable growth[60].Based on the issues discussed in the preceding sections and to explore the nexus between sustainability in middle-income countries, more specifically in countries caught in the middle-income trap, the following research questions are raised,

1. How does economic growth via international finance, international trade, and financial development affect environmental and social sustainability in middle-income countries?
2. What are the main economic factors by which social sustainability can be achieved in middle-income countries?
3. Do international finance, trade, and financial development contribute to economic growth in middle-income countries?
4. How do political governance , economic governance, and institutional governance affect sustainability in middle-income countries

1.8 RESEARCH METHODOLOGY

This thesis relies on the panel data technique to study the impact of economic growth and other macro-economic variables on social and environmental pillars of sustainable development. Panel data, sometimes referred to as longitudinal data, is data that contains observations about different cross sections across time. The advantage of using Panel data analysis is that it has more space (cross-section units) as well as time dimensions to study particular theoretical issues using empirical estimations. Moreover, panel data analysis is often used to prevent the contract of times series analysis due to a limited number of observations. Furthermore, panel data consist of i, cross-section, and t, time-series dimensions[61]. Similarly problems related with sustainability were also tackled by panel

[59]J. Oreiro, K.Da Silva, and M. Dávila-Fernández. "A New Developmentalist model of structural change, economic growth and middle-income traps." *Structural Change and Economic Dynamics* 55,2020,p.26-38.
[60]M. Bruno, M. Ravallion, and L. Squire. "Equity and growth in developing countries: old and new perspectives on the policy issues." ,1996).
[61]D. Gujarati. "Basic econometrics 4th Edition." 2012.

data analysis; for environment [62] [63] [64] ,social sustainability[65] [66] and economic sustainability[67] [68]. Below are listed a few benefits of panel data analysis,

1. It gives us more information and variability in dataset, and also reduced co-linearity among the explanatory variables.
2. In comparison with both time series and cross section analysis, using panel data is statistically more efficient, as number of observations is relatively large so that the number of the degrees of freedom in testing statistical hypotheses is high.
3. It allows us to study the adjustment dynamic, for example, economic policy changes or economic crisis adjustments[69]
4. It allows us to identify and measure effects that are not detectable in pure cross-sections or time-series data. Furthermore, panel data also control individual heterogeneity[70] [71].

However, panel data analysis also poses some limitations as it consists of both cross-sections and time-series dimensions. Typically, it involves "Monthly, Quarterly and Annual data" covering the short time period of each individual asymptotic arguments rely crucially on the number of individuals tending to infinity; however, the number of time periods remains constant[72]. Furthermore, while performing analysis using panel data, the issue of cross-sectional dependence may lead to misleading inferences[73] [74]. Cross-

[62] X.Lin,[et al.], "Linking innovative human capital, economic growth, and CO2 emissions: an empirical study based on Chinese provincial panel data." *International journal of environmental research and public health* 18.16,2021,p. 8503.
[63] K, Khaizran, M. Usman, and M.A Mehdi. "The determinants of environmental quality in the SAARC region: a spatial heterogeneous panel data approach." *Environmental Science and Pollution Research* 28,2021,p.6422-6436.
[64]S. Alataş, "The role of information and communication technologies for environmental sustainability: evidence from a large panel data analysis." *Journal of environmental management* 293,2021,p.112889.
[65] A.B.Hernández-Lara, J.P, Gonzales-Bustos, and A.Alarcón-Alarcón. "Social sustainability on corporate boards: The effects of female family members on R&D." *Sustainability* 13.4,2021,p. 1982.
[66] V.L..Crisóstomo, F.S. Freire, and M.R De Oliveira Freitas. "Determinants of corporate sustainability performance–evidence from Brazilian panel data." *Social Responsibility Journal* 16.8,2020,p.1053-1072.
[67] N.Henry,A.Yusheng, and M.K. Gyan. "Banking system stability and economic sustainability: A panel data analysis of the effect of banking system stability on sustainability of some selected developing countries." *Quant Financ Econ* 3,2019,p. 709-38.
[68] E.Dewan and S. Hussein. *Determinants of economic growth (Panel data approach)*. Suva Fiji: Economics Department, Reserve Bank of Fiji, 2001.
[69] D.Cho, B.M. Kim, and D-E, Rhee. "Inequality and growth: nonlinear evidence from heterogeneous panel data." *KIEP Research Paper No. Working Papers-14-01*,2014.
[70] B.Baltagi, ed. *Panel data econometrics: Theoretical contributions and empirical applications*. Emerald Group Publishing, 2006.
[71] J.Wooldridge, *Econometric analysis of cross section and panel data*. MIT press, 2010.
[72] Ibid,70
[73] Ibid,70

sectional dependence refers to a situation when individual panel units are interdependent. This research work includes static and dynamic panel data estimation, which is described in the methodological part of the chapter, where they are utilized along with assumptions.

1.9 NOVELTY OF RESEARCH

This study initially adds value to research by explaining the impact of three combined external financial inflows (i-e as, remittance, foreign direct investment, and official development assistance) on sustainable economic growth for middle-income countries, their sub-income group, and most specifically, middle-income countries with seaports. Furthermore, this research provides a comparative analysis of how international finance impacts economic growth in middle-income countries' sub-income groups.

Furthermore, this study also adds value to research by investigating the impact of these external financial inflows on the vital aspect of the social pillar of sustainable development (i-e, health, poverty, education, and income inequality). Similarly, this research provides a comparative analysis of how these macroeconomic variables impact different income groups of middle-income countries in contrast to high-income (graduated countries) and middle-income countries with seaports.

Similarly, this study adds value to research by explaining the impact of these external financial inflows on environmental degradation in different income groups of middle-income countries. Furthermore, besides external finance, it also provides the impact of trade and financial development on environmental sustainability for middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries.

Likewise, this research work incorporate the novel conditional factors along with other macro-economic indicators such political stability index, regulatory quality Index, Corruption Control Index and Rule of Law Index in analysis which previously not investigated in terms of middle income countries under the shadow of detailed social , economic environmental sustainability pillars.

Lastly, this research explains and investigates the impact of conditional governance indicators on sustainable development for middle-income countries and their sub-income group. This study also adds value by recommending relevant policies related

[74] B.Baltagi,and M.H. Pesaran. "Heterogeneity and cross section dependence in panel data models: theory and applications introduction." *Journal of Applied Econometrics* 22.2,2007,p. 229-232.

to middle-income countries' social, economic, and environmental sustainability by explaining the essence of conditional governance indicators.

1.10 STRUCTURE OF THE STUDY

The thesis work consists of 6 chapters. Chapter No 1 explains the background of research, research questions, and their relevant contribution to the research. Chapter 2 reviews different theories of economic growth and growth driver. This chapter also provides a research framework.

Chapter 3 consist of an empirical investigation of factors that impact growth in middle-income countries and their sub-income group. This chapter also explains the proposed method for empirical analysis and discusses the research findings based on empirical investigations.

Chapter 4 provide empirical analysis for investigating the impact of economic sustainability on environmental sustainability for middle-income countries and their sub-income group. Similarly, chapter 5 presents the empirical analysis of economic growth on social sustainability goals such as poverty, health, education, and income inequality.

Lastly, chapter 6 provides a conclusion based on the empirical investigation according to the formulated research questions. This chapter analyzes how different macro-economic variables impact economic, social, and sustainable development goals in middle-income countries and their sub-income group. The last chapter provides policy recommendations based on the research findings for middle-income countries and their sub-income group, especially for upper-middle countries caught in the middle-income trap.

CHAPTER. 2 THEORETICAL REVIEW & RESEARCH FRAMEWORK

This chapter is divided into three sections. Initially I discussed the economic growth theories under the show of middle-income trap and then the theoretical perspective of the factors which possible enable middle-income trapped countries to graduate high-income countries. Furthermore this chapter also highlight concept of sustainable development along with pillar of sustainable development. Lastly I formulate the research framework based on research question and appropriate theoretical viewpoint.

2.1 THEORIES OF ECONOMIC GROWTH

Growth theories provide a theoretical opportunity to observe and interpret the factors which effecting economic growth around the world. Given below I discuss two major primary theories of economic growth on which research framework is based.

2.1.1 EXOGENOUS GROWTH THEORY

The exogenous growth theory, commonly known as the neoclassical growth model or Solow-swan growth model, was presented by Solow[75]. According to this theory, economic growth is generated through exogenous factors of production such as stock of capital accumulation and labor. Furthermore, this theory states that an increase in the stock of investment accumulation will increase economic growth while the amount of labor and the level of technology appear to be constant[76]. According to this theory, economic growth is affected only in the short run by the stock of capital accumulation, which is further determined by the rate of saving and the rate of capital depreciation. Likewise, in the economic growth process, the exogenous factor appears to be technological progress, which takes the form of labor augmentation in the long run[77]. Therefore economic growth depends on the stock of capital accumulation and the augmentation of the labor force by technological progress.Similarly, once FDI flows to the economy, technology is transferred, increasing labor capital stock productivity, further leading to a more consistent return of investment and human capital. FDI inflow

[75]R. Solow, "Elements of pure economics." 1956,p.87-89.
[76]R.Barro, and X. Sala-i-Martin. "Empirical analysis of a cross section of countries." *Economic Growth* ,1995,p. 414-459.
[77] Ibid, 76

plays a significant role in the host country's economic growth of host economics[78]. According to the exogenous growth theory, FDI positively impacts economic growth via capital accumulation, new technology transfer, and injection of new goods. In contrast, according to the endogenous growth theory, FDI affects economic growth by enhancing the sock of knowledge and transferring advanced skills and ethnology. FDI plays the role as a catalyst agent for the economic growth process; furthermore, FDI affects economic growth in the short run through a diminishing return to capital and promotes economic growth by raising domestic investment[79].

2.1.2 ENDOGENOUS GROWTH THEORY

The Endogenous Growth Theory known as the New Growth Theory, emerged in the 1980's from the works of Romer[80] and Lucas[81]; in which investment in human capital is modeled as a driving force for growth. According to this theory growth driven by endogenous factors thus not external factors are accountable for growth. The theory holds that growth in human capital causes spillover effects on the economy and reduces diminishing returns on capital accumulation[82]. In connection to sustainable development and growth, endogenous growth leverages on innovation and diffusion of technological change under which economic growth can be sustained by the resources and the environment[83]. The path to sustainable growth goes back to the work of Hartwick[84] who showed that intergenerational equity can be achieved by reinvesting the rents or proceeds of resource extraction into economic capital to maintain a constant level of consumption over time[85]. They further argued that proceeds used for investment purposes depends on substitutability of natural capital by economic capital, referred to as "weak sustainability" as opposed to "strong sustainability" where natural capital cannot be substituted for economic capital. Similarly, other authors illustrate the nexus between endogenous

[78]E.Mahembe, and N. M. Odhiambo. "Foreign direct investment and economic growth: A theoretical framework." *Journal of Governance and Regulation* 3.2,2014.
[79]D.Herzer,and S. Klasen. "In search of FDI-led growth in developing countries: The way forward." *Economic Modelling* 25.5,2008,793-810.
[80]P.Romer "Human capital and growth: Theory and evidence." 1989.
[81]R. Lucas. "On the mechanics of economic development." *Journal of monetary economics* 22.1,1988,p.3-42.
[82]P. Mulder, H.LF De Groot, and M. W. Hofkes. "Economic growth and technological change: a comparison of insights from a neo-classical and an evolutionary perspective." *Technological Forecasting and social change* 68.2,2001,p.151-171.
[83]S.Smulders, "Entropy, environment, and endogenous economic growth." *International Tax and public finance* 2,1995,p.319-340.
[84]K.Hamilton,. "Sustainable development, the Hartwick rule and optimal growth." *Environmental and Resource Economics* 5,1995,p.393-411.
[85] Ibid, 82.

growth and human well being as health outcomes[86]. They conclude that a slowdown in growth may be explained by a preference for health that is positively influenced by a growing income per head or even due to the ageing of the population. Growth may virtually disappear for countries with high rates of decay of health, low productivity of the health-sector, or high rates of discount. Similarly numerous authors highlight the essence of health for human for long-run economic growth process[87] [88].

Gill, & Kharas, argue in their research work while reviewing middle-income trap under the shadow of economic growth models the ; the economic policies should drawn by straddle endogenous and exogenous growth modes[89]. Considering the fact capital investments remain efficient even after an economy transitions through the Lewis turning point thus surplus rural labour is fully absorbed into the manufacturing sector and increases productivity**.** Furthermore; transition countries must focus on the transition from productivity growth stemming from inter-sectoral resource reallocations to intra-sectoral catch-up technological growth (moving up the value chain). Similarly they must manage a transition to more mature institutions[90].Similarly they also highlight that exogenous growth model are suitable for describing the problems related with low-income countries however the exogeneity of technology appeared to be is a clear defect in any discussion about middle-income country prospects. Gill, & Kharas, also highlighted six propositions or induced factors which are significant for economic growth process for middle-income trapped countries such as trade , finance , research and technology , governance , demographic transition , well-being and inequality and business entrepreneurship[91].

2.2 LEWIS MODEL-DUAL SECTOR MODEL (1954)

In terms of theoretical foundation of middle income trap, the pioneer work has been done by Arthur Lewis[92], which is known as Lewis model. In his model is mentioned that the factors that generate growth in low income countries are not effective or available

[86]A.Van Zon, and J.Muysken. "Health and endogenous growth." *Journal of Health economics* 20.2, 2001,p. 169-185.
[87]M.F.Rangongo, and C.C.Ngwakwe. "Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries." *Acta Universitatis Danubius: Oeconomica* 15.1,2019.
[88]M. Funke, and H. Strulik. "On endogenous growth with physical capital, human capital and product variety." *European Economic Review* 44.3,2000, 491-515.
[89] Ibid, 15.
[90] Ibid, 15,p.14
[91] Ibid, 15.
[92] W.A.Lewis, "Economic development with unlimited supplies of labour." ,1954,p. 139-91.

once state or country achieved middle income status. According to this model, underdeveloped country's economies are divided into two sections, the subsistence or traditional sector and the capitalist sector. In general, agricultural sector of the economy is associated with subsistence, whereas the capitalist sector refers mostly to the manufacturing sector[93]. Industrialization and mining are examples of the capitalist sector, and, on the other hand, hired labor is used to produce goods. Furthermore, he also mentioned that it is possible for the capitalist sector to be either private or public in nature. The agricultural industry is regarded to be labor intensive in the subsistence sector. It does not make use of capital that can be replicated. It employs substandard manufacturing practices and has a low productivity rate. Similarly, initially Lewis identified that structural change is considered as the key growth driver. At the beginning of economic development process in developing countries, he suggested that it is better to reallocate capital and labour force from the less productive agricultural sector to the more productive manufacturing sector as more manufacturing productivity induces trade thus economic growth. This technique is associated with significant improvements in output and overall gain[94]. The second key argument which Lewis mentioned in his work is known as the trade/imitation argument[95]. It focuses on the imitation of foreign innovations and comparative advantage as the main drivers of growth. In early stages of development country focuses on labor - intensive and low-wage tasks/goods (according to its comparative advantage) and succeeds in replicating the technology of more advanced countries, it can create (transitory) growth. Similar arguments are also mentioned by[96].

2.3 CHENERY AND STORUT-TWO GAP MODEL (1966)

According to the two gap model theory which was proposed by Chenery and Storut[97]explain that less developing countries usually face lack of saving and export which further cause reduction in investment and economic growth process. Similarly, it

[93]Ibid 92.
[94] P.R. Agénor, and O.Canuto. "Middle-income growth traps." *Research in Economics* 69.4,2015,p.641-660.
[95] Ibid 92
[96]C. Mulligan, and X.Sala-i-Martin. "A labor income-based measure of the value of human capital: An application to the states of the United States." *Japan and the World Economy* 9.2,1997,p. 159-191.
[97] H.Chenery, and A.M. Strout. "Foreign assistance and economic development: Reply." *The American Economic Review* 58.4,1968,p912-916.

has been argued that[98] [99], Chenery and storut[100] theory based on three approaches, initially, the saving – investment gap approach in simplest form it can be described that, foreign resources are required to maintain the targeted or required rate of growth, which probably calculated by the difference between domestic saving and the rate of investment required for economic prosperity and growth. Second approach is known as , foreign exchange gap approach , which indicate the situation when foreign recourses are required to gap which rises due to import expenditure and export earning , and in the last approach is known as capital absorption approach , which indicate during the initial phase of economic growth process ; usually developing countries unable to absorb all possible amount of investment , and also faces shortage of skill labour and technical advancement ; therefore in such situation foreign resources and capital is requirement in order to achieve the targeted growth by increasing the productivity after injection of capital.

2.4 FINANCE LED GROWTH HYPOTHESIS

Finance-led growth hypothesis emphasis on the positive role of financial development in mobilizing domestic savings and investment through a more open and liberalized financial system, as well as in promoting productivity through the creation of an efficient financial market [101]. The main postulate of this theory state that, a well developed financial sector broaden the access to finance thus which stimulate production and enhances economic growth and development[102] [103] [104].Financial development promotes more efficient capital stock management, resulting in a positive relationship between financial sector development and real per capita Gross National Product (GNP)[105].However, literature suggests that growth might drive demand for financial products (Demand-Following Hypothesis), this study focuses on the Supply-Leading Hypothesis (Finance-Led Growth Hypothesis), which claims that the financial sector

[98]M.G.Quibria,. "Two-Gap Models of Foreign Aid: A Survey." *Journal of Economic Development* 5.1,1980,p. 67-89.
[99]B.O.Kolawole, "Foreign assistance and economic growth in Nigeria: The two-gap model framework." *American international journal of contemporary research* 3.10,2013,p.153-160.
[100] Ibid,97.
[101] J.Shan, and Q.Jianhong. "Does Financial DevelopmentLead'Economic Growth? The Case of China." *Annals of economics and finance* 7.1,2006,p. 197.
[102] K.Neusser, and M.Kugler. "Manufacturing growth and financial development: evidence from OECD countries." *Review of economics and statistics* 80.4,1998,p. 638-646.
[103]T.Beck, R. Levine, and N.Loayza. "Finance and the Sources of Growth." *Journal of financial economics* 58.1-2,2000,p.261-300.
[104]King, Robert G., and Ross Levine. "Financial intermediation and economic development." *Capital markets and financial intermediation* (1993): 156-189.
[105] R.WGoldsmith, "Financial structure and development." *(No Title)* (1969).

generates enabling conditions for growth. A well-developed financial system is key determinant of growth process makes it easier to embrace new products or processes, resulting in increased productivity and increases the speed the growth process for companies to catch up to the leading contenders[106].Likewise,financial underdevelopment affects capital allocation between incumbents and potential creative entrants by delaying the entry of productive but financially disadvantaged individuals, while incompetent but wealthy entrepreneurs continue to function[107]. Furthermore, without presence of private capital, successful growth spurts could only occur if the government became the primary source of funding[108].

2.5 AOKI - FIVE PHASES (2011)

Aoki (2012) also presented five phase (or stage) development model for economic growth process[109]. According to him the first phase of development process is Malthusian (M) in which more than 80% of labor force engaged in agriculture sector and per capita income is low and stationary. Second phase is known as government-led (G), in that particular phase government emphasis and promote on industrialization by providing subsidiaries and furthermore moderation structural change observed in that phase. The labor force moved from agriculture sector to industrial sector which also increase per capita individual income. Third phase is known as Kuznets (K) phase, in which a country usually experiences high growth per capita income, rapid structural change and demographic shift (a gift). Furthermore that phase, demographic shift (a gift) is due to rising fertility and declining infant mortality. According to Aoki, in this phase rapid development occurred, which is led by construction of infrastructure such as public primary schools, public health systems, railways, hydroelectric and irrigation projects[110]. The fourth phase of Aoki model is known as human-development phase. In that particular phase, per capita economic growth is sustainable, which is due to the human capital investment and increase in productivity due to the industrialization. Furthermore the

[106]P.Aghion, & P.Howitt. "Growth with quality-improving innovations: an integrated framework." *Handbook of economic growth* 1,2005,p. 67-110.
[107]F.Buera., J.P. Kaboski, and Yongseok Shin. "Finance and development: A tale of two sectors." *American economic review* 101.5,2011,p.1964-2002.
[108] L.G.Sandberg, "Ignorance, Poverty and Economic Backwardness in the Early Stage of European Industrialization. Variations on Alexander Gerschenkron's Grand Theme." *Journal of European Economic History* 11.3,1982.p.675.
[109] M.Aoki,. "The five phases of economic development and institutional evolution in China, Japan, and Korea." *Institutions and comparative economic development*. London: Palgrave Macmillan UK, 2012.p.13-47.
[110]Ibid 107,p09.

phase also experiences demographic change (aging and fertility rate decline). Aoki stated that during H phase lower fertility rate and extension of life expectancy is due to the improved health care other life comforts. In the last, the fifth phase is known as post-demographic-transition (PD) phase. In the particular phase the growth is depended on the technological advancement, improvement in socioeconomic factors and stable demographic changes with stable total factor productivity growth, labor participation and the fertility rate[111]. According to Aoki a country becomes caught in the MIT if it does not succeed in completing the transition from the K- to the H-phase. Aoki in his work neglect the phenomenon of financial capital which is required in overall structural and development change process. However he mentioned that after achieving PD phase (thus developed) countries for maintaining sustainability of the social entitlement system requires adequate public finance which is common political-economy issue across all the developed economies[112].

2.6 THEORY OF INTERGENERATIONAL ALTRUISM (TIA)

This theory originates from a French philosopher, Auguste Comte in 1852. It focuses on the total well-being of both the present and the future generations and therefore, considers the future consequences of current decisions. Considering the fact that, today's any activity against environment might effect on the life of our future generation and their well-being.It has been argued that issues of intergenerational equity is central to economic decisions, as it bequests from present to later generations[113]. Similarly, protecting our future generation is not responsibility of one individual or either one community as it require collective efforts which secure well-being of our future generation[114].Theory of intergenerational altruism incorporates full utility (rather than mere consumption utility) of the present and all future generations without harming the current natural resources[115]. Furthermore it has been argued that many models exist on intergenerational altruism but they all lack altruism towards the future generations except

[111]Ibid 107,p12
[112]Ibid 107,p11
[113]B.D.Bernheim, A.Shleifer, and L.H. Summers. "The strategic bequest motive." *Journal of labor Economics* 4.3, Part 2,1986,p. S151-S182.
[114] L.Dogaru, "The importance of environmental protection and sustainable development." *Procedia-Social and Behavioral Sciences* 93,2013,p1344-1348.
[115] S.Galperti,and B.Strulovici. "A theory of intergenerational altruism." *Econometrica* 85.4,2017,p. 1175-1218.

the theory of intergenerational altruism[116]. Furthermore theory of intergenerational altruism also provides weighs the current economic, social and environmental consequences on future generation[117]. Likewise, theory of intergenerational altruism presents the relationship between social well-being and economic quality of both present and later generation's[118].Theory of intergenerational altruism major emphasis on well-beging of all future generations without jeopardizing the interest on the present generation thus it provide mechanism of life in more sustainable way[119]. Similarly, future generation well-being depend on the sustainable consumption and production pattern without harming the current natural resources[120]. Relating this theory to this research work, Intergenerational Altruism is seen in the perspective of sustainable development, in which the needs and quality of life (total well-being) of both the present and future generations are protected.

2.7 CONCEPT OF SUSTAINABLE DEVELOPMENT

The World Conference on Environment and Development (WCED-1987) defined sustainable development as "the development that meets the needs of the present without compromising the ability of the future generations to meet their own needs." The 'development' aspect of sustainable development implies meeting human needs and increasing quality of life, while the 'sustainability' aspect means being able to maintain this into the future[121]. The long-term perspective of sustainable development is to align investment strategies and goals with social and environmental issues. Sustainable development is a multidimensional phenomenon, as it promotes social and environmental protection under the shadow of cultural, religious, and institutional values[122]. The pillars of sustainable development are three: economy, social or income distribution, and

[116]K.Roy, and S.Ziemek. *On the economics of volunteering*. No. 31. ZEF Discussion Papers on Development Policy, 2000.
[117]E.Padilla,. "Intergenerational equity and sustainability." *Ecological economics* 41.1,2002,p.69-83.
[118]G.Becker, and N. Tomes. "An equilibrium theory of the distribution of income and intergenerational mobility." *Journal of political Economy* 87.6,1979,p.1153-1189.
[119]S.Fels, and R.Zeckhauser. "Perfect and total altruism across the generations." *Journal of Risk and Uncertainty* 37,2008.p. 187-197.
[120]M.Saez-Marti, and J.W. Weibull. "Discounting and altruism to future decision-makers." *Journal of Economic theory* 122.2,2005,p.254-266.
[121] P.Ekins, and J. Medhurst. "The European structural funds and sustainable development: A methodology and indicator framework for evaluation." *Evaluation* 12.4,2006,p.474-495.
[122]G.Burford,[et al.], "Bringing the "missing pillar" into sustainable development goals: Towards intersubjective values-based indicators." *Sustainability* 5.7,2013,p.3035-3059.

environmental stewardship. None of these three dimensions should receive more or less attention than the others[123].

(A) SUSTAINABLE ECONOMIC DEVELOPMENT

The first pillar of sustainable development is sustainable economic growth, a widely used proxy in the literature as economic growth. It represents the increase in the production of goods and services by using factors of production land, labor, capital, and entrepreneurship. The widely used proxy for it is real gross domestic product per capita. The real gross domestic product per capita is a primary economic growth indicator. It measures the level and extent of the total economic output, reflects changes in total production of goods and services, and serves as a summary indicator of economic growth but does not account for the social and environmental cost of production and consumption[124].Sustainable economic growth appears to be a key determinant of sustainability. It requires sustainable consumption and production pattern without harming the environment, and its outcome is directly utilized for the social well-being of the population[125].

(B) SUSTAINABLE SOCIAL DEVELOPMENT

The second pillar of sustainable development is a social pillar. The well-being of the population usually indicates it. Numerous factors indicate social well-being, such as poverty[126]; health outcomes[127]; education[128]; and income distribution[129]. Income distribution is measured as the Gini coefficient, and this indicator shows the extent of inequality in income distribution within a country. The Gini index value ranges from 0 to 100, where 0 represents perfect equality and 100 perfect inequalities. The higher the Gini value, the higher the inequality[130]. Social sustainability is directly associated with

[123]A-M.Teodorescu,"LINKS BETWEEN THE PILLARS OF SUSTAINABLE DEVELOPMENT." *Annals of the University of Craiova, Economic Sciences Series* 1,2012).
[124]F.Allen, [et al.] "The African financial development and financial inclusion gaps." *Journal of African economies* 23.5,2014,p.614-642.
[125]S.Islam, M. Munasinghe, and M. Clarke. "Making long-term economic growth more sustainable: evaluating the costs and benefits." *Ecological Economics* 47.2-3,2003,p.149-166.
[126] M.Rogers, and W.A.Pridemore. "The effect of poverty and social protection on national homicide rates: Direct and moderating effects." *Social Science Research* 42.3,2013,p.584-595.
[127]J.Glasson, and G.Wood. "Urban regeneration and impact assessment for social sustainability." *Impact Assessment and Project Appraisal* 27.4,2009,p.283-290.
[128]V.Kioupi, and N.Voulvoulis. "Education for sustainable development: A systemic framework for connecting the SDGs to educational outcomes." *Sustainability* 11.21,2019,p.6104.
[129]Y.Bilan,[et al.], "Impact of income distribution on social and economic well-being of the state." *Sustainability* 12.1,2020,p.429.
[130] Ibid, p.123

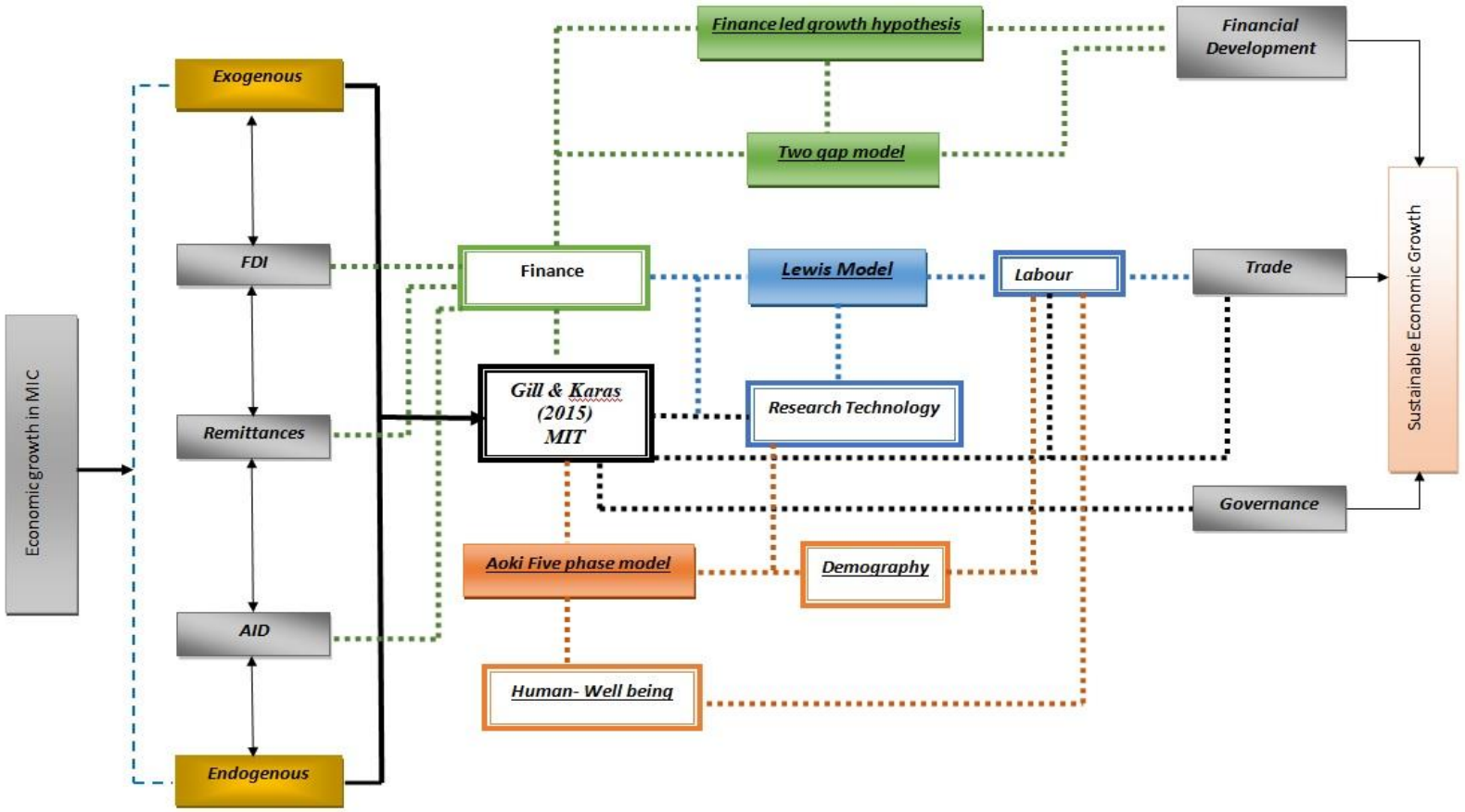
economic sustainability. Any variation in economic sustainability influences human well-being. Furthermore, human well-being cannot be achieved until the environment is not protected[131].

(C) SUSTAINABLE ENVIRONMENTAL DEVELOPMENT

Sustainable environmental development is the third pillar of sustainable development. Sustainability cannot be achieved without environmental protection and safety[132] [133].Greenhouse gases emission appear to be a significant threat to environmental sustainability[134] [135] [136].

Carbon emission has been argued to be a major cause of more than 60% of the greenhouse effect in the world[137] [138]. It is measured as carbon emission in metric tons per capita[139]

[131] J.Murphy, *Governing technology for sustainability*. Routledge, 2012.
[132]W.Lafferty, "From environmental protection to sustainable development: the challenge of decoupling through sectoral integration." *Governance for sustainable development: The challenge of adapting form to function*,2004,p.191-220.
[133]W.E.Rees, "Economic development and environmental protection: an ecological economics perspective." *Environmental monitoring and assessment* 86,2003,p. 29-45.
[134] D.Flower, and J. Sanjayan. "Green house gas emissions due to concrete manufacture." *The international Journal of life cycle assessment* 12,2007,p. 282-288.
[135]F. Amlinger, S.Peyr, and C.Cuhls. "Green house gas emissions from composting and mechanical biological treatment." *Waste Management & Research* 26.1,2008,p.47-60.
[136]M.Murshed,[et al.] "The nexus between environmental regulations, economic growth, and environmental sustainability: linking environmental patents to ecological footprint reduction in South Asia." *Environmental Science and Pollution Research* 28.36,2021,p.49967-49988.
[137]M.Rastogi, S.Singh, and H.Pathak. "Emission of carbon dioxide from soil." *Current science* 82.5,2002,p. 510-517.
[138] J.Germer, and J.Sauerborn. "Estimation of the impact of oil palm plantation establishment on greenhouse gas balance." *Environment, Development and Sustainability* 10 2008,p. 697-716.
[139] M.Tucker, "Carbon dioxide emissions and global GDP." *Ecological Economics* 15.3,1995p. 215-223.



*Foreign direct investment – *Remittances – *AID refer to international finance

FIGURE 1. THEORETICAL REVIEW OF SUSTAINABLE ECONOMIC GROWTH

2.8 RESEARCH FRAMEWORK

The study's main contribution is to answer the question of to what extent economic growth impacts sustainable development's environmental and social pillars. Furthermore, based on the theoretical framework mentioned in the previous section, the empirical estimation will proceed by investigating the impact of macroeconomic indicators such as external financial, trade, and financial development along with governance conditions on economic growth. Likewise, this research also explores the impact of certain macroeconomic variables that directly impact environmental and social pillar, such as international financeas foreign direct investment inflow, remittance inflow, foreign official development aid, trade, and financial development. Moreover, this research work also covers the impact of specific conditional governance indicators, potentially impacting economic growth, environmental and social sustainability. Social sustainability will be analyzed by investigating the impact of economic sustainability on four social sustainability goals poverty, infant mortality rate, secondary school enrolment, and income inequality (Chapter 5). Likewise; environmental sustainability will be analyzed by investigating the impact of economic sustainability on greenhouse gas emissions proxied by carbon dioxide emission (Chapter 4)

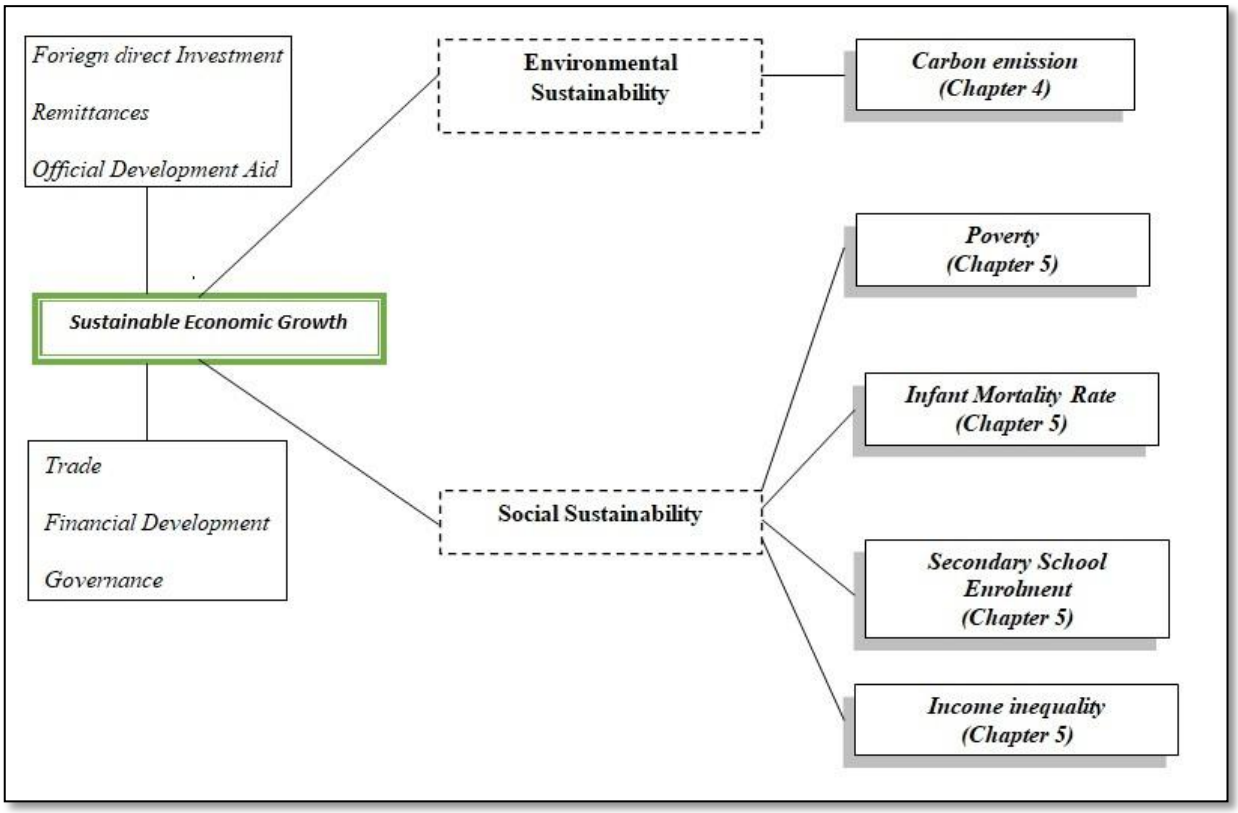


FIGURE 2. RESEARCH FRAMEWORK BASED ON THEORETICAL REVIEW

CHAPTER. 3 FACTORS EFFECTING ECONOMIC SUSTAINABILITY

3.1 ECONOMIC GROWTH

Economic growth is significantly impacted by international finance and international trade. International Finance in the form of foreign direct investment led to job creation, technology transfer, and infrastructure development, contributing to economic growth[140]. International finance provides countries with access to external sources of capital, which can be used for infrastructure development, business expansion, and other growth-promoting activities. However it is true to argue that the impact of international finance and trade on economic growth can be influenced by various factors, including government policies, trade agreements, geopolitical developments, and global economic conditions. Effective management of these factors is crucial to ensure that international finance and trade positively contribute to a country's economic growth.

Economic growth is appeared to be a significant factor in obtaining sustainable development, reducing poverty, and improving living standards. More specifically, growth increases prosperity and well-being, including economic profit for companies and GDP growth for the nation[141]. Economic development must be conceived as a multidimensional process involving significant changes in social structures, popular attitudes, national institutions, and the acceleration in economic growth, reduction in inequality, and eradication of poverty[142]. Ensuring a sustainable future by increasing economic growth will require massive investment[143]. Most developing countries overcome their financial constraints in developing infrastructure to increase their economic growth objective through international finance[144]. External financial resources such as foreign direct investment, remittance inflow, and official development

[140] H.Osano, and P.Koine. "Role of foreign direct investment on technology transfer and economic growth in Kenya: a case of the energy sector." *Journal of Innovation and Entrepreneurship* 5,2016,p.1-25.
[141]B.Sternfels,[et al.], "Our future lives and livelihoods: Sustainable and inclusive and growing." *McKinsey Quarterly* 26,2021.
[142]M. Todaro, and Stephen C. Smith. "Economic development. Harlow, England." 2003.
[143] Ibid 141.
[144] M.Destek, and Ilyas Okumus. "Does pollution haven hypothesis hold in newly industrialized countries? Evidence from ecological footprint." *Environmental Science and Pollution Research* 26,2019,p.23689-23695.

assistance have been proved to play a significant role in boosting economic growth and development[145].

The research work questions the growth-international financetrilemma by presenting empirical evidence that fills the lacuna in the literature. The research work investigates the effect of international financeas foreign direct investment, remittance inflow, and official development assistance on economic growth or dims its impact. Considering the fact that middle-income countries are developing nations therefore the findings reveals existence of convergence. Likewise, foreign direct investment positively enhances economic growth thus strong spill-over effect has been found in middle-income countries and high-income courtiers. Furthermore, official development assistance enhances economic growth in lower-middle income countries and middle-income countries with seaports. However no significant impact of remittance inflow on economic growth has found for middle-income countries and high-income countries.

External capital inflow comprising foreign direct investment, remittance inflow, and official development assistance has grown significantly in the past 25 years. However impact of international financeon economic growth depends on multiple factors of countries, such as domestic business environment, quality of institutions, and availability of local natural resources[146] [147] [148]. Numerous studies highlight the positive impact of foreign direct investment on economic growth by adding up capital[149] and injection of new technologies[150]. Similarly, official development assistance positively impacts economic growth during the development phase by becoming part of public finance[151]. Furthermore, remittance inflow positively impacts economic growth by

[145] M,Almfraji, M.K Almsafir, and L.Yao. "Economic growth and foreign direct investment inflows: The case of Qatar." *Procedia-Social and Behavioral Sciences* 109,2014,p.1040-1045.
[146] T.Gylfason, and G.Zoega. "Natural resources and economic growth: The role of investment." *World Economy* 29.8,2006,p.1091-1115.
[147] C.Brunnschweiler, "Cursing the blessings? Natural resource abundance, institutions, and economic growth." *World development* 36.3,2008,p. 399-419.
[148] O.Zallé, "Natural resources and economic growth in Africa: The role of institutional quality and human capital." *Resources Policy* 62,2019,p.616-624.
[149] M.Haddad, and A.Harrison. "Are there positive spillovers from direct foreign investment?: Evidence from panel data for Morocco." *Journal of development economics* 42.1,1993,p.51-74.
[150] L.Rivera-Batiz, and P.Romer. "Economic integration and endogenous growth." *The Quarterly Journal of Economics* 106.2,1991,p.531-555.
[151]S.Chatterjee,G.Sakoulis, and S.Turnovsky. "Unilateral capital transfers, public investment, and economic growth." *European Economic Review* 47.6,2003,p.1077-1103.

increasing saving, consumption, and investment[152]. Further remittance inflow positively enhances well-being by becoming a source of saving for health and education[153] [154].

Furthermore, international finance positively improves the country's financial development and provides credit to the domestic firms[155] [156]. International finance removes domestic financial constraints; therefore, it contributes positively by increasing productivity and trade[157]. Most middle-income countries face stagnant economic growth, which is a hurdle in their graduation toward the high-income group[158]. Therefore, against this background, it becomes essential to investigate the impact of international financeon the economic growth trilemma. The study is a comparative analysis of international financeand sustainable economic growth from the growth-finance paradigm. It incorporates other macroeconomic factors such as external finance, trade, financial development, labor, and technological advancement in the economic growth process for middle-income and high-income countries. The study also comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of external finance, human capital, and technological advancement as a factor in sustainable economic growth, highlighting significant factors in the graduation process. Therefore, this empirical analysis appeared to be a timely study as most middle-income countries strives toward achieving sustainable development goals, especially SDG 8. A panel for 56 middle-income countries and 21 high-income-countries is used to probe the discourse from 2000 to 2019. Furthermore, the middle-income countries are further divided based on income and geography, indicatively upper-middle-income countries as income group and

[152]D.Meyer, and A.Shera. "The impact of remittances on economic growth: An econometric model." *EconomiA* 18.2,2017,p.147-155.
[153]B.B.Rao, and G.M.Hassan. "Are the direct and indirect growth effects of remittances significant?." *The World Economy* 35.3,2012,p.351-372.
[154] M.C.Zhunio,S.Vishwasrao, and E.P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." *Applied Economics* 44.35,2012,p.4605-4616.
[155] J.Hur, M.Raj, and Y.E. Riyanto. "Finance and trade: A cross-country empirical analysis on the impact of financial development and asset tangibility on international trade." *World Development* 34.10,2006,p. 1728-1741.
[156]J.Bena, and P.Ondko. "Financial development and the allocation of external finance." *Journal of Empirical Finance* 19.1,2012,p.1-25.
[157]T.Beck, "Financial dependence and international trade." *Review of international Economics* 11.2,2003,p. 296-316.
[158] J.Kim, and J.Park. "The role of total factor productivity growth in middle-income countries." *Emerging Markets Finance and Trade* 54.6,2018,p.1264-1284.

middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of external finance, trade, and financial development on economic growth. Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on economic growth in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the upper-middle-income countries for their graduation process, from the middle-income group to the high-income group.

To achieve the objective of this thesis, which is to investigate whether external finance, trade, and financial development enhance economic growth or dim its impact? Therefore, this section provides an empirical investigation of whether external finance, trade, financial development, and governance effects sustainable economic growth. A multidimensional approach is adopted, which estimated the nexus between economic growth, and other macro-economic variables performed on a total sample of middle-income countries than respective income and a geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 3.2 presents a literature review, 3.3 highlights the research framework based on hypothesis, 3.4 indicates data along with the model specification and empirical estimation followed by results interpretation, 3.5 mentions discussion of results and section 3.6 consist findings of the study.

3.2 LITERATURE REVIEW

Economic growth is the gradual expansion of society via production and consumption possibilities through time. It entails increasing commodity output (both products and services) and creating new commodities that are either consumed directly or used as inputs in the production of other commodities. It manifests in rising material standards of life, while the proportion of such advances accruing to individuals varies widely across society. Economic growth refers to an increase in the country's real output of goods and services. Similarly, Economic development implies changes in income, savings, and investment along with progressive changes in the country's socioeconomic structure (institutional and technological changes). Economic growth relates to a

gradual increase in one of the components of Gross Domestic Product: consumption, government spending, investment, and net exports. However, development relates to the growth of human capital, decrease in inequality figures, and structural changes that improve the population's quality of life. Economic growth is measured by quantitative factors such as an increase in real GDP or per capita income. Similarly there are various factors which directly impact on economic growth are discussed below,

FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH

The literature suggests that FDI increases economic growth through capital accumulation and the incorporation of new inputs and foreign technologies, resulting in productivity and efficiency gains for domestic firms[159]. FDI inflow promotes economic growth by growing capital stock[160]. It causes transfer of technology[161]. Adding new technology increases productivity[162] and creates more jobs[163] [164]. Numerous studies highlight the positive impact of FDI inflow on economic growth[165]. Some specific studies which indicate a positive association between FDI inflow and economic growth such as for Pakistan,[166] [167], for Ghana[168], for Turkey[169]and for South Africa[170].

For panel data analysis, several studies indicate that FDI inflow is positively linked with growth. A study for the eurozone covering the period 2002-2012 using

[159]A.Lasbrey,[et al.], "Foreign direct investment and economic growth: Literature from 1980 to 2018." *International Journal of Economics and Financial Issues* 8.5,2018,p.309-318.
[160] L.De Mello. "Foreign direct investment in developing countries and growth: A selective survey." *The journal of development studies* 34.1,1997,p.1-34.
[161] Borensztein [et al.,], "How does foreign direct investment affect economic growth?." *Journal of international Economics* 45.1,1998,p.115-135.
[162] R.Wooster, and D.S. Diebel. "Productivity spillovers from foreign direct investment in developing countries: A meta-regression analysis." *Review of Development Economics* 14.3,2010,p. 640-655.
[163] B.S.Javorcik, "Does FDI bring good jobs to host countries?." *The World Bank Research Observer* 30.1,2015,p.74-94.
[164]J. Berrill,M.O'Hagan-Luff, and A. Stel. "The moderating role of education in the relationship between FDI and entrepreneurial activity." *Small Business Economics* 54,2020,p1041-1059.
[165] S.Makki, and A Somwaru. "Impact of foreign direct investment and trade on economic growth: Evidence from developing countries." *American journal of agricultural economics* 86.3,2004,p 795-801.
[166] N.Ahmad [et al.], "The causal links between foreign direct investment and economic growth in Pakistan." *European Journal of Business and Economics* 6,2012.
[167] N.Saqib, M. Masnoon, and N. Rafique. "Impact of foreign direct investment on economic growth of Pakistan." *Advances in Management & Applied Economics* 3.1,2013,p. 35-45.
[168] S.Antwi,[et al.], "Impact of foreign direct investment on economic growth: Empirical evidence from Ghana." *International Journal of Academic Research in Accounting, Finance and Management Sciences* 3.1,2013,p. 18-25.
[169] Y.Bayar, and O.F.Ozturk. "Interaction between financial development and foreign direct investment inflows in Turkey." *Scientific Cooperation for the Future in the Social Sciences, Usak, Turkey, September*,2016,p22-23.
[170] T.Sunde, Tafirenyika. "Foreign direct investment, exports and economic growth: ADRL and causality analysis for South Africa." *Research in International Business and Finance* 41,2017,p. 434-444.

Fully Modified OLS (FMOLS) and Dynamic OLS (DOLS) estimations confirms it[171]. Furthermore, similar results were indicated by others, for 12 Asian countries[172] and for 24 developing countries using FE and RE static panel model for the period 1971 to 1995[173]. Another panel data analysis, empirically investigate the impact of FDI inflow on the economic growth of East African countries by using GMM estimation for the period 1980 to 2013. In his analysis, he concluded that FDI inflow positively impacts economic growth. Furthermore, he also concluded that trade openness and domestic investment are essential determinants of economic growth in East African countries[174]. Another study reveals that FDI inflow is an essential determinant of the economy of Sub-Saharan African countries. They used an augmented endogenous growth model using panel data for 1975-1999. Furthermore, they also highlighted that domestic macroeconomic policies and trade openness positively affect economic growth[175]. FDI enhances economic growth when local institutions work effectively in the host country[176]. Furthermore, FDI plays an influential role when adequate infrastructure and institutions are available in the host country[177]. Likewise, FDI contributes positively to economic growth where there is a developed financial system[178].

It has been argued that FDI enhances economic growth more in the coastal areas of China[179]. However, there is weak evidence that FDI generates economic growth in host countries[180].

---

[171] P.Pegkas, Panagiotis. "The impact of FDI on economic growth in Eurozone countries." *The Journal of Economic Asymmetries* 12.2,2015,p.124-132.

[172] C.Wang [et al.], "The impact of regional financial development on economic growth in Beijing–Tianjin–Hebei region: A spatial econometric analysis." *Physica A: Statistical Mechanics and its Applications* 521,2019,p.635-648.

[173] U.Nair-Reichert, and D.Weinhold. "Causality tests for cross-country panels: a New look at FDI and economic growth in developing countries." *Oxford bulletin of economics and statistics* 63.2 ,2001,p.153-171.

[174] S.M.Zekarias, "The impact of foreign direct investment (FDI) on economic growth in Eastern Africa: Evidence from panel data analysis." *Applied Economics and Finance* 3.1,2016,p.145-160.

[175] A.Sukar, S. Ahmed, and S.Hassan. "The effects of foreign direct investment on economic growth: The case of Sub-Sahara Africa." *Southwestern Economic Review* 34,2007.p.61-73.

[176] J.Yi, [et al.], "Spillover effects of foreign direct investment: how do region-specific institutions matter?." *Management International Review* 55,2015,p. 539-561.

[177] E.Asiedu, "Policy reform and foreign direct investment in Africa: Absolute progress but relative decline." *Development Policy Review* 22.1,2004,p. 41-48.

[178] N.Hermes, and R.Lensink. "Foreign direct investment, financial development and economic growth." *The journal of development studies* 40.1,2003,p.142-163.

[179] K.H.Zhang, "How does foreign direct investment affect economic growth in China?." *Economics of transition* 9.3,2001,p.679-693.

[180]M. Carkovic, and R.Levine. "Does foreign direct investment accelerate economic growth." *Does foreign direct investment promote development* 195,2005,p. 220.

REMITTANCES AND ECONOMIC GROWTH

Literature suggests mixed evidence regarding the nexus between remittance inflow and economic growth. The evidence is divided into two stands, a positive effect and a negative effect. A conventional neo-classical growth framework for 36 African countries from 1980 to 2004 and concluded that remittance positively impacts economic growth by providing an alternative way to finance investment and reduce liquidity constraints[181]. In terms of country-specific studies, remittance inflow positively enhances economic growth in Morocco; thus, its impact on GDP per capita and stabilizes financial development in Morocco[182]. Similarly, using time series, empirically analyses has been done by another author for evaluating the impact of remittance inflow on economic growth for selected African countries[183]. They reveal that Senegal and Nigeria positively affect GDP, whereas Cape Verde and Cameroon indicate a negative association. On the other hand, a recent studies indicating a positive relationship between remittances inflow and gross domestic production for Bangladesh. They used time series analysis and covered the period 1981 to 2017[184]. Other country-specific studies which highlight the positive association between remittance inflow and growth; such as for Turkey[185], Togo[186], Pakistan[187] and Srilanka[188]. In the case of lower-middle-income countries, author concludes that remittance inflow deteriorating economic growth. Their empirical analysis used data from 93 low and middle-income countries and applied the system GMM estimation method[189]. Other studies that indicate similar results, the author used panel data from 12 CEE countries and covered the period

[181] B.Fayissa, and C.Nsiah. "The impact of remittances on economic growth and development in Africa." *The American Economist* 55.2,2010.p.92-103.

[182] F.Makhlouf, and A. Naamane. "The impact of remittances on economic growth: the evidence from Morocco." 2013.

[183] D.O.Olayungbo, and A.Quadri. "Remittances, financial development and economic growth in sub-Saharan African countries: evidence from a PMG-ARDL approach." *Financial Innovation* 5.1,2019,p. 9.

[184] S.Barua, and F.Rafiq. "Macroeconomic determinants of remittances and implications for economic growth: Evidence from Bangladesh." *Bangladesh's Macroeconomic Policy: Trends, Determinants and Impact* .2020,p. 371-392.

[185] A.Tansel, and P. Yaşar. "Macroeconomic impact of remittances on output growth: Evidence from Turkey." *Migration Letters* 7.2,2010,p.132-143.

[186] F.Ahmed, and M. Hakim. "The relationship between remittances and economic growth in Togo: A vector equilibrium correction mechanism." *Global Economy and Finance Journal* 10.1.2017.p. 1-11.

[187] A.Jaffri,M. Sana, and R. Iqbal. "Workers' Remittances Inflows And Per Capita Income: Does U-Shaped Relationship Exist In Case Of Pakistan?." *Journal of Positive School Psychology* 7.6.2023.p.395-406.

[188] H. Paranavithana,"Do workers' remittances cushion economic growth in Sri Lanka." *International Journal of Business and Social Science* 5.10,2014,p.44-56.

[189] Z.Lacheheb,and N.W.Ismail. "The impact of remittance on economic growth in low and middle income countries." *International Journal of Academic Research in Economics and Management* 9.2.2020,p.61-70.

between 1996 and 2010. He applied fixed effect penal estimation for his empirical analysis. On the other hand, several studies indicate mixed results regarding the nexus between economic growth and prosperity[190]. Furthermore, remittances enhance economic growth only when invested wisely.The author also indicates that remittances stimulate economic growth by encouraging human capital accumulation; thus, human capital is an essential factor for economic growth in the MENA region. They used panel data estimation for 12 MENA region countries and covered the period 1980 to 2009. They used OLS, Random effects, and System GMM models for empirical estimation[191]. In another panel data estimation covering the period 1993-2003 for 17 developing Asia-Pacific reveals that remittances significantly positively impact poverty reduction. However, on the other hand, it has a marginal effect on growth through human capital and domestic investment. In his analysis, he used the Generalized Method of Moments[192]. Furthermore, another empirical study indicates that remittances have a significant and positive impact on economic growth in the case of Latin American and Caribbean countries. They used panel cointegration tests and Fully-modified OLS (FOMLS) methods to estimate their models covering the period 1990 to 2005[193]. On the other hand, another study examined the effect of migration and remittance for 71 non-developed economies. They conclude that a 10% increase in per capita international remittances decreases people's poverty concentration. Furthermore, they also mention that international remittances indirectly contribute to economic growth[194]. Another empirical analysis using panel data of South Asian countries also reveals a positive and significant association between remittance and domestic investment. The research work also indicates uni-directional panel causality from remittances to domestic investment[195]. By applying OLS and system GMM estimation for 100 Countries over the period 1975 to 2002 the author concludes that remittances boost growth in countries with less developed financial systems. They used GDP growth, trade openness,

[190] A.Gjini, "The role of remittances on economic growth: An empirical investigation of 12 CEE countries." *International Business & Economics Research Journal (IBER)* 12.2,2013,p.193-204.
[191] S.Ben Mim, and M.S. Ben Ali. "Through which channels can remittances spur economic growth in MENA countries?." *Economics* 6.1,2012,p. 20120033.
[192] J.Jongwanich. *Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries*. No. WP/07/01. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2007.
[193] M.D.Ramirez, and H.Sharma. "Remittances and growth in Latin America: A panel unit root and panel cointegration analysis." (2008).
[194] R.H.Adams Jr, and J.Page. "Do international migration and remittances reduce poverty in developing countries?." *World development* 33.10,2005,p. 1645-1669.
[195] R.K.Dash, "Impact of remittances on domestic investment: a panel study of six south Asian countries." *South Asia Economic Journal* 21.1,2020,p.7-30.

government fiscal balance, year of schooling, inflation, Remittances percentage of GDP, money supply to GDP, private loans to GDP, domestic credit to the private sector to GDP, and foreign currency deposits to GDP[196]. Several other empirical studies based on panel data methodology also highlight the positive association between remittances inflow and economic growth. Few of the studies for 36 African countries covering the period from 1980 to 2004[197], for 25 developing countries for the period 1978 to 2001[198], for 6 European countries for the period 1999 to 2013[199], and for 10 CEE countries over the period 1995 to 2011[200] also indicate positive association between remittances and economic growth. However, few studies also indicated the negative impact of remittance inflow on economic growth. Such as using time series ARDL estimation for Bangladesh and the author conclude that remittance inflow are treated as easy money and further cause reduction of labor through their participation in the labor market, thus which negative impact on economic growth[201]. Other studies which also indicate a negative association between remittance inflow and economic growth[202]. Similarly, a recent study conducted for four South Asian countries for balanced panel data from 1977 to 2016 used the methodology of Pooled OLS, fixed effects, and random effects. In his result, he reveals that remittances play a vital role in economic growth for Bangladesh, Pakistan, and Sri Lanka; however positively impact economic growth in India[203]. Similarly; other studies that indicate similar results - for Nigeria[204] and for Bangladesh[205].

[196]P.Giuliano, and M.Ruiz-Arranz. "Remittances, financial development, and growth." *Journal of development economics* 90.1,2009,p. 144-152.

[197] B.Fayissa, and C.Nsiah. "The impact of remittances on economic growth and development in Africa." *The American Economist* 55.2,2010,p. 92-103.

[198]I, Ruiz, E.Shukralla, and C.Vargas-Silva. "Remittances, institutions and growth: a semiparametric study." *International Economic Journal* 23.1,2009,p.111-119.

[199] D.Meyer, and A.Shera. "The impact of remittances on economic growth: An econometric model." *EconomiA* 18.2,2017,p.147-155.

[200]Z.Goschin, "Remittances as an economic development factor. Empirical evidence from the CEE countries." *Procedia Economics and Finance* 10,2014,p.54-60.

[201]K. Datta, and B.Sarkar. "Relationship between remittances and economic growth in Bangladesh: an econometric study." *Available at SSRN 2375991*,2014.

[202]R. Chami,C.Fullenkamp, and S,Jahjah. "Are immigrant remittance flows a source of capital for development?." *IMF Staff papers* 52.1,2005,p.55-81.

[203] S.R.Sutradhar, "The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka." *International Journal of Economic Policy Studies* 14.1,2020,p.275-295.

[204] O.S.Olalekan, and A.A. Badejo. "The impact of remittances on economic growth in Nigeria: An error correction modeling approach." *Zagreb International Review of Economics & Business* 17.2,2014,p.21-43.

[205] MD.S.Ahmed, "Migrant workers remittance and economic growth: evidence from Bangladesh." *ASA University Review* 4.1,2010,p.1-13.

OFFICIAL DEVELOPMENT AID AND ECONOMIC GROWTH

Foreign aid appeared to be a significant investment source for developing countries economic growth[206]. Another author used panel data analysis for Botswana, Ethiopia, India, Kenya, Sri Lanka, and Tanzania from 1974 to 1996. They used panel cointegration to investigate the relationship between economic growth and aid. In their concluding remarks, they mention that foreign aid positively impacts economic growth in all sample countries in the long run[207]. Similarly, another author empirically investigated the impact of foreign aid on economic growth for 104 developing countries and concludes that foreign aid has a positive impact on economic growth[208]. Similarly, using panel data for 85 developing countries from Asia, Latin America, and Africa from 1980 to 2007, the author concluded with mixed evidence. For African countries, foreign aid positively impacts economic growth; however, Asian and Latin American countries indicate a negative impact[209]. Another author, empirically analyses the nexus between foreign aid and economic growth for 71 aid-receiving countries developing. In his concluding remarks, he mentions that foreign aid positively impacts economic growth[210]. Similar results were provided by other athors, as they used a panel for 25 Sub-Saharan Africans for the period 1970 to 1997 and also concluded that aid holds a positive association with economic growth for sample countries[211]. Other panel data empirical studies which also highlight a positive association between economic growth and foreign aid for 107 countries over the period 1960 to 2000[212], five Asian countries[213],Sub-Saharan African countries[214]. In terms of country-specific studies, using time series ARDL estimation on annual data of Sierra Leone for the period 1970 to 2007, the author concluded that aid positively enhances economic growth in the short

[206] H.Njangang,[et al.], "The long-run and short-run effects of foreign direct investment, foreign aid and remittances on economic growth in African countries.",2018.
[207] M.randoust, and A.Hatemi. "Foreign aid and economic growth: new evidence from panel cointegration." *Journal of economic development* 30.1,2005,p.71-80.
[208] P.Martinez, "The impact of foreign aid on economic growth." 2015.
[209] E.M.Ekanayake, and D.Chatrna. "The effect of foreign aid on economic growth in developing countries." *Journal of International Business and cultural studies* 3,2010,p.1.
[210] G.Karras, "Foreign aid and long-run economic growth: empirical evidence for a panel of developing countries." *Journal of International Development: The Journal of the Development Studies Association* 18.1,2006,p.15-28.
[211] K.Gomanee,S.Girma, and O.Morrissey. "Aid and growth in Sub-Saharan Africa: accounting for transmission mechanisms." *Journal of International Development* 17.8,2005,p.1055-1075.
[212] S.G.Reddy, and C.Minoiu. "Development aid and economic growth: A positive long-run relation." 2006.
[213]D. Asteriou. "Foreign aid and economic growth: New evidence from a panel data approach for five South Asian countries." *Journal of policy modeling* 31.1,2009,p.155-161.
[214] K.Gyimah-Brempong, "Aid and economic growth in LDCS: Evidence from Sub-Saharan Africa." *The Review of Black Political Economy* 20.3,1992.p.31-52.

and long run[215]. Similarly, another country-specific study conducted by another author using time series ARDL estimation for Cambodia from 1980 to 2014 also indicates that aid positively impacts economic growth in the short; however, in the long run, foreign aid appeared to be insignificant. Furthermore, in his empirical analysis, he mentioned that trade openness positively impacts economic growth in the long and short run; however, foreign direct investment impacts growth only in the long run[216]. Several other studies also mentioned a positive association between economic growth and foreign aid, Papua New Guinea[217], Nigeria[218], and Ghana[219]. On the other hand, some of the country-specific studies indicate a negative association between aid and economic growth, Bangladesh[220], Egypt[221], Philippines[222], and for Ethiopia[223]. However, numerous empirical also reveal a negative association between aid and economic growth. The authors investigated the nexus between aid and economic growth for 68 developing countries from 1970 to 1993. They used Fischer-Easterly estimation and revealed that foreign aid does not impact economic growth[224]. Other studies which reveal similar conclusions for the six poorest African countries[225].

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

Allocating capital to the most profitable uses is a critical function of the financial system. Other things being equal, a country with an efficient capital allocation system will grow quicker than an inefficient one[226]. A well-developed financial system

[215] P.M.Kargbo, *Impact of foreign aid on economic growth in Sierra Leone: Empirical Analysis*. No. 2012/07. WIDER Working Paper, 2012.
[216] S.Sothan, "Foreign aid and economic growth: evidence from Cambodia." *The Journal of International Trade & Economic Development* 27.2,2018,p.168-183.
[217] S.Feeny, "The impact of foreign aid on economic growth in Papua New Guinea." *Journal of development Studies* 41.6,2005,p.1092-1117.
[218] S.Mbah, and D.Amassoma. "The linkage between foreign aid and economic growth in Nigeria." *International Journal of Economic Practices and Theories* 4.6,2014,p.1007-1017.
[219] D.Sakyi, "Trade openness, foreign aid and economic growth in post-liberalisation Ghana: An application of ARDL bounds test." *Journal of Economics and International Finance* 3.3,2011,p. 146.
[220] A. Islam, "Foreign aid and economic growth: an econometric study of Bangladesh." *Applied Economics* 24.5,1992,p.541-544.
[221] H.A. Abd el, "Foreign aid and economic growth in Egypt: A cointegration analysis." *International Journal of Economics and Financial Issues* 3.3,2013,p.743-751.
[222] R. Mitra, and Md H. Sharif, "Foreign aid and economic growth in the Philippines." *Economics Bulletin* 33.3.2013,p.1706-1714.
[223] T.Tadesse, "Foreign aid and economic growth in Ethiopia: A cointegration analysis." *The Economic Research Guardian* 1.2,2011,p 88-108.
[224] R.Durbarry,N.Gemmell, and D.Greenaway. *New evidence on the impact of foreign aid on economic growth*. No. 98/8. CREDIT Research paper, 1998.
[225] G.Mallik, "Foreign Aid and Economic Growth: A Cointegration Analysis of the Six Poorest African Countries." *Economic Analysis & Policy* 38.2,2008.
[226] G.B.Estrada, D.Park, and A.Ramayandi. "Financial development, financial openness, and economic growth." *Asian Development Bank Economics Working Paper Series* 442,2015.

plays a vital role in the economic growth process. Stable financial system in boosting intermediation efficiency by lowering transaction costs, information asymmetries, and monitoring costs, all of which lead to increased economic growth[227]. Through its numerous roles, including channeling savings from funds, encouraging investment through appropriate policies, and controlling risk, thus a stable and dynamic financial system contributes to economic growth[228]. Furthermore, it has been argued that the impact of FDI on growth may be influenced by the development of the host country's financial markets[229]. Similarly, a well-functioning and efficient financial market minimizes the risks inherent in local enterprises' protection assets at adopting new technology and, as a result, increases the country's absorptive capacity in terms of FDI inflows[230].

The relationship between financial organizations such as banks and the business community is usually based on the stable financial sector. Furthermore, introducing new technologies by financial institutions in their day-to-day operation directly impacted economic growth[231]; similarly, as another author mention that financial markets and institutions play a critical role in the economic development process, particularly when it comes to allocating funds to diverse, productive activities[232]. Mobilizing savings, acquiring information about investments and allocating resources, promoting risk enhancement, monitoring managers, and exercising corporate control are all examples of these actions.

Country-specific studies also indicate that financial development enhances economic growth positively. In another empirical work, author empirical analysis regarding Pakistan using time series ARDL estimation concludes that in the short and long-run financial development enhances economic growth in Pakistan. In his analysis, he used domestic credit to the private sector as a proxy for financial development, and his

[227] R.G. King, and R.Levine. "Finance and growth: Schumpeter might be right." *The quarterly journal of economics* 108.3,1993.p.717-737.

[228] M.S.Creane,[et al.], *Financial development and growth in the Middle East and North Africa*. International Monetary Fund, 2003.

[229] N.Hermes, and R.Lensink. "Foreign direct investment, financial development and economic growth." *The journal of development studies* 40.1,2003,p.142-163.

[230] M.Shahbaz, and M.Rahman. "Foreign capital inflows-growth nexus and role of domestic financial sector: an ARDL co-integration approach for Pakistan." *Journal of Economic Research* 15.3,2010,p. 207-231.

[231] J.A.Schumpeter and O. Redvers. *The Theory of Economic Development... Translated by Redvers Opie.[A Reduced Photographic Reprint of the Edition of 1934.]*. Oxford University Press, 1961.

[232] M.Lacheheb, Peter Adamu, and Seth Akutson. "Openness, financial development and economic growth in Algeria: An ARDL bound testing approach." *International Journal of Economics, Finance and Management Sciences* 1.6,2013,p.400-405.

analysis covered the period from 1961 to 2005[233]. Similarly, a time series analysis highlights similar results for multiple countries; thus, financial development enhances economic growth[234]. For Malaysia, author used a time series analysis to investigate the impact of financial development and FDI impact on economic growth from 1970 to 2001 using a co-integration framework. Their result shows that financial development interacting with FDI inflow enhances economic growth[235].Furthermore, they also highlighted that labor, domestic investment, and government expenditure play a vital role in the economic growth process of Malaysia. Another study also highlighted similar results. However, he used total bank deposited liabilities to nominal GDP as a financial development indicator[236].

Another student based on time series analysis for Algeria using ARDL estimation from 1980 to 2010. The author concluded in their research that openness to trade and financial development positively enhances economic growth in Algeria[237]. They used Broad money as a proxy for financial development. Furthermore another author also used ARDL estimation and highlighted that financial development plays a vital role and positively enhances growth in Saudi Arabia in the non-oil sector[238]. Another country-level study using time series analysis concluded that domestic credit and stock market liquidity to GDP are important determinants of economic growth in the Philippines[239]. Several other studies also mention similar results that domestic credit to the private sector enhances economic growth, such as Cameroon[240], Tunisia[241], China[242], Bangladesh[243] and India[244].

---

[233]M.A.Khan, "Financial development and economic growth in Pakistan: evidence based on autoregressive distributed lag (ARDL) approach." *South Asia Economic Journal* 9.2,2008..375-391.

[234] P.O.Demetriades, and K.Hussein. "Does financial development cause economic growth? Time-series evidence from 16 countries." *Journal of development Economics* 51.2,1996,p.387-411.

[235] C.K.Choong, and K-P,Lim. "Foreign direct investment, financial development, and economic growth: the case of Malaysia." *Macroeconomics and Finance in Emerging Market Economies* 2.1.2009.p.13-30.

[236] M.S.Majid, "Inflation, financial development, and economic growth: the case of Malaysia and Thailand." *Philippine Review of Economics* 44.1,2010.

[237] Ibid, 232.

[238] N.Samargandi, and A.M. Kutan. "Private credit spillovers and economic growth: Evidence from BRICS countries." *Journal of International Financial Markets, Institutions and Money* 44, 2016,p. 56-84.

[239] A.C.CAMBA Jr, and A.L. CAMBA. "The dynamic relationship of domestic credit and stock market liquidity on the economic growth of the Philippines." *The Journal of Asian Finance, Economics and Business* 7.1,2020,p.37-46.

[240] B.Thierry,[et al.], "Causality relationship between bank credit and economic growth: Evidence from a time series analysis on a vector error correction model in Cameroon." *Procedia-Social and Behavioral Sciences* 235,2016,p.664-671.

[241]K.B.Jedidia, T.Boujelbène, and K.Helali. "Financial development and economic growth: New evidence from Tunisia." *Journal of Policy Modeling* 36.5,2014,p.883-898.

In terms of panel data analysis, an author conducted an empirical analysis of ten middle-east countries and concluded that financial development enhances economic growth in sample countries. Furthermore, in their empirical analysis, they used domestic credit to the private sector as an indicator of financial development[245]. Similarly, an empirical analysis of 41 countries using total bank deposits as a percentage of GDP as a proxy for financial development for analysing its impact on economic growth; the author also reveals that financial development is an important factor for economic growth. For empirical analysis, she used a multivariate VAR approach[246]. Another author applied the Generalized Method of Moment (GMM) to six ASEAN countries from 2004 to 2017 and concluded that domestic credit to the private sector as an indicator of financial development enhances economic growth in sample countries[247]. Similar results referring domestic credit to the private sector, also mentioned by other authors - for 29 Sub Saharan countries[248], for 100 countries covering developing, emerging, and advanced economies[249] and for ECOWAS region[250].

However, few studies also highlighted a negative association between domestic credit to the private sector and economic growth[251] [252]. Similarly, another empirical results

---

[242] C.Wang,[et al.], "The impact of regional financial development on economic growth in Beijing–Tianjin–Hebei region: A spatial econometric analysis." *Physica A: Statistical Mechanics and its Applications* 521,2019,p.635-648.

[243] M.S.Al Mamun, M.I. Ariffin, and Z.Hamid. "Does domestic credit of the banking sector promote economic growth? evidence from Bangladesh." *International Journal of Islamic Business (IJIB)* 3.1.2018,p.33-55.

[244] S.K.Lenka, "Does financial development influence economic growth in India?." *Theoretical & Applied Economics* 22.4,2015.

[245] M.Al-Awad, and N.Harb. "Financial development and economic growth in the Middle East." *Applied Financial Economics* 15.15,2005,p.1041-1051.

[246]Z.Xu, "Financial development, investment, and economic growth." *Economic inquiry* 38.2,2000.p.331-344.

[247] TN.Bui, . "How does the relationship between economic growth and bank efficiency? Evidence from Asean countries." *International Transaction Journal of Engineering Management, and Applied Sciences and Technologies* 11.7,2020,p. 49-58.

[248] M.Ibrahim, and P.Alagidede. "Effect of financial development on economic growth in sub-Saharan Africa." *Journal of Policy Modeling* 40.6,2018.p.1104-1125.

[249]J.Botev, B.Égert, and F.Jawadi. "The nonlinear relationship between economic growth and financial development: Evidence from developing, emerging and advanced economies." *International Economics* 160,2019,p.3-13.

[250]A.Abubakar, S.HJ Kassim, and M.B. Yusoff. "Financial development, human capital accumulation and economic growth: empirical evidence from the Economic Community of West African States (ECOWAS)." *Procedia-Social and Behavioral Sciences* 172,2015.p. 96-103.

[251] M.Pagano, Marco, and G. Pica. "Finance and employment." *Economic Policy* 27.69 (2012): 5-55.

[252]B.Cournède, and O.Denk. "Finance and economic growth in OECD and G20 countries." *Available at SSRN 2649935*,2015.

confirm that in 58 countries, only seven countries' domestic credit to the private sector positively impacts economic growth[253].

TRADE AND ECONOMIC GROWTH

Literature reveals that the potential role of trade as an engine of growth[254]. David Ricardo presented the idea of comparative advantage in international trade. According to the comparative advantage theory, in general, each country specializes in specific products based on the availability of natural resources; they further export to other countries and import those products they cannot produce. In this case, both countries received benefits and enhanced welfare by increasing productivity and creating jobs. International trade creates employment for exporting and importing countries[255]. International trade increases employment opportunities, thus increasing per capita income and further promoting well-being[256].An author used panel data from 42 Sub-Saharan African countries from 1980 to 2012 to investigate the nexus between international trade and economic growth[257]. Applying the pool mean group estimation technique reveals an inverted U-curve (Laffer Curve of Trade) and suggests the non-fragility of the linkage between economic growth and trade openness for sub-Saharan countries. They found the non-linear relationship between economic trade and economic growth. Accordingly, SSA countries must have more effective trade openness, particularly by productively controlling import levels, to boost their economic growth through international trade. Numerous studies indicate a positive association between trade and economic growth[258] [259] [260]. Furthermore it has been argued that international trade causes shifting of gain transfer from developing countries to developed countries as developing countries are preliminary dependent on the production of primary goods.

[253]G.Gozgor, "Causal relation between economic growth and domestic credit in the economic globalization: Evidence from the Hatemi-J's test." *The Journal of International Trade & Economic Development* 24.3,2015,p.395-408.
[254] A.O.Krueger, "Trade policy and economic development: how we learn." 1997.
[255]S.J.Matusz, "Calibrating the employment effects of trade." *Review of International Economics* 6.4,1998,p. 592-603.
[256]M.McMillan, and I.Verduzco. "New evidence on trade and employment: An overview." *Trade and Employment* 1994,1986,p. 23.
[257]P. Zahonogo,. "Trade and economic growth in developing countries: Evidence from sub-Saharan Africa." *Journal of African Trade* 3.1-2 2016,p.41-56.
[258] H.Berg,and J.R. Schmidt. "Foreign trade and economic growth: time series evidence from Latin America." *Journal of International Trade & Economic Development* 3.3,1994,p.249-268.
[259] Y.Keho, "The impact of trade openness on economic growth: The case of Cote d'Ivoire." *Cogent Economics & Finance* 5.1,2017,p.1332820.
[260] M.Fetahi-Vehapi,L.Sadiku, and M.Petkovski. "Empirical analysis of the effects of trade openness on economic growth: An evidence for South East European countries." *Procedia Economics and Finance* 19,2015,p.17-26.

In contrast, developed countries usually hinge upon furnished products. Considering that as the demand for primary product decreases, the prices of the products also decrease. Therefore, free trade leads to deterioration in the term of developing countries[261].

HUMAN CAPITAL AND ECONOMIC GROWTH

Human development has a significant impact on economic progress. Every component of human progress, in particular, is expected to have a different effect on economic growth. For example, education significantly impacts labor productivity; furthermore, labor productivity positively impacts economic growth in the long run. On the other hand, higher education directly impacts the economic growth process via increased productivity and creativity of local companies[262] [263]. The education of managers and business executives is bound to influence and impact business performance in the effective use of business capital and policies. Besides this, the volume of domestic and foreign investment directly impacts rates of total factor productivity, which will undoubtedly be higher when the education level of involved labor is higher[264]. In addition to directly impacting economic growth, human capital can help obtain new and foreign knowledge and is a critical factor in whether positive FDI spill-overs will occur. As a result, human capital plays a vital role in facilitating international technology transfer from innovative to copycat countries, allowing these countries to catch up to industrialized countries.

Similarly, the health of involved labor has shown favorable implications for economic growth. Another author endorsed in their research work that education and health may have substantial indirect effects on economic growth due to their effects on income distribution, with education having an even more substantial impact due to its impact on health. Furthermore, people from developing countries are better able to seek economic opportunities once education and health improve[265].

---

[261] H.W.Singer, "The distribution of gains between investing and borrowing countries." *Milestones and Turning Points in Development Thinking*. London: Palgrave Macmillan UK, 1950,p.p265-277.

[262] A.D.Foster, and M.R.Rosenzweig. "Learning by doing and learning from others: Human capital and technical change in agriculture." *Journal of political Economy* 103.6,1995,p.1176-1209.

[263] S.Deraniyagala,. *Technical change and efficiency in Sri Lanka's manufacturing sector* (Doctoral dissertation, University of Oxford),1994.

[264] G.Ranis,. "Human development and economic growth." *Available at SSRN 551662*,2004.

[265] J.R. Behrman, and B.L. Wolfe. "Investments in schooling in two generations in pre-revolutionary Nicaragua: the roles of family background and school supply." *Journal of Development Economics* 27.1-2,1987,p.395-419.

Adequate Human capital is considered a fundamental factor in endogenous growth theories[266]. Furthermore, another researcher highlighted in his work that those with more education and work experience earn more money than those with less[267]. Furthermore, in developing countries investing in primary education generates better net marginal social returns than spending on tertiary education. Human capital is a significant aspect of a country's economic development and progress. Every country seeks to produce a significant amount of skilled labor because trained labor can operate highly developed machinery and generate new ideas and approaches in financial operations[268].

Another researcher investigated the impact of education on economic growth for 53 African countries and covered the period 1996 to 2010. In his research work, he concluded that education, domestic investment, net ODA inflows, education, government effectiveness, and urban population positively impact economic growth in Africa[269].

Likewise, in another empirical research work , the author in his empirical analysis based on 11 selected oil-exporting countries by using panel co-integration analysis for the period 1970-2010, reveals that it is higher economic growth that leads to higher education; however, he also mentions that in sample countries as the number of enrolments raise, the quality of the education declines[270]. Thus the formal education systems are not market-oriented in sample countries. The countries are investing a lot in education, but on the other hand, education is not countries in the growth process as it is supposed to be.

Similarly, another author examined the value of both cognitive and non-cognitive talents and how they relate to social and economic success. He further categorized the sample into formal (academic institutions) and informal (family culture and workplace) sources of learning as a distinct and self-contained environment for knowledge

[266]R.E.Lucas Jr. "On the mechanics of economic development." *Journal of monetary economics* 22.1,1988,p.3-42.
[267]A.Weiss,. "Human capital vs. signalling explanations of wages." *Journal of Economic perspectives* 9.4,1995,p.133-154.
[268]D. Ray, Debraj. "Nonpaternalistic intergenerational altruism." *Journal of Economic Theory* 41.1,1987,p.112-132.
[269] J.Anyanwu,. "Factors affecting economic growth in Africa: are there any lessons from China?." *African Development Review* 26.3,2014,p.468-493.
[270] M.Mehara,. "The causality between human capital and economic growth in oil exporting countries: Panel cointegration and causality." *Journal of Business Management and Social Sciences Research* 2.6,2013,p. 62-66.

acquisition. He discovered that early investments in education are advantageous; thus, countries should focus on basic education for the economic growth process[271]. The efficiency of human capital depends not only on the aggregate number of the entire population. However, it depends on the qualitative traits such as overall skills, knowledge, experience, and good health. In the current world, countries with massive populations are left behind in growth compared to countries with less population but with strong education and health[272]. Similarly, it has been argued that there is a poor association between human capital and economic growth in developing countries due to a lack of attention devoted to the quality of education and, as a result, a poor association, lower cognitive skills attainment[273]. In another empirical analysis, using panel GMM estimation for lower-middle-income countries covering the period 2000-2016, reveal that human capital development & skill, and investment have a positive linkage with Lower middle-income country's economic growth while technology adoption and innovation have different linkage across the Lower Middle Income Countries regions[274]. Other country specific studies, which indicate positive nexus between schooling as human capital and economic growth are for Zambia[275], Pakistan[276], Turkey[277] and Iran[278]. On the other hand, panel data studies for selected African countries[279], 65 developing countries[280], 13 South African development community countries[281], EU countries[282] also inciatde positive associatin between

[271] J.J.Heckman,. "Policies to foster human capital." *Research in economics* 54.1,2000,p.3-56.
[272] I.G.Yumusak, A. Yildiz, and D.Ç.Yildirim. "The relationship between woman education and health." *Philippine Social Sciences and Humanities Review* 4.1 ,2015.
[273] P.W.Glewwe,[et al.] "School resources and educational outcomes in developing countries: A review of the literature from 1990 to 2011 (Working Paper No. 17554)." *Retrieved from http: http://www. nber. org/papers/w17554*,2011.
[274] S.Salam,[et al.] "The dynamic relation between technology adoption, technology innovation, human capital and economy: comparison of lower-middle-income countries." *Interdisciplinary description of complex systems: INDECS* 17.1-B,2019,p.146-161.
[275] M.Hakooma, and V.Seshamani. "The impact of human capital development on economic growth in Zambia: An Econometric Analysis." *International Journal of Economics, Commerce and Management* 4.4,2017,p.71-87.
[276] Q.Faisal Sultan, Faisal, and W.A. Waheed. "Human capital and economic growth: Time series evidence from Pakistan." 2011,p.815-833.
[277] D.Boztosun, A.Semra , and Z. Ulucak. "The role of human capital in economic growth." *Economics World* 4.3 2016,p.101-110.
[278] A.Afrooz,[et al.]., "Human capital and labor productivity in food industries of Iran." *International Journal of Economics and Finance* 2.4,2010,p.47-51.
[279] O.Ojo, and T.Oshikoya. "Determinants of long-term growth: Some African results." *Journal of African economies* 4.2,1995,p.p163-191.
[280] S.Alataş, and M.Çakir. "The effect of human capital on economic growth: A panel data analysis." *Yönetim Bilimleri Dergisi* 14.27,2016,p.p539-555.
[281]F. Khembo, and B.Tchereni. "The impact of human capital on economic growth in the SADC region." *Developing Country Studies* 3.4,2013,p.144-152.

human capital and economic growth. Likewise in another panel data analysis for 19 OECD countriesthe author argued that human capital in terms of education holds the positive relationship with total factor productivity[283].

3.3 RESEARCH FRAMEWORK - SUSTAINABLE ECONOMIC GROWTH

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for upper-middle-income countries to leave the middle-income trap. However, initially I investigate the determinants of economic growth such as how external finance, trade and financial development along with the governance influencing sustainable economic growth in upper and lower-middle income countries) for a full sample of middle-income countries. Based on the research goals below, a relevant research framework is mentioned in figure 3.

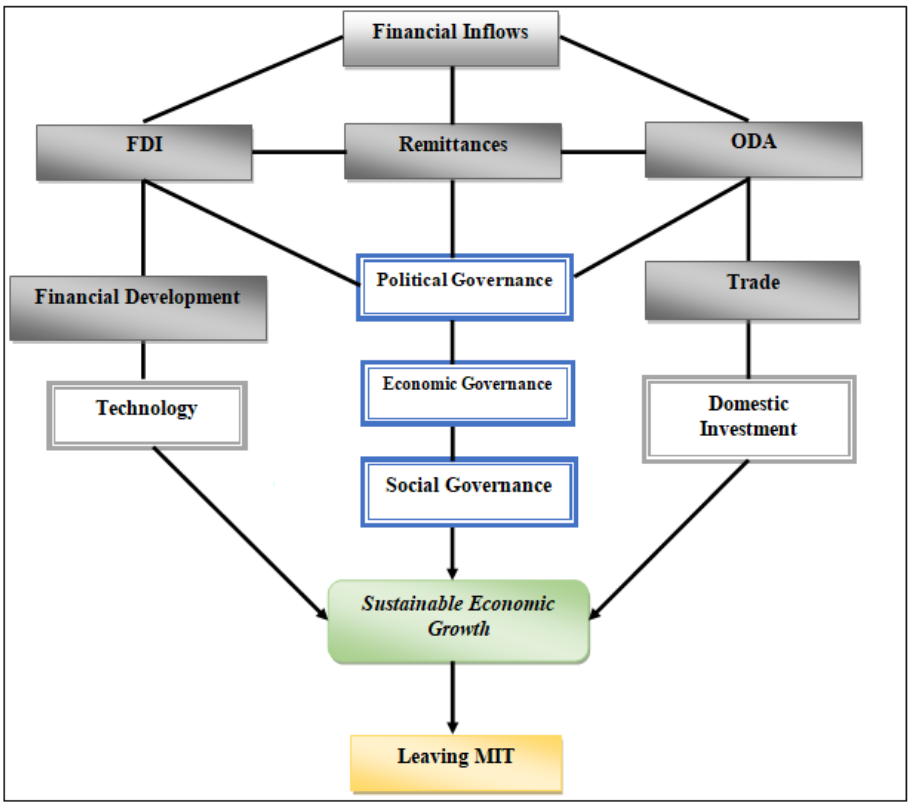


FIGURE 3. RESEARCH FRAMEWORK FOR THE MODEL OF ECONOMIC GROWTH

[282] E.Pelinescu,. "The impact of human capital on economic growth." *Procedia Economics and Finance* 22.2015,p.184-190.
[283] J. Vandenbussche, P. Aghion, and C. Meghir. "Growth, distance to frontier and composition of human capital." *Journal of economic growth* 11,2006,p.97-127.

3.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique.

3.4.1 DATA

The present study investigates growth–finance-trade and financial development trilemma for middle-income and high-income countries for the period covering from 2001 to 2021. On the other hand, numerous exogenous variables are used along with governance index for determining the nexus between economic growth and international financefor testing the formulated hypothesis in figure 3.3.1. The GDPPCGR is used as exogenous variable whereas other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP. SS is the secondary school enrolment used proxy for human capital, LFT is the total labour force and LTP is the sum of patents application (residence and non-resident) use as proxy for technological advancement. Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 2 contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

TABLE 2. DATA SOURCES, ABBREVIATION & DESCRIPTION-ECONOMIC GROWTH

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
GDPPCGR	GDP per Capita annual growth rate	World Bank Development Indicator	Endogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
SS	Secondary school enrolment	World Bank Development Indicator	Exogenous
LFT	Total labour force	International labour organization	Exogenous
TP	Sum of total patents (Resident and Non-resident)	World Bank Development Indicator	Exogenous
PS-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VA-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GE-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQ-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
CC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

3.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS

By limiting the discussion to the variable of interest, economic growth, external finance, trade and financial development, the comparative statistics of variables are shown in table 3 for middle-income-countries and table 4 indicate correlation analysis

among the variables. Likewise table 5 indicate comparative statistics of variables for high-income-countries and table 6 correlation analysis among the variables respectively.

TABLE 3. SUMMARY STATISTICS (MIC-FS, ECONOMIC GROWTH)

VARIABLE	MIDDLE-INCOME-COUNTRIES, FULL SAMPLE				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
GDPPCGR	1,176	4.450	3.522	-15.136	34.500
INT_GDPPC	1,176	6460.881	3826.701	1369.464	17756.570
FDI	1,176	3.984	4.921	-11.625	55.076
REM	1,176	5.691	6.419	0.000	34.499
ODA	1,120	2.780	3.137	-0.616	21.437
GCF	1,176	23.948	8.105	10.860	81.021
T	1,176	78.316	32.851	20.723	220.407
FD	1,176	39.163	29.948	0.008	149.373
SS	1,176	70.000	24.793	9.465	141.364
LFT	1,176	14400000.000	20600000.000	130000.000	136000000.000
TP	1,176	1252.196	2648.500	0.000	18071.000
PSI	1,176	-0.460	0.742	-2.810	1.280
VAI	1,176	-0.369	0.598	-1.820	1.150
GEI	1,176	-0.366	0.506	-1.780	1.270
RQI	1,176	-0.290	0.511	-1.800	1.130
ROL	1,176	-0.497	0.490	-1.660	0.730
COC	1,176	-0.517	0.534	-1.520	1.650

According to table 3, as per middle-income-countries the average GDPPCGR rate is 4.450, with Ukraine having the lowest at -15.14% in 2009 and Azerbaijan showing the highest in 2006 with 34.5%. The standard deviation appeared as 3.522. The average foreign direct investment inflow percentage of GDP is 3.983%, with Mauritania having the lowest at -11.624% in 2019 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.921. Similarly, the average remittance inflow percentage of GDP is 5.691%, with Angola having the lowest at 0.00013% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.418. Furthermore, the average official development assistance inflow percentage of GDP is 2.779%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic showed the highest in 2005 with 21.43%, with a standard deviation of 3.163.In terms of trade, the average is 78.31, with Nigeria having the lowest at 20.723 in 2016 and Malaysia showing the highest in 2000 with 220.41 and the standard deviation is 31.81. Likewise, in terms of financial development as domestic credit to financial sector, the average is 39.16, with Tanzania having the lowest 0.0078% in 2005 and Thailand with highest 149.37% in 2015. The standard deviation for financial development is 29.94.

Furthermore according to the table 4 indicate correlation analysis among the endogenous and exogenous variable, which suggest absence of multicollinearity as it found to be below 0.800.

TABLE 4. CORRELATION ANALYSIS (MIC-FS, ECONOMIC GROWTH)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE																
VARIABLE	**GDPPCGR**	**INT_GDPPC**	**FDI**	**REM**	**ODA**	**GCF**	**T**	**FD**	**SS**	**LFT**	**TP**	**PSI-PG**	**VAI-PG**	**GEI-EG**	**RQI-EG**	**ROL-IG**	**COC-IG**
GDPPCGR	1																
INT_GDPPC	-0.196	1															
FDI	0.179	0.045	1														
REM	-0.019	-0.137	0.069	1													
ODA	0.132	-0.457	0.060	0.159	1												
GCF	0.160	-0.102	0.254	-0.094	0.155	1											
T	0.106	0.227	0.342	0.035	-0.031	0.252	1										
FD	-0.120	0.319	0.023	0.127	-0.210	-0.020	0.386	1									
SS	-0.080	0.460	0.080	0.103	-0.411	-0.011	0.250	0.325	1								
LFT	0.042	-0.077	-0.151	-0.162	-0.285	-0.015	-0.193	0.046	-0.018	1							
TP	-0.072	0.471	-0.094	-0.188	-0.319	-0.074	0.092	0.364	0.282	0.520	1						
PSI-PG	0.028	0.193	0.124	-0.147	0.098	0.292	0.396	0.150	0.223	-0.396	-0.041	1					
VAI-PG	-0.159	0.234	-0.019	0.070	-0.074	-0.163	-0.119	0.094	0.197	-0.030	0.108	0.243	1				
GEI-EG	-0.047	0.455	0.044	-0.129	-0.195	0.111	0.302	0.511	0.410	0.032	0.355	0.396	0.430	1			
RQI-EG	-0.101	0.433	0.156	0.069	-0.191	-0.116	0.199	0.375	0.369	-0.062	0.258	0.293	0.591	0.775	1		
ROL-IG	-0.056	0.361	0.040	-0.039	-0.072	0.122	0.254	0.425	0.339	-0.092	0.141	0.482	0.497	0.807	0.703	1	
COC-IG	-0.020	0.309	-0.053	-0.062	-0.004	0.156	0.180	0.319	0.324	-0.196	0.074	0.497	0.492	0.761	0.568	0.802	1

TABLE 5. SUMMARY STATISTICS (HIC, ECONOMIC GROWTH)

VARIABLE	HIGH-INCOME-COUNTRIES				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
GDPPCGR	420	2.257	5.078	-12.983	56.789
INT_GDPPC	420	29008.510	17211.780	11176.520	86566.300
FDI	420	10.146	27.541	-40.081	280.132
REM	420	0.791	1.146	0.000	6.877
ODA	420	0.556	1.134	-0.250	8.305
GCF	420	23.954	6.327	7.821	53.613
T	420	112.258	71.641	19.560	442.620
FD	420	83.916	55.773	2.149	255.310
SS	420	96.745	16.791	22.028	154.908
LFT	420	8586106.000	14800000.000	51707.000	68800000.000
TP	420	27409.820	85429.620	0.000	439175.000
PSI	420	0.584	0.553	-1.630	1.590
VAI	420	0.587	0.782	-2.000	1.620
GEI	420	0.785	0.684	-1.700	1.910
RQI	420	0.787	0.726	-1.680	2.230
ROL	420	0.759	0.645	-1.520	1.860
COC	420	0.662	0.729	-1.820	1.960

According to table 5 , as per high-income-countries the average GDPPCGR rate is 2.257, with Equatorial Guinea having the lowest at -12.983% in 2010 and Equatorial Guinea showing the highest in 2001 with 56.78%. The standard deviation appeared as 5.087. The average foreign direct investment inflow percentage of GDP is 10.14%, with Hungary having the lowest at -40.081% in 2018 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 27.54. Similarly, the average remittance inflow percentage of GDP is 0.971%, with Uruguay having the lowest at 0.000028% in 2001 and Croatia showing the highest in 2019 with 6.876%, with a standard deviation of 1.146. Furthermore, the average official development assistance inflow percentage of GDP is 0.566%. Mauritius had the lowest at -0.249% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134.In terms of trade, the average is 112.25, with Japan having the lowest at 19.56 in 2001 and Hongkong showing the highest in 2013 with 442.62 and the standard deviation is 71.64. Likewise, in terms of financial development as domestic credit to financial sector, the average is 83.91, with Equatorial Guinea having the lowest 2.148% in 2005 and Cyprus with highest 255.31% in 2013. The standard deviation for financial development is 55.73.

Furthermore according to the table 6 indicate correlation analysis among the endogenous and exogenous variable, which suggest absence of multicollinearity as it found to be below 0.800.

TABLE 6. CORRELATION ANALYSIS (MIC-FS, ECONOMIC GROWTH)

HIGH-INCOME-COUNTRIES																	
VARIABLE	**GDPPCGR**	**INT_GDPPC**	**FDI**	**REM**	**ODA**	**GCF**	**T**	**FD**	**SS**	**LFT**	**TP**	**PSI-PG**	**VAI-PG**	**GEI-EG**	**RQI-EG**	**ROL-IG**	**COC-IG**
GDPPCGR	1																
INT_GDPPC	-0.165	1															
FDI	0.020	0.030	1														
REM	0.080	-0.283	0.137	1													
ODA	0.058	-0.108	-0.048	-0.060	1												
GCF	0.079	0.203	-0.106	-0.102	0.076	1											
T	0.117	0.043	0.250	0.048	-0.068	0.132	1										
FD	-0.190	0.210	0.370	-0.161	-0.066	-0.174	0.129	1									
SS	-0.233	0.324	-0.055	-0.027	-0.064	-0.318	-0.180	0.364	1								
LFT	-0.044	0.031	-0.146	-0.171	0.062	0.049	-0.350	0.410	0.226	1							
TP	-0.034	0.054	-0.104	-0.162	0.088	0.133	-0.263	0.398	0.084	0.810	1						
PSI-PG	0.051	0.097	0.034	0.107	-0.382	0.099	0.253	0.014	0.076	0.088	0.123	1					
VAI-PG	0.040	-0.271	0.068	0.090	0.018	-0.366	-0.098	0.373	0.636	0.246	0.131	0.227	1				
GEI-EG	-0.033	0.219	0.142	-0.073	0.070	-0.187	0.157	0.634	0.673	0.319	0.270	0.213	0.738	1			
RQI-EG	0.001	0.152	0.130	-0.063	-0.041	-0.236	0.203	0.577	0.647	0.217	0.137	0.204	0.743	0.806	1		
ROL-IG	-0.063	0.273	0.102	-0.204	-0.014	-0.157	0.127	0.616	0.691	0.307	0.246	0.274	0.733	0.804	0.799	1	
COC-IG	-0.026	0.315	0.129	-0.234	-0.013	-0.145	0.143	0.534	0.626	0.260	0.203	0.282	0.630	0.792	0.805	0.7988	1

3.4.3 MODEL SPECIFICATION

According to the neoclassical Solow (1957) model[284], economic growth is an output of economic growth process lead by technological advancement, capital, labour and other factor of production either directly or indirectly involve in growth process. Therefore, growth function according of Solow model is mention below,

$Y=A\ (K, L, \phi)$ *(equation 1)*

Where; Y = the total output or GDP growth, K = capital investment, L=Labour force, A =efficient of production (constant of the model), ϕ = vector of additional variable. However, Findlay[285] (1978) enhance the Solow (1957) model[286] by assuming that the growth rate of technological progress is due to an increasing function of foreign direct investment . He further reclassifies foreign capital with domestic capital as input factor; and argues that inject of foreign capital increases domestic capital. Furthermore, according to the (Romer, 1986) endogenous growth model[287]; FDI act as like internal factor for the economic growth along with technological change in the production. Therefore based on the Cobb-Douglas production function, the Solow model[288] (1957) is mention below,

$Y= A*K*L*\phi$ *(equation 2)*

Where Y= GDPPCGR is used as endogenous variables, K = external capital and domestic investment, L= labour force, ϕ = auxiliary variables such as technology, trade and financial development. Therefore based on the research hypothesis as mentioned in Figure 3.1 , the revised form of equation 2 is mention below which will be estimated according to the research hypothesis,

$$GDPPCGR_{it} = \alpha_o + \alpha_1\ INT\_GDPPC_{it} + \alpha_2\ FDI_{it+}\ \alpha_3 REM_{it+}\ \alpha_4 ODA_{it+}\ \alpha_5 GCF_{it+}\ \alpha_6 T_{it\ +}\ \alpha_7 FD_{it\ +}\ \alpha_8 SS_{it} + \alpha_9 LFT_{it}\ + \alpha_{10} TP_{it}\ + e_{it}$$ *(Equation 3)*

[284]R.Solow,. "PRODUCTION FUNCTION." *The Review of Economics and Statistics* 39.3,1957.p.312-320.
[285]R.Findlay, "Some aspects of technology transfer and direct foreign investment." *The American Economic Review* 68.2,1978.p.275-279.
[286] Ibid,284.
[287]P.M.Romer, "Growth based on increasing returns due to specialization." *The American Economic Review* 77.2,1987,p.56-62.
[288] Ibid,284.

Where GDPPCGR is the GDP per capita growth rate refer to economic growth, INT_GDPPC is the initial GDPPC - PPP (constant 2017 international $)[289], FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP, SS is the secondary school enrolment used proxy for human capital, LFT is the total labour force and LTP is the sum of patents application (residence and non-resident) use proxy for technological advancement. Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in Table 3.3.1. Similarly, all variables were measured by a natural logarithm to attain reliable results; therefore above equation above 3 will be,

$$LNGDPPCGR_{it} = \alpha_o + \alpha_1\ LNINT\_GDPPC_{it} + \alpha_2\ LNFDI_{it+}\ \alpha_3 LNREM_{it+}\ \alpha_4 LNODA_{it+}\ \alpha_5 LNGCF_{it+}\ \alpha_6 LNT_{it+}\ \alpha_7 LNFD_{it+}\ \alpha_8 LNSS_{it} + \alpha_9 LNLFT_{it} + \alpha_{10} LNTP_{it} + e_{it}$$ *(Equation 4)*

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the nexus between external finance, economic prosperity and governance indicators. Therefore, below model will be estimated which incorporate the impact of political governance along with economic sustainability and international financeon infant mortality rate. By incorporating political governance index in equation 4 , given below model will estimated.

$$LNGDPPCGR_{it} = \alpha_o + \alpha_1\ LNINT\_GDPPC_{it} + \alpha_2\ LNFDI_{it+}\ \alpha_3 LNREM_{it+}\ \alpha_4 LNODA_{it+}\ \alpha_5 LNGCF_{it+}\ \alpha_6 LNT_{it+}\ \alpha_7 LNFD_{it+}\ \alpha_8 LNSS_{it} + \alpha_9 LNLFT_{it} + \alpha_{10} LNTP_{it} + \alpha_{11} PSI\text{-}PG + \alpha_{12} VAI\text{-}PG + e_{it}$$ *(equation 5)*

In above equation 3, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong

[289] It is used for investigating the convergence for middle-income countries and its sub income group. Initial GDP per capita is used by Borensztein et al, (1998).

political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm.

However, by incorporating economic and institutional governance in equation 4, the estimated equations will be written as,

$$LNGDPPCGR_{it} = \alpha_o + \alpha_1\ LNINT\_GDPPC_{it} + \alpha_2\ LNFDI_{it+}\ \alpha_3 LNREM_{it+}\ \alpha_4 LNODA_{it+}\ \alpha_5 LNGCF_{it+}\ \alpha_6 LNT_{it+}\ \alpha_7 LNFD_{it+}\ \alpha_8 LNSS_{it} + \alpha_9 LNLFT_{it} + \alpha_{10} LNTP_{it} + \alpha_{11} GEI\text{-}EG + \alpha_{12} RQI\text{-}EG + e_{it}$$ *(equation 6)*

And,

$$LNGDPPCGR_{it} = \alpha_o + \alpha_1\ LNINT\_GDPPC_{it} + \alpha_2\ LNFDI_{it+}\ \alpha_3 LNREM_{it+}\ \alpha_4 LNODA_{it+}\ \alpha_5 LNGCF_{it+}\ \alpha_6 LNT_{it+}\ \alpha_7 LNFD_{it+}\ \alpha_8 LNSS_{it} + \alpha_9 LNLFT_{it} + \alpha_{10} LNTP_{it} + \alpha_{11} COC\text{-}IG + \alpha_{12} ROL\text{-}IG + e_{it}$$ *(equation 7)*

In above equation 6, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 7, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$$LNGDPPCGR_{it}=\alpha_o+\alpha_1 LNINT\_GDPPC_{it}+\alpha_2 LNFDI_{it}+\alpha_3 LNREM_{it}+\alpha_4 LNODA_{it}+\alpha_5 LNGCF_{it}+\alpha_6 LNT_{it}+\alpha_7 LNFD_{it}+\alpha_8 LNSS_{it}+\alpha_9 LNLFT_{it}+\alpha_{10} LNTP_{it}+\alpha_{11} PSI\text{-}PG_{it}+\alpha_{12} VAIPG_{it}+\alpha_{13} GEI\text{-}EG_{it} + \alpha_{14} RQI\text{-}EG_{it}+ \alpha_{15} COC\text{-}IG_{it}+\alpha_{16} ROL\text{-}IG_{it} + e_{it}$$ *(equation 8)*

3.4.4 ESTIMATION TECHNIQUE

My study focuses on the linkages among economic growth, external finance, trade, financial development, governance and poverty in a panel of 56 middle-income countries and 21 high-income countries[290]. Undoubtedly, economic growth has a significant role in poverty alleviation. So, my study links economic growth with other factors to encourage the sustainable role for achieving the social sustainability.

[290] For estimating Social Sustainable for Education N=55.

The study uses static and dynamic models to achieve the research objectives systematically. These estimation approaches are suitable and used by similar studies (Fosu, 2017; Marrero & Serv'en, 2018; Adeleye et al , 2020) in addition to using a short panel data of 56 countries (N) across 19 years (T), hence N > T. Similarly, the adoption of these techniques serves as robustness for one another in order to observe the consistency of the relation among the variables of interest. This research uses static (Eixed Effect Driscoll-Karay estimation) as main estimation and dynamic model (system-GMM) as robust estimation models to systematically achieve the research objective and test the hypothesis.

FIXED-EFFECT DRISCOLL-KARAY (MAIN ESTIMATION)

By considering the possibility of heterogeneity, I estimate the results by applying the fixed effect model. It incorporates the sampled country's specific policies and practices of the transport model and shows the effects in the intercept coefficient. "α_{1j}". The intercept of one country differs from the other country but is time-invariant. The following equation (A) captures the countries' specific effects by takings the different economic, geological and social characteristics. The Driscoll and Kraay (1998) robust-standard-errors-type approach, which accounts for heteroskedasticity, autocorrelation, and cross-sectional dependence, is used in this study[291]. The empirical strategy on which Driscoll and Kraay (1998) estimation is based that , it take averages of the product between independent variables and the residuals, and then to use these values in a weighted HAC estimator to produce standard errors that are now have the added feature of being robust against cross-sectional dependence[292]. It has been also arugued that, advantage of fixed effects with Driscoll and Kraay standard errors is that the problems of heteroscedasticity, autocorrelation, and cross-sectional dependence are all corrected[293]. Similar estimation methodology also used by other researchers[294] [295].

[291]D. Hoechle. "Robust standard errors for panel regressions with cross-sectional dependence." *The stata journal* 7.3,2007.p.281-312.
[292]A.A. Shah,[et al.], "Nexus of renewable energy consumption, economic growth, population growth, FDI, and environmental degradation in south asian countries: New evidence from Driscoll-Kraay standard error approach." *iRASD Journal of Economics* 3.2,2021.p.200-211.
[293]E. Ramoutar,. "The Investment Cost of Currency Crises in Emerging Markets: An Empirical Treatment from 1994-2015.",2017.
[294]S.Arogundade, B.Mduduzi, and A.Samuel Hassan. "Spatial impact of foreign direct investment on ecological footprint in Africa." *Environmental Science and Pollution Research* 29.34,2022.p.51589-51608.
[295]J. Joshi, N.N. Dalei, and P.Mehta. "Estimation of gross refining margin of Indian petroleum refineries using Driscoll-Kraay standard error estimator." *Energy Policy* 150,2021.p.112148.

$$Y_{jt} = \alpha_{1j} + \beta_1 X_{1jt} + \beta_2 X_{2jt} + \beta_3 X_{Njt} + \beta_i \sum_{i=1}^{i=N} L_{ji} + u_{jt} \qquad (A)$$

In above equation, Y is the endogenous variable; whereas X refers to exogenous variables. Therefore the estimated equation 8, as per fixed effect driscoll-karay is mention below,

$$LNGDPPCGR_{it}=\alpha_o+\alpha_1 LNINT\_GDPPC_{it}+\alpha_2 LNFDI_{it}+\alpha_3 LNREM_{it}+\alpha_4 LNODA_{it}+\alpha_5 LNGCF_{it}+\alpha_6 LNT_{it}+\alpha_7 LNFD_{it}+\alpha_8 LNSS_{it}+\alpha_9 LNLFT_{it}+\alpha_{10} LNTP_{it}+\alpha_{11} PSI\text{-}PG_{it}+\alpha_{12} VAIPG_{it}+\alpha_{13} GEI\text{-}EG_{it}+\alpha_{14} RQI\text{-}EG_{it}+\alpha_{15} COC\text{-}IG_{it}+\alpha_{16} ROL\text{-}IG_{it}+u_{it}$$

(equation 9)

SYSTEM –GMM (ROBUST ESTIMATION)

The panel data usually violates the autocorrelation and homoscedastic OLS assumptions. So, there are the chances of serial correlation and heteroskedasticity problems that may unbiased the estimates. The disturbance term correlates to any variable in the model cause the serial correlation problem[296]. The variations in the variance of error terms across the observation cause the issue of heteroskedasticity[297]. Auto-correlation and heteroskedasticity problems can be resolved by applying the GMM models proposed by Arellano-Bond (1991)[298].

Usually, heteroskedasticity, autocorrelation, and heterogeneity are the potential problems in the dynamic panel data sets. These problems are solved by applying the panel GMM[299]. GMM is suitable for the panel data with more significant cross-section identifiers than periods. The following equation 3 captures the dynamic effects of the model to test the hypotheses.

$$Y_{jt} = \alpha_0 + (1-\beta_1) Y_{jt-1} + \beta_2 X_{1jt} + \beta_3 X_{2jt} + \beta_4 X_{Njt} + \beta_i \sum_{i=1}^{i=N} L_{ji} + v_t + \varepsilon_{i,t} \qquad (B)$$

Where $v_t = u_t - (1- \beta_1)\, u_{t-1}$

[296]R. Hujer,C.Zeiss, and P.Jorge Maurício Rodrigues. *Serial correlation in dynamic panel data models with weakly exogenous regressor and fixed effects*. Universitätsbibliothek Johann Christian Senckenberg, 2005.

[297]J. Simpson,and S.Abraham. "Financial convergence or decoupling in electricity and energy markets? A dynamic study of OECD, Latin America and Asian countries." *International Journal of Economics and Finance* 4.12,2012.p.1-14.

[298]E.Moral-Benito, P.Allison, and R.Williams. "Dynamic panel data modelling using maximum likelihood: an alternative to Arellano-Bond." *Applied Economics* 51.20,2019.p.2221-2232.

[299]S. Hussain, Tanveer Ahmad, and Shoaib Hassan. "Corporate Governance and Firm performance using GMM." *International Journal of Information, Business and Management* 11.2,2019.p.300-316.

As in the above equation B, we have the lag of Y as a regressor. In such cases, the OLS strictly exogenous variables assumption is violated[300]. So, heteroskedasticity, autocorrelation, and heterogeneity problems arise. GMM performs better in the presence of heteroskedasticity, autocorrelation, and heterogeneity problems and gives more robust estimates[301]. Therefore the estimated equation 8, as per system-GMM is mention below,

$$LNGDPPCGR_{it}=\alpha_o+(1-\beta)LNGDPPCGR_{it}+\alpha_1 LNINT\_GDPPC_{it1}+\alpha_2 LNFDI_{it}+\alpha_3 LNREM_{it}+\alpha_4 LNODA_{it}+\alpha_5 LNGCF_{it}+\alpha_6 LNT_{it}+\alpha_7 LNFD_{it}+\alpha_8 LNSS_{it}+\alpha_9 LNLFT_{it}+\alpha_{10} LNTP_{it}+\alpha_{11} PSI\text{-}PG_{it}+\alpha_{12} VAI\ PG_{it}+\alpha_{13} GEI\text{-}EG_{it}+\alpha_{14} RQI\text{-}EG_{it}+\alpha_{15} COC\text{-}IG_{it}+\alpha_{16} ROL\text{-}IG_{it}+v_t+e_{it}$$ (Equation 10)

3.4.5 EMPIRICAL ESTIMATION

Give below sections present the empirical estimation for investigating the factors effecting sustainable economic growth in middle-income countries, their sub-income group and high-income countries. Below table represent static and dynamic model of estimation for each panel as discussed previously.

[300]R. Blundell, and S.Bond. "Initial conditions and moment restrictions in dynamic panel data models." *Journal of econometrics* 87.1,1998.p.115-143.
[301]M. Benli, and A. C. A. R. Yasin. "Foreign Direct Investment and Pollution in Middle Income and OECD Member Countries." *Balkan Sosyal Bilimler Dergisi* 11.21,2022.p.54-62.

TABLE 7. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (MIC-FS, STATIC MODEL ESTIMATION)

FULL SAMPLE					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNGDP_INT	-0.239 (0.071)***	-0.229 (0.070)***	-0.273 (0.080)***	-0.271 (0.070)***	-0.247 (0.068)***
LNFDI	0.072 (0.025)**	0.070 (0.027)**	0.065 (0.033)*	0.080 (0.022)***	0.075 (0.030)**
LNREM	0.004 (0.024)	0.011 (0.026)	0.006 (0.026)	0.009 (0.024)	0.013 (0.026)
LNODA	0.055 (0.021)**	0.059 (0.021)**	0.058 (0.019)***	0.059 (0.023)**	0.064 (0.021)***
LNGCF	0.442 (0.038)***	0.441 (0.040)***	0.451 (0.058)***	0.434 (0.039)***	0.432 (0.054)***
LNT	0.203 (0.063)***	0.185 (0.060)***	0.193 (0.058)**	0.207 (0.066)***	0.183 (0.065)**
LNFD	-0.180 (0.032)***	-0.191 (0.037)***	-0.212 (0.035)***	-0.219 (0.037)***	-0.220 (0.036)***
LNSS	0.045 (0.052)	0.020 (0.069)	0.024 (0.067)	0.001 (0.067)	0.003 (0.072)
LNLFT	0.040 (0.017)**	0.052 (0.018)**	0.068 (0.018)***	0.049 (0.016)***	0.063 (0.024)**
LNTP	0.058 (0.0244)**	0.060 (0.018)***	0.068 (0.018)***	0.074 (0.018)***	0.072 (0.017)***
PSI-PG	-	0.049 (0.034)	-	-	0.023 (0.043)
VAI-PG	-	-0.005 (0.043)	-	-	-0.086 (0.044)*
GEI-EG	-	-	0.100 (0.124)	-	-0.091 (0.147)
RQI-EG	-	-	0.025 (0.149)	-	0.088 (0.170)
COC-IG	-	-	-	0.220 (0.080)**	0.279 (0.099)**
ROL-IG	-	-	-	-0.058 (0.097)	-0.055 (0.100)
Constant	0.581 (0.876)	0.497 (0.899)	1.258 (0.969)	1.029 (0.982)	0.753 (0.948)
R.Sq	0.434	0.445	0.458	0.447	0.469
Observations	1029				
Groups	56				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 7, reports the impact of external finance, trade, financial development, and other exogenous variables under the shadow of governance indicators on economic growth, empirically investigated by fixed-effect Driscoll-Kraay estimation. The estimated results explore whether external finance, trade, financial development, and governance

enhance economic growth or dim its impact. Column (1) shows that among nine exogenous variables, besides LNFD, all other variables such as LNFDI, LNODA, LNGCF, LNT, LNLFT, and LNTP positively impact economic growth in a full sample of middle-income countries. Among the external financial inflows, LNFDI and LNODA indicate a positive association with LNGDPPCR. Thus a 1 unit increase in LNFDI and LNODA increases economic growth by 0.072% and 0.055% at a 5% significance level. Furthermore, the estimated results also reveal that a 1 unit increase in LNGCF and LNT increases economic growth by 0.442% and 0.203% at a 1% significance level. Likewise, the labor force and technological advancement also increase economic growth; thus, a 1 unit increase in LNFT and LNTP increases economic growth by 0.040% and 0.058% at a 5% significance level. On the other hand, a 1 unit increase in LNFD decreases economic growth by 0.180% at a 1% significance level. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNODA, LNGCF, LNT, LNFD, LNLFT, and LNTP; however, the magnitude of coefficients is slightly different. Similarly, the PSI-PG and VAI-PG appear to be insignificant in the growth process for middle-income countries. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG and RQI-EG do not enhance economic growth. Furthermore, by incorporating the institutional governance indicator in Column (4), a 1 unit increase in the COC-IG index increases economic growth by 0.220% at a 5% significance level. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on economic growth for middle-income countries. The estimated results reveal that LNFDI, LNODA, LNGCF, LNT, LNLFT, and LNTP positively increase economic growth once the corruption control index is strong (COC-IG). However, LNFD does not contribute to economic growth. According to the results, a 1 unit increase in LNFD in a full sample of middle-income countries causes 0.220% to reduce LNGDPPCR. Similarly, a 1 unit increase in LNFDI and LNODA increases economic growth by 0.075% and 0.064% at 5% and 1% significance levels. FDI inflow usually increases foreign trade. The estimated results indicate that a 1 unit increase in LNGCF and LNT increases economic growth by 0.432% and 0.183% at a 1% and 5% significance level. On the other hand, a 1 unit increase in LNFT and LNTP increases economic growth by 0.063% and 0.072% at 5% and 1% significance levels. Likewise, the estimated results also reveal that a 1 unit increase in COC-IG positively impacts economic growth by

0.279% at a 5% significance level. However, a 1 unit increase in VAI-PG deteriorates economic growth by 0.086% at a 10% significance level. Lastly, the estimated results reveal that the initial GDPPC indicate a negative association and is statistically significant with economic growth across all the specification indicated in columns (1) to (5). According to the results, a 1 unit increase in initial GDP per capita leads to an average 0.251% lower growth today. The results show the presence of catch-effect and law of diminishing return for the middle-income countries.

TABLE 8. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (MIC-FS, DYNAMIC MODEL ESTIMATION)

FULL SAMPLE					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNGDPPC_R	0.288 (0.065)***	0.289 (0.068)***	0.285 (0.067)***	0.288 (0.063)***	0.284 (0.068)***
LNGDP_INT	-0.447 (0.028)**	-0.493 (0.309)*	-0.486 (0.029)*	-0.410 (0.275)*	-0.575 (0.040)**
LNFDI	0.040 (0.039)**	0.041 (0.039)**	0.054 (0.041)*	0.044 (0.038)**	0.055 (0.040)**
LNREM	0.041 (0.036)*	0.058 (0.038)	0.048 (0.037)*	0.035 (0.038)*	0.059 (0.041)*
LNODA	0.150 (0.058)**	0.157 (0.066)**	0.145 (0.056)**	0.151 (0.058)***	0.170 (0.065)***
LNGCF	0.603 (0.250)**	0.556 (0.027)**	0.547 (0.255)**	0.592 (0.245)**	0.522 (0.251)**
LNT	0.086 (0.142)	0.029 (0.152)	0.085 (0.144)	0.090 (0.139)	0.009 (0.152)
LNFD	-0.120 (0.070)	-0.135 (0.076)*	-0.106 (0.707)	-0.118 (0.081)	-0.115 (0.083)
LNSS	-0.204 (0.140)	-0.181 (0.137)	-0.196 (0.144)	-0.195 (0.145)	-0.208 (0.140)
LNLFT	0.172 (0.068)**	0.195 (0.085)**	0.181 (0.067)**	0.176 (0.071)**	0.234 (0.093)**
LNTP	0.011 (0.039)*	0.019 (0.040)**	0.023 (0.042)*	0.012 (0.032)*	0.017 (0.042)*
PSI-PG	-	0.085 (0.069)	-	-	0.092 (0.067)
VAI-PG	-	-0.103 (0.087)	-	-	-0.128 (0.106)
GEI-EG	-	-	0.060 (0.166)**	-	0.162 (0.234)
RQI-EG	-	-	-0.165 (0.156)	-	-0.115 (0.186)
COC-IG	-	-	-	0.132 (0.130)*	0.268 (0.159)*
ROL-IG	-	-	-	-0.105 (0.125)	0.017 (0.187)
Constant	6.574 (3.122)**	6.955 (3.530)**	6.936 (3.217)**	6.374 (3.114)**	8.015 (3.673)**
AR(2)	0.677	0.670	0.671	0.672	0.713
Hansen	0.125	0.139	0.109	0.131	0.170
Group	56	56	56	56	56
Observation	1012	1012	1012	1012	1012
Instruments	31	33	33	33	37
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 8 reports dynamic system-GMM results of the impact of external finance, trade and financial development, and other exogenous variables under the shadow of

governance indicators on economic growth. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNGDPPC_R is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the economic growth, which means that LNGDPPC_R has had a positive and significant impact on the current value of economic growth in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNREM, LNGCF, LNLFT, and LNTP appear to positively impact economic growth in a full sample of middle-income countries. Among the external financial inflows, according to the results, a 1 unit increase in LNLFDI, LNODA, and LNREM increases economic growth by 0.040%, 0.150%, and 0.051% at 5% and 10% significance levels. Furthermore, domestic investment as gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases LNGDPPC_R by 0.603% at a 5% significance level. Similarly, a 1 unit increase in LNLFT and LNTP also positively impacts economic growth by 0.172% and 0.011% at 5% and 10% significance levels. Similarly, in Column (2), by incorporating political governance indexes, the estimated results indicate consistent signs of LNFDI, LNODA, LNGCF, LNLFT, and LNTP; however, the magnitude of coefficients is slightly different. However, LNREM, PSI-PG, and VAI-PG appear to be insignificant. The estimated results indicate that a 1 unit increase in LNFD reduces economic growth by 0.135% at a 10% significance level. Incorporating the economic governance index in estimation, as mentioned in Column (3), the results indicate consistent signs of LNFDI, LNODA, LNGCF, LNLFT, and LNTP, except for political governance indexes. However, the GEI-EG index indicates a positive association with economic growth; thus, a 1 unit increase in the GEI-EG index increases economic growth by 0.060% at a 5% significance level. Furthermore, a 1 unit increase in LNREM positively impacts economic growth by 0.048% at a 10 significance level. Furthermore, the nexus between institutional indicators and nine other exogenous are mentioned in Column (4). According to outcomes, COC-IG positively impacts economic growth. 1 unit increase in COC-IG increases economic growth by 0.132% at a 10% significance level. Furthermore, LNFDI, LNODA, LNGCF, LNLFT, and LNTP positively correlate with economic growth. Finally; Column (5) presents the impact of nine exogenous variables and governance index on economic growth. The estimated results reveal that LNFDI, LNREM, LNODA, LNGCF, LNLFT, and LNTP positively impact economic growth. Among the external financial inflows,

according to the results, a 1 unit increase in LNLODA, LNFDI, and LNREM increases economic growth by 0.170%, 0.055%, and 0.059% at 1%, 5%, and 10% significance levels. Furthermore, domestic investment as gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases economic growth by 0.522% at a 5% significance level. Similarly, a 1 unit increase in LNLFT and LNTP also positively impacts economic growth by 0.234% and 0.017% at 5% and 10% significance levels. Similarly, a 1 unit increase in the COC-IG index increases economic growth by 0.268% at a 10% significance level. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 7, with the estimated results system-GMM (robustness analysis) in table 8, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNODA, LNGCF, LNLFT, LNTP, and COC-IG positively impact economic growth in middle-income countries. The coefficients are positive and have statistical significance across all the entire models.

TABLE 9. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (UPMIC, STATIC MODEL ESTIMATION)

UPPER-MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNGDP_INT	-0.166 (0.109)*	-0.245 (0.125)*	-0.153 (0.115)*	-0.191 (0.119)*	-0.148 (0.125)*
LNFDI	0.147 (0.056)**	0.139 (0.058)**	0.090 (0.080)*	0.153 (0.060)**	0.108 (0.076)*
LNREM	-0.019 (0.040)	-0.027 (0.039)	-0.034 (0.033)	-0.003 (0.043)	-0.035 (0.035)
LNODA	0.056 (0.050)	0.047 (0.065)	0.067 (0.050)	0.053 (0.054)	0.052 (0.060)
LNGCF	0.108 (0.144)*	0.206 (0.167)**	0.284 (0.180)**	0.165 (0.149)**	0.292 (0.184)**
LNT	0.465 (0.152)***	0.593 (0.208)**	0.506 (0.184)**	0.461 (0.159)***	0.602 (0.191)***
LNFD	-0.294 (0.063)***	-0.354 (0.088)***	-0.369 (0.100)***	-0.363 (0.086)***	-0.360 (0.089)***
LNSS	-0.226 (0.122)*	-0.307 (0.142)**	-0.329 (0.176)*	-0.369 (0.148)**	-0.383 (0.125)***
LNLFT	-0.021 (0.0563	-0.018 (0.078)	-0.044 (0.075)	-0.015 (0.055)	-0.049 (0.100)
LNTP	0.099 (0.014)***	0.112 (0.015)***	0.130 (0.023)***	0.119 (0.014)***	0.135 (0.020)***
PSI-PG		-0.033 (0.078	-	-	-0.041 (0.086)
VAI-PG		0.201 (0.130)	-	-	0.029 (0.106)
GEI-EG		-	-0.194 (0.254)	-	-0.323 (0.278)
RQI-EG		-	0.409 (0.300)	-	0.466 (0.318)
COC-IG		-	-	0.344 (0.143)**	0.404 (0.201)*
ROL-IG		-	-	-0.132 (0.184)	-0.334 (0.187)*
Constant	2.069 (1.788)	2.400 (2.155)	2.162 (2.246)	2.842 (2.136)	1.900 (2.532)
R.Sq	0.338	0.358	0.360	0.354	
Observations	973				
Groups	56				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 9 reports the impact of external finance, trade, financial development, and other exogenous variables under the shadow of governance indicators on economic growth, empirically investigated by fixed-effect Driscoll-Kraay estimation for upper-middle-income countries, thus middle-income-trapped countries. The estimated results explore

whether external finance, trade, financial development, and governance enhance economic growth and enable upper-middle-income countries to escape the middle-income trap. Column (1) shows that among nine exogenous variables, besides LNFD and LNSS, all other variables, including LNFDI, LNGCF, LNT, LNLFT, and LNTP, positively impact economic growth in upper-middle-income countries. Among the external financial inflows, only LNFDI indicates a positive association with LNGDPPCR. Thus a 1 unit increase in LNFDI increases economic growth by 0.147% at a 5% significance level. Furthermore, the estimated results also reveal that a 1 unit increase in LNGCF and LNT increases economic growth by 0.108% and 0.465% at a 10% and 1% significance level. Likewise, technological advancement also increases economic growth; thus, a 1 unit increase in LNTP increases economic growth by 0.099% at a 1% significance level. On the other hand, a 1 unit increase in LNFD and LNSS decreases economic growth by 0.294% and 0.226% at a 1% and 10% significance level. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNGCF, LNT, LNFD, LNSS, and LNTP; the magnitude of coefficients and statistical significance is slightly different. Similarly, the PSI-PG and VAI-PG appear to be insignificant in the growth process for upper-middle-income countries. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG and RQI-EG do not enhance economic growth. Furthermore, by incorporating the institutional governance indicator in Column (4), a 1 unit increase in the COC-IG index increases economic growth by 0.334% at a 5% significance level. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on economic growth for middle-income countries. The estimated results reveal that LNFDI, LNGCF, LNT, LNFD, LNSS, and LNTP positively increase economic growth once the strong corruption control index (COC-IG). However, LNFD and LNSS do not contribute to economic growth. According to the results, a 1 unit increase in LNFD and LNSS in upper-middle-income countries reduces LNGDPPCR by 0.360% and 0.383% at a 1% significance level. Similarly, a 1 unit increase in LNFDI increases economic growth by 0.108% at 10% significance levels. FDI inflow usually increases foreign trade and also positively impacts domestic savings. The estimated results indicate that a 1 unit increase in LNGCF and LNT increases economic growth by 0.292% and 0.602% at a 5% and 1% significance level. On the other hand, a 1 unit increase in LNTP increases economic

growth by 0.135% at 1% significance levels. Likewise, a 1 unit increase in the COC-IG index increases economic growth by 0.404%. On the other hand, a 1 unit increase in ROL-IG decreases economic growth by 0.334% at a 10% significance level. Lastly, in a likewise full sample of middle-income countries, the estimated results reveal that the initial GDPPC indicate a negative association and is statistically significant with economic growth across all the specification indicated in columns (1) to (5). According to the results, a 1 unit increase in initial GDP per capita leads to an average 0.108% lower growth today. The results show the presence of catch-effect and law of diminishing return for the middle-income countries.

TABLE 10. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (UPMIC, DYNAMIC MODEL ESTIMATION)

UPPER-MIDDLE-INCOME COUNTRIES					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNGDPPC_R	0.261 (0.401)**	0.249 (0.353)**	0.306 (0.410)**	0.310 (0.403)**	0.336 (0.356)**
LNGDP_INT	-2.434 (1.183)**	-1.675 (1.049)**	-3.043 (1.529)**	-2.507 (1.583)**	-2.653 (1.587)*
LNFDI	0.152 (0.147)*	0.167 (0.144)*	0.080 (0.158)*	0.177 (0.159)*	0.091 (0.138)**
LNREM	0.170 (0.251)	0.140 (0.205)	0.123 (0.290)	0.169 (0.250)	0.134 (0.249)
LNODA	0.215 (0.196)	0.136 (0.148)	0.260 (0.213)	0.207 (0.198)	0.193 (0.210)
LNGCF	0.612 (0.499)*	0.529 (0.440)*	0.891 (0.533)*	0.585 (0.550)*	0.906 (0.443)**
LNT	0.101 (0.537)*	0.219 (0.507)*	0.173 (0.509)*	0.288 (0.527)*	0.260 (0.579)*
LNFD	-0.637 (0.506)**	-0.568 (0.390)**	-0.654 (0.619)**	-0.577 (0.524)**	-0.545 (0.541)**
LNSS	-0.473 (1.010)	-0.329 (0.662)	-0.539 (0.900)	-0.458 (0.870)	-0.343 (0.529)
LNLFT	-0.157 (0.425)	-0.154 (0.395)	-0.185 (0.456)	-0.151 (0.450)	-0.207 (0.520)
LNTP	0.135 (0.130)**	0.155 (0.096)*	0.150 (0.188)**	0.167 (0.165)**	0.180 (0.155)**
PSI-PG	-	-0.029 (0.335)	-	-	0.013 (0.398)
VAI-PG	-	0.025 (0.410)	-	-	-0.422 (0.502)
GEI-EG		-	-0.898 (0.890)	-	-0.940 (0.715)
RQI-EG		-	0.813 (0.837)	-	1.158 (0.804)
COC-IG		-	-	0.551 (0.628)**	0.924 (0.550)*
ROL-IG		-	-	-0.675 (0.853)	-0.973 (1.126)
Constant	2.326 (0.323)*	2.468 (0.726)*	2.830 (0.487)*	2.923 (0.780)*	2.157 (0.518)*
AR(2)	0.200	0.164	0.182	0.190	0.134
Hansen	0.240	0.300	0.210	0.270	0.190
Group	26	26	26	26	26
Observation	404	404	404	404	404
Instruments	19	21	21	21	25
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 10 reports dynamic system-GMM results of the impact of external finance, trade and financial development, and other exogenous variables under the shadow of

governance indicators on economic growth. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNGDPPC_R is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the economic growth, which means that LNGDPPC_R has had a positive and significant impact on the current value of economic growth in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNGCF, LNT, and LNTP appear to impact economic growth in upper-middle-income countries positively. However, LNFD negatively correlated with economic growth. Thus 1 unit increase in LNFD decreases economic growth by 0.637% at a 5% significance level. According to the results of the external financial inflows, a 1 unit increase in LNLFDI increases economic growth by 0.152% at a 10% significance level. Furthermore, domestic investment as gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases economic growth by 0.612% at a 10% significance level. Similarly, a 1 unit increase in LNLT and LNTP also positively impacts economic growth by 0.101% and 0.135% at 10% and 5% significance levels. Similarly, in Column (2), by incorporating political governance indexes, the estimated results indicate consistent signs of LNFDI, LNGCF, LNT, LNFD, and LNTP; however, the magnitude of coefficients is slightly different. However, PSI-PG and VAI-PG appear to be insignificant. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results indicate consistent signs of LNFDI, LNGCF, LNLT, LNFD, and LNTP except for political governance indexes. However, the GEI-EG and RQI-EG appeared to be insignificant. The nexus between institutional indicators and other nine exogenous are mentioned in Column (4). According to outcomes, COC-IG positively impacts economic growth. 1 unit increase in COC-IG increases economic growth by 0.551% at a 5% significance level. Furthermore, LNFDI, LNGCF, LNT, and LNTP indicate a positive association with economic growth, whereas LNFD is negatively correlated with economic growth. Finally, Column (5) presents the impact of nine exogenous variables and governance index on economic growth. The estimated results reveal that LNFDI, LNGCF, LNT, LNTP, and COC-IG positively impact economic growth. According to the results of the external financial inflows, a 1 unit increase in LNFDI increases economic growth by 0.091% at a 5% significance level. Furthermore, domestic investment in gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases economic growth

by 0.906% at a 5% significance level. Similarly, a 1 unit increase in LNT and LNTP also positively impacts economic growth by 0.260% and 0.180% at a 5% significance level. Likewise, a 1 unit increase in the COC-IG index increases economic growth by 0.924% at a 10% significance level. However, a 1 unit increase in LNFD decreases economic growth by 0.545% at a 5% significance level. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 9, with the estimated results system-GMM (robustness analysis) in table 10, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNGCF, LNTP, and COC-IG positively impact economic growth in upper-middle-income-countries. The coefficients are positive and have statistical significance across all the entire models. However, as per estimations, LNFD decreases economic growth in upper-middle-income countries; the coefficients are negative and have statistical significance across all the entire models.

TABLE 11. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (LMIC, STATIC MODEL ESTIMATION)

LOWER-MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNGDP_INT	-0.327 (0.153)**	-0.263 (0.158)**	-0.342 (0.162)**	-0.359 (0.150)**	-0.318 (0.185)*
LNFDI	0.052 (0.027)*	0.049 (0.024)*	0.064 (0.025)**	0.062 (0.030)*	0.068 (0.027)**
LNREM	-0.003 (0.030)	-0.014 (0.031)	-0.007 0.037)	-0.009 (0.030)	0.014 (0.041)
LNODA	0.068 (0.036)*	0.065 (0.035)*	0.069 (0.037)*	0.072 (0.032)**	0.071 (0.033)**
LNGCF	0.440 (0.105)***	0.407 (0.096)***	0.358 (0.084)***	0.387 (0.114)***	0.0336 (0.096)***
LNT	0.084 (0.065)	0.044 (0.079)	0.082 (0.075)	0.081 (0.064)	0.026 (0.098)
LNFD	-0.124 (0.051)**	-0.134 (0.053)**	-0.140 (0.062)**	-0.138 (0.060)**	-0.160 (0.067)**
LNSS	0.196 (0.083)**	0.193 (0.091)**	0.167 (0.085)*	0.194 (0.085)**	0.219 (0.116)*
LNLFT	0.082 (0.027)***	0.111 (0.033)***	0.080 (0.031)**	0.095 (0.019)***	0.113 (0.036)***
LNTP	0.025 (0.028)	0.005 (0.025)	0.024 (0.023)	0.035 (0.022)	0.008 (0.024)
PSI-PG	-	0.064 (0.058)	-	-	0.025 (0.061)
VAI-PG	-	-0.125 (0.042)**	-	-	-0.168 (0.059)*
GEI-EG	-	-	0.224 (0.098)**	-	0.173 (0.107)*
RQI-EG	-	-	-0.174 (0.129)	-	-0.030 (0.171)
COC-IG	-	-	-	0.207 (0.107)*	0.2015 (0.119)*
ROL-IG	-	-	-	-0.098 (0.104)	-0.171 (0.124)
Constant	0.505 (1.706)	0.101 (1.638)	0.108 (1.897)	0.820 (1.620)	0.640 (0.195)
R.Sq	0.364	0.373	0.372	0.370	0.386
Observations	523				
Groups	30				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 11 reports the impact of external finance, trade, financial development, and other exogenous variables under the shadow of governance indicators on economic growth, empirically investigated by fixed-effect Driscoll-Kraay estimation for lower-middle-income countries. The estimated results explore whether external finance, trade,

financial development, and governance enhance economic growth or whether dim its impact. Column (1) shows that among nine exogenous variables, besides LNFD, all other variables, including LNFDI, LNODA, LNGCF, LNT, LNSS, and LNLFT, positively impact economic growth in lower-middle-income countries. Among the external financial inflows, LNFDI and LNODA indicate a positive association with LNGDPPCR. Thus a 1 unit increase in LNFDI and LNODA increases economic growth by 0.052% and 0.068% at a 10% significance level. Furthermore, the estimated results also reveal that a 1 unit increase in LNGCF increases economic growth by 0.440% at a 1% significance level. On the other hand, a 1 unit increase in LNSS and LNLFT increases economic growth by 0.196% and 0.082% at a 5% and 1% significance level. However; a 1 unit increase in LNFD decreases LNGDPPCR by 0.134% at 5% significance level. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNODA, LNGCF, LNFD, LNSS, and LNLFT; the magnitude of coefficients and statistical significance is slightly different. Similarly, the VAI-PG appears to reduce the growth process for lower-middle-income countries. As per results, a 1 unit increase in VAI-PG decreases economic growth by 0.125% at 5siginifiance level. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG enhance economic growth. As per results, a 1 unit increase in GEI-EG increases LNGDPPCR. by 0.224% at 5 significance level. Furthermore, by incorporating the institutional governance indicator in Column (4), a 1 unit increase in the COC-IG index increases economic growth by 0.207% at a 10% significance level and other variables indicate the statistical significance and consistent signs as mentioned in Columns (1) and (3). Similarly, Column (5) presents the impact of nine exogenous variables and governance index on economic growth for middle-income countries. The estimated results reveal that LNFDI, LNODA, LNGCF, LNSS, and LNLFT positively increase economic growth once the strong corruption control index (COC-IG). However, LNFD do not contribute to economic growth. According to the results, a 1 unit increase in LNFD in lower-middle-income countries reduces LNGDPPCR by 0.160% at a 5% significance level. Similarly, a 1 unit increase in LNFDI and LNODA increases economic growth by 0.108% and 0.071% at 5% significance levels. The estimated results indicate that a 1 unit increase in LNGCF increases economic growth by 0.033% at a 1% significance level. On the other hand, a 1 unit increase in LNSS and LNLFT increases economic

growth by 0.219% and 0.113% at 10% and 1% significance levels. Likewise, a 1 unit increase in the GEI-EG and COC-IG index increases economic growth by 0.173% and 0.201% at a 10% significance level. On the other hand, a 1 unit increase in VAI-PG decreases economic growth by 0.168% at a 10% significance level. Lastly, in a likewise full sample of middle-income countries, the estimated results reveal that the initial GDPPC indicate a negative association and is statistically significant with economic growth across all the specification indicated in columns (1) to (5). According to the results, a 1 unit increase in initial GDP per capita leads to an average 0.3218% lower growth today. The results show the presence of catch-effect and law of diminishing return for the middle-income countries.

TABLE 12. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (LMIC, DYNAMIC MODEL ESTIMATION)

LOWER-MIDDLE-INCOME COUNTRIES					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNGDPPC_R	0.095 (0.106)***	0.104 (0.106)**	0.110 (0.104)**	0.114 (0.107)**	0.126 (0.106)**
LNGDP_INT	-0.332 (0.483)*	-0.377 (0.500)*	-0.259 (0.520)*	-0.245 (0.478)*	-0.165 (0.544)*
LNFDI	0.078 (0.049)**	0.076 (0.046)*	0.095 (0.049)*	0.082 (0.048)*	0.085 (0.043)**
LNREM	0.035 (0.057)	0.053 (0.073)	0.057 (0.078)	0.029 (0.074)	0.048 (0.076)
LNODA	0.144 (0.124)**	0.131 (0.133)**	0.126 (0.116)*	0.132 (0.123)**	0.084 (0.120)*
LNGCF	0.607 (0.389)*	0.435 (0.375)**	0.516 (0.399)**	0.602 (0.390)**	0.337 (0.346)*
LNT	0.040 (0.254)	0.127 (0.261)*	0.026 (0.229)	0.011 (0.232)**	0.018 (0.221)**
LNFD	-0.050 (0.088)***	-0.072 (0.097)***	-0.059 (0.085)**	-0.063 (0.084)**	-0.093 (0.099)**
LNSS	0.040 (0.265)**	0.007 (0.244)*	0.070 (0.270)*	0.060 (0.235)*	0.025 (0.208)*
LNLFT	0.231 (0.107)*	0.278 (0.111)**	0.237 (0.120)*	0.213 (0.104)**	0.222 (0.133)**
LNTP	0.051 (0.073)	0.077 (0.068)	0.058 (0.821)	0.041 (0.074)	0.052 (0.071)
PSI-PG	-	0.176 (0.118)	-	-	0.121 (0.165)
VAI-PG	-	-0.206 (0.153)	-	-	-0.171 (0.113)
GEI-EG	-	-	0.231 (0.187)**	-	0.235 (0.383)*
RQI-EG	-	-	-0.259 (0.256)	-	-0.160 (0.262)
COC-IG	-	-	-	0.068 (0.242)*	0.029 (0.254)**
ROL-IG	-	-	-	0.041 (0.259)	-0.010 (0.275)
Constant	6.192 (5.108)**	6.309 (5.140)*	5.474 (6.049)*	5.437 (5.278)*	3.190 (5.064)*
AR(2)	0.213	0.217	0.219	0.178	0.179
Hansen	0.091	0.082	0.080	0.071	0.012
Group	30	30	30	30	30
Observation	489	489	489	489	489
Instruments	23	25	25	25	29
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 12 reports dynamic system-GMM results of the impact of external finance, trade and financial development, and other exogenous variables under the shadow of

governance indicators on economic growth. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNGDPPC_R is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the economic growth, which means that LNGDPPC_R has had a positive and significant impact on the current value of economic growth in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNODA LNGCF, LNSS, and LNLFT appear to impact economic growth in lower-middle-income countries positively. However, LNFD negatively correlated with economic growth. Thus 1 unit increase in LNFD decreases economic growth by 0.050%. According to the external financial inflows, a 1 unit increase in LNLFDI and LNODA increases economic growth by 0.078% and 0.144%. Furthermore, domestic investment as gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases economic growth by. Similarly, a 1 unit increase in LNSS and LNLFT also positively impacts economic growth by 0.040% and 0.231%. Similarly, in Column (2), by incorporating political governance indexes, the estimated results indicate consistent signs of LNFDI, LNODA, LNGCF, LNFD, LNSS, and LNLFT; however, the magnitude of coefficients is slightly different. However, PSI-PG and VAI-PG appear to be insignificant. The estimated results reveal that a 1 unit increase in LNT increases economic growth by 0.127%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results indicate consistent signs of LNFDI, LNODA, LNFD, LNSS, and LNLFT except for LNT and political governance indexes. However, the GEI-EG appeared to be significant. According to the results, a 1 unit increase in GEI-IG increases economic growth by 0.231%. The nexus between institutional indicators and the other nine exogenous are mentioned in Column (4). According to outcomes, COC-IG positively impacts economic growth. 1 unit increase in COC-IG increases economic growth by 0.068%.Furthermore; LNFDI, LNODA, LNGCF, LNT, LNSS, and LNLFT indicate a positive association with economic growth, whereas LNFD is negatively correlated with economic growth. Finally, Column (5) presents the impact of nine exogenous variables and governance index on economic growth. The estimated results reveal that LNFDI, LNODA, LNGCF, LNT, LNSS, LNLFT, and COC-IG positively impact economic growth. According to the external financial inflows, a 1 unit increase in LNFDI and LNODA increases economic growth by 0.085% and 0.084%. Furthermore, domestic investment in gross fixed capital

formation also enhances economic growth. 1 unit increase in LNGCF and LNT increases economic growth by 0.337% and 0.018%. Similarly, a 1 unit increase in LNSS and LNLFT also positively impacts economic growth by 0.025% and 0.222%. Likewise, a 1 unit increase in the GEI-EG and COC-IG index increases economic growth by 0.235% and 0.029%. However, a 1 unit increase in LNFD decreases economic growth by 0.093%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 11, with the estimated results system-GMM (robustness analysis) in table 12, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNODA, LNGCF, LNSS, LNLFT, GEI-EG, and COC-IG positively impact economic growth in lower-middle-income-countries. The coefficients are positive and have statistical significance across all the entire models. However, as per estimations, LNFD decreases economic growth in lower-middle-income countries; the coefficients are negative and have statistical significance across all the entire models.

TABLE 13. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION)

MIDDLE INCOME COUNTRIES WITH SEAPORTS					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNGDP_INT	-0.250 (0.073)***	-0.230 (0.069)***	-0.291 (0.084)***	-0.282 (0.072)***	-0.255 (0.068)***
LNFDI	0.119 (0.030)***	0.118 (0.030)***	0.105 (0.036)***	0.120 (0.028)***	0.105 (0.034)***
LNREM	0.020 (0.029)	0.029 (0.033)	0.020 (0.028)	0.025 (0.027)	0.029 (0.031)
LNODA	0.038 (0.025)*	0.041 (0.024)*	0.040 (0.024)*	0.038 (0.027)*	0.036 (0.025)**
LNGCF	0.383 (0.046)***	0.386 (0.048)**	0.436 (0.064)***	0.423 (0.054)***	0.459 (0.067)***
LNT	0.177 (0.068)**	0.154 (0.068)**	0.163 (0.078)*	0.181 (0.068)**	0.162 (0.073)**
LNFD	-0.190 (0.045)***	-0.203 (0.054)***	-0.222 (0.055)***	-0.229 (0.060)***	-0.228 (0.059)***
LNSS	-0.047 (0.063)	-0.074 (0.077)	-0.074 (0.082)	-0.093 (0.079)	-0.110 (0.085)
LNLFT	0.046 (0.021)**	0.060 (0.021)**	0.031 (0.022)	0.054 (0.018)***	0.076 (0.021)***
LNTP	0.078 (0.017)***	0.080 (0.014)***	0.090 (0.015)***	0.091 (0.014)***	0.088 (0.015)***
PSI-PG	-	0.059 (0.041)	-	-	0.037 (0.043)
VAI-PG	-	0.002 (0.037)*	-	-	-0.122 (0.060)**
GEI-EG	-	-	0.039 (0.178)	-	-0.232 (0.198)
RQI-EG	-	-	0.116 (0.199)	-	0.182 (0.226)
COC-IG	-	-	-	0.227 (0.105)**	0.321 (0.102)***
ROL-IG	-	-	-	-0.027 (0.106)	-0.011 (0.102)
Constant	1.090 (0.869)	0.965 (0.832)	1.786 (1.065)*	1.469 (0.980)	0.945 (0.882)
R.Sq	0.448	0.450	0.453	0.459	0.485
Observations	808				
Groups	46				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 13 reports the impact of external finance, trade, financial development, and other exogenous variables under the shadow of governance indicators on economic growth, empirically investigated by fixed-effect Driscoll-Kraay estimation for middle-income countries with seaports. The estimated results explore whether external finance, trade,

financial development, and governance enhance economic growth or whether dim its impact. Column (1) shows that among nine exogenous variables, besides LNFD, all other variables, including LNFDI, LNODA, LNGCF, LNT, LNLFT and LNTP, positively impact economic growth in middle-income countries with seaports. Among the external financial inflows, LNFDI and LNODA indicate a positive association with LNGDPPCR. Thus a 1 unit increase in LNFDI and LNODA increases economic growth by 0.119% and 0.038%. Furthermore, the estimated results also reveal that a 1 unit increase in LNGCF increases economic growth by 0.383% at a 1% significance level. Considering that fact that due to seaports in middle-income-countries provide them comparative advantage; therefore a 1 unit increase in LNT increases LNGDPPCR by 0.177%. On the other hand, a 1 unit increase in LNLFT and LNTP increases economic growth by 0.046% and 0.078%. However; a 1 unit increase in LNFD decreases LNGDPPCR by 0.190%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNODA, LNGCF, LNFD, LNLFT, and LNTP; the magnitude of coefficients and statistical significance is slightly different. Similarly, the VAI-PG appears to improve the growth process for middle-income countries with seaports. As per results, a 1 unit increase in VAI-PG increases economic growth by 0.002%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG and RQI appear to be insignificant for middle-income-countries with seaports. Furthermore, by incorporating the institutional governance indicator in Column (4), a 1 unit increase in the COC-IG index increases economic growth by 0.227% and other variables indicate the statistical significance and consistent signs as mentioned in Columns (1) and (3).Similarly, Column (5) presents the impact of nine exogenous variables and governance index on economic growth for middle-income countries. The estimated results reveal that LNFDI, LNODA, LNGCF, LNT, LNLFT and LNTP positively increase economic growth once there is strong VAI-PG and COC-IG. However, LNFD do not contribute to economic growth. According to the results, a 1 unit increase in LNFD in middle-income countries with seaports reduces LNGDPPCR by 0.228%. Similarly, a 1 unit increase in LNFDI and LNODA increases economic growth by 0.105% and 0.036%. Estimated results indicate that a 1 unit increase in LNGCF increases economic growth by 0.459%. On the other hand, a 1 unit increase in LNLFT and LNTP increases economic growth by 0.076% and 0.088% at 1% significance levels. Likewise, a 1 unit increase in the

VAI-PG and COC-IG index increases economic growth by 0.122% and 0.321%. Lastly, in a likewise full sample of middle-income countries, the estimated results reveal that the initial GDPPC indicate a negative association and is statistically significant with economic growth across all the specification indicated in columns (1) to (5). According to the results, a 1 unit increase in initial GDP per capita leads to an average 0.2636% lower growth today. The results show the presence of catch-effect and law of diminishing return for the middle-income countries.

TABLE 14. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION)

MIDDLE-INCOME COUNTRIES WITH PORTS					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNGDPPC_R	0.328 (0.069)***	0.329 (0.072)***	0.333 (0.074)***	0.326 (0.068)***	0.334 (0.070)***
LNGDP_INT	-0.383 (0.270)**	-0.419 (0.306)**	-0.380 (0.274)*	-0.344 (0.269)*	-0.433 (0.336)**
LNFDI	0.070 (0.046)*	0.072 (0.047)	0.071 (0.050)**	0.072 (0.048)**	0.069 (0.054)*
LNREM	0.053 (0.040)	0.064 (0.042)	0.054 (0.043)	0.047 (0.042)	0.058 (0.049)
LNODA	0.123 (0.056)**	0.128 (0.065)**	0.120 (0.053)**	0.121 (0.055)**	0.130 (0.066)**
LNGCF	0.499 (0.281)*	0.494 (0.284)*	0.471 (0.281)*	0.500 (0.290)*	0.504 (0.311)*
LNT	0.065 (0.161)**	0.014 (0.164)	0.075 (0.158)*	0.071 (0.157)	0.016 (0.161)*
LNFD	-0.112 (0.087)	-0.125 (0.090)	-0.113 (0.083)	-0.113 (0.095)	-0.128 (0.098)
LNSS	-0.265 (0.168)	-0.244 (0.164)	-0.274 (0.171)	-0.265 (0.168)	-0.263 (0.162)*
LNLFT	0.169 (0.069)**	0.187 (0.092)**	0.169 (0.064)***	0.174 (0.073)**	0.203 (0.107)**
LNTP	0.046 (0.041)**	0.010 (0.043)*	0.084 (0.043)*	0.010 (0.044)*	0.094 (0.050)*
PSI-PG	-	0.075 (0.069)	-	-	0.074 (0.074)
VAI-PG		-0.075 (0.089)	-	-	-0.135 (0.120)
GEI-EG		-	0.008 (0.206)	-	-0.214 (0.328)
RQI-EG		-	-0.049 (0.202)	-	0.017 (0.245)
COC-IG		-	-	0.113 (0.162)	0.285 (0.208)*
ROL-IG		-	-	-0.049 (0.147)	0.016 (0.196)
Constant	5.578 (2.983)*	5.940 (3.538)*	5.574 (2.927)**	5.336 (3.066)*	6.271 (4.114)
AR(2)	0.652	0.631	0.638	0.652	0.630
Hansen	0.213	0.257	0.168	0.224	0.251
Group	46	46	46	46	46
Observation	745	745	745	745	745
Instruments	31	33	33	33	37
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 14 reports dynamic system-GMM results of the impact of external finance, trade and financial development, and other exogenous variables under the shadow of

governance indicators on economic growth for middle-income countries with seaports. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNGDPPC_R is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the economic growth, which means that LNGDPPC_R has had a positive and significant impact on the current value of economic growth in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNODA LNGCF, LNT, LNLFT and LNTP appear to impact economic growth in lower-middle-income countries positively.According to the external financial inflows, a 1 unit increase in LNLFDI and LNODA increases economic growth by 0.070% and 0.123%. Furthermore, domestic investment as gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF increases economic growth by 0.499%. Similarly, a 1 unit increase in LNLFT and LNTP also positively impacts economic growth by 0.169% and 0.046%. Similarly, in Column (2), by incorporating political governance indexes, the estimated results indicate consistent signs of LNODA, LNGCF, LNLFT, and LNTP; however, the magnitude of coefficients is slightly different. However, PSI-PG and VAI-PG appear to be insignificant. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results indicate consistent signs of LNFDI, LNODA, LNGCF, LNT, LNLFT, and LNTP ; referring to column (1), except political governance indexes. However, the GEI-EG and RQI-IG appeared to be insignificant. The nexus between institutional indicators and the other nine exogenous are mentioned in Column (4). According to outcomes, COC-IG positively impacts economic growth. 1 unit increase in COC-IG increases economic growth by 0.113%. Furthermore, LNFDI, LNODA, LNGCF, LNT, LNLFT and LNTP indicate a positive association with economic growth. Finally, Column (5) presents the impact of nine exogenous variables and governance index on economic growth. The estimated results reveal that LNFDI, LNODA, LNGCF, LNT, LNLFT, LNTP and COC-IG positively impact economic growth. According to the external financial inflows, a 1 unit increase in LNFDI and LNODA increases economic growth by 0.069% and 0.130%. Furthermore, domestic investment in gross fixed capital formation also enhances economic growth. 1 unit increase in LNGCF and LNT increases economic growth by 0.504% and 0.016%. Similarly, a 1 unit increase in LNLFT and LNTP also positively impacts economic growth by 0.203% and 0.094%. Likewise, a 1 unit increase COC-IG index increases

economic growth by 0.285%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 13, with the estimated results system-GMM (robustness analysis) in table 14, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNODA, LNGCF, LNT, LNLFT, LNTP and COC-IG positively impact economic growth in lower-middle-income-countries. The coefficients are positive and have statistical significance across all the entire models.

TABLE 15. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (HIC, STATIC MODEL ESTIMATION)

HIGH INCOME					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNGDP_INT	-0.257 (0.194)	-0.092 (0.172)	-0226 (0.190)	-0.256 (0.206)	-0.095 (0.254)
LNFDI	0.048 (0.034)**	0.017 (0.034)**	0.027 (0.028)**	0.038 (0.027)**	0.011 (0.024)**
LNREM	0.019 (0.047)*	0.010 (0.047)**	0.036 (0.049)**	0.035 (0.048)**	0.023 (0.054)*
LNODA	0.023 (0.016)	0.008 (0.015)	0.017 (0.016)	0.021 (0.016)	0.007 (0.018)
LNGCF	0.017 (0.224)	0.032 (0.253)	0.050 (0.235)	0.074 (0.202)	0.085 (0.254)
LNT	0.350 (0.165)**	0.434 (0.192)**	0.194 (0.193)*	0.300 (0.163)*	0.318 (0.212)**
LNFD	-0.160 (0.146)	-0.255 (0.128)**	-0.220 (0.146)**	-0.230 (0.123)*	-0.258 (0.130)*
LNSS	0.957 (0.454)**	1.646 (0.562)***	1.120 (0.449)**	1.200 (0.447)**	1.590 (0.560)*
LNLFT	0.166 (0.104)**	0.150 (0.102)**	0.072 (0.131)**	0.139 (0.083)*	0.085 (0.125)**
LNTP	0.034 (0.049)***	0.036 (0.050)*	0.016 (0.060)**	0.033 (0.043)**	0.019 (0.059)***
PSI-PG		0.209 (0.136)	-	-	0.186 (0.137)
VAI-PG		0.343 (0.254)	-	-	0.280 (0.336)
GEI-EG			-0.227 (0.355)	-	-0.244 (0.388)
RQI-EG			0.461 (0.303)	-	0.332 (0.312)
COC-IG			-	-0.047 (0.184)	-0.003 (0.225)
ROL-IG			-	0.266 (0.212)*	0.027 (0.310)**
Constant	4.800 (3.015)*	6.267 (2.997)**	7.086 (3.320)**	6.842 (3.110)**	7.234 (3.057)**
R.Sq	0.311	0.334	0.328	0.320	0.313
Observations	298				
Groups	21				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 15 reports the impact of external finance, trade, financial development, and other exogenous variables under the shadow of governance indicators on economic growth, empirically investigated by fixed-effect Driscoll-Kraay estimation for high-income countries. The estimated results explore whether external finance, trade, financial

development, and governance enhance economic growth or whether dim its impact. Column (1) shows that among nine exogenous variables, besides LNFD, all other variables, including LNFDI, LNREM, LNT, LNSS, LNLFT and LNTP, positively impact economic growth in high-income countries. Among the external financial inflows, LNFDI and LNREM indicate a positive association with LNGDPPCR. Thus a 1 unit increase in LNFDI and LNREM increases economic growth by 0.048% and 0.019%. Furthermore, the estimated results also reveal that a 1 unit increase in LNT increases economic growth by 0.350%. On the other hand, a 1 unit increase in LNSS, LNLFT and LNTP increases economic growth by 0.957%, 0.166% and 0.034%. However; a 1 unit increase in LNFD decreases LNGDPPCR by 0.160%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNT, LNFD, LNSS, LNLFT, and LNTP; the magnitude of coefficients and statistical significance is slightly different. Similarly, the VAI-PG appears to improve the growth process for middle-income countries with seaports. As per results, a 1 unit increase in VAI-PG increases economic growth by 0.343%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG and RQI-IG appear to be insignificant for middle-income-countries with seaports. Furthermore, by incorporating the institutional governance indicator in Column (4), a 1 unit increase in the ROL-IG index increases economic growth by 0.266% and other variables indicate the statistical significance and consistent signs as mentioned in Columns (1) and (3). Similarly, Column (5) presents the impact of nine exogenous variables and governance index on economic growth for middle-income countries. The estimated results reveal that LNFDI, LNREM, LNT,LNSS LNLFT and LNTP positively increase economic growth once there is strong VAI-PG and ROL-IG.However, LNFD do not contribute to economic growth. According to the results, a 1 unit increase in LNFD in high-income countries decreases LNGDPPCR by 0.258%. Similarly, a 1 unit increase in LNFDI and LNREM increases economic growth by 0.011% and 0.023%. The estimated results indicate that a 1 unit increase in LNT increases economic growth by 0.318%. On the other hand, a 1 unit increase in LNSS, LNLFT and LNTP increases economic growth by 1.590%, 0.085% and 0.019%. Likewise, a 1 unit increase in the VAI-PG and COC-IG index increases economic growth by 0.280% and 0.027% . According to the estimated results reveal that the initial

GDPPC indicate a negative association however, statistically insignificant with economic growth across all the specification indicated in columns (1) to (5).

TABLE 16. IMPACT OF INTERNATIONAL FINANCE, INTERNATIONAL TRADE AND FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH (HIC, DYNAMIC MODEL ESTIMATION)

HIGH-INCOME COUNTRIES					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNGDPPC_R	0.327 (0.140)**	0.319 (0.125)**	0.343 (0.143)**	0.338 (0.153)**	0.324 (0.134)**
LNGDP_INT	-1.730 (1.276)	-1.349 (0.086)	-1.575 (1.886)	-1.899 (1.394)	-1.184 (1.213)
LNFDI	0.013 (0.058)**	0.056 (0.060)**	0.025 (0.059)**	0.012 (0.050)**	0.043 (0.060)**
LNREM	0.080 (0.085)	0.060 (0.048)	0.090 (0.087)	0.052 (0.089)	0.057 (0.052)
LNODA	0.009 (0.031)	0.007 (0.025)	0.010 (0.036)	0.069 (0.030)	0.024 (0.026)
LNGCF	0.174 (0.858)	0.893 (0.613)	0.943 (0.926)**	0.201 (0.893)	0.685 (0.652)
LNT	0.182 (0.187)*	0.387 (0.159)**	0.047 (0.216)	0.142 (0.235)	0.276 (0.210)**
LNFD	-0.618 (0.304)**	-0.585 (0.226)**	-0.533 (0.280)**	-0.585 (0.318)*	-0.438 (0.169)**
LNSS	0.415 (0.108)*	0.625 (0.773)**	0.308 (0.671)	0.295 (0.095)**	0.843 (0.878)*
LNLFT	0.108 (0.110)	0.630 (0.075)	0.025 (0.088)	0.076 (0.139)	0.065 (0.139)
LNTP	0.042 (0.073)*	0.063 (0.050)**	0.043 (0.079)**	0.013 (0.587)	0.056 (0.084)
PSI-PG		0.220 (0.153)	-		0.111 (0.178)
VAI-PG		0.617 (0.353)*	-		0.656 (0.601)
GEI-EG		-	-0.675 (0.750)		-0.212 (0.644)
RQI-EG		-	0.644 (0.405)		0.575 (0.245)**
COC-IG		-	-	-0.268 (0.444)	-0.253 (0.384)
ROL-IG		-	-	-0.265 (0.511)	-0.542 (0.466)
Constant	2.886 (4.346)	5.987 (3.430)*	4.277 (5.911)	1.314 (5.723)	4.991 (4.762)
AR(2)	0.969	0.897	0.799	0.786	0.953
Hansen	0.528	0.661	0.450	0.476	0.563
Group	21	21	21	21	21
Observation	252	252	252	252	252
Instruments	14	16	16	16	20
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 16 reports dynamic system-GMM results of the impact of external finance, trade and financial development, and other exogenous variables under the shadow of

governance indicators on economic growth for middle-income countries with seaports. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNGDPPC_R is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the economic growth, which means that LNGDPPC_R has had a positive and significant impact on the current value of economic growth in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNT, LNSS and LNTP appear to impact economic growth in lower-middle-income countries positively. According to the external financial inflows, a 1 unit increase in LNLFDI increases economic growth by 0.013%. Similarly, a 1 unit increase in LNT, LNSS and LNTP also positively impacts economic growth by 0.182%, 0.415% and 0.042% respectively. However estimated results reveal that , 1 unit increase in LFD decreases economic growth by 0.618%. Similarly, in Column (2), by incorporating political governance indexes, the estimated results indicate consistent signs of LNFDI, LNT, LNFD, LNSS and LNTP; however, the magnitude of coefficients is slightly different. However, PSI-PG appears to be insignificant; but 1 unit increase in VAI-PG increases economic growth by 0.617%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results indicate consistent signs of LNFDI, LNT, LNFD,LNSS and LNTP ; referring to column (1), except political governance indexes. However, LNGCF and RQI-IG appeared to be significant. According to the results 1 unit increase in LNGCF and LNRQI increases economic growth by 0.943% and 0.644%. The nexus between institutional indicators and the other nine exogenous are mentioned in Column (4). According to outcomes, ROL-IG positively impacts economic growth. 1 unit increase in ROL-IG increases economic growth by 0.265%. Furthermore, LNFDI, LNT, LNFD, LNLSS and LNTP indicate a positive association with economic growth. Finally, Column (5) presents the impact of nine exogenous variables and governance index on economic growth. The estimated results reveal that LNFDI, LNT, LNSS, LNTP, VAIPG and ROL-IG positively impact economic growth. According to the external financial inflows, a 1 unit increase in LNFDI increases economic growth by 0.043%. Furthermore, 1 unit increase in LNT, LNSS and LNTP increases economic growth by 0.276%, 0.843% and 0.056%. Similarly, a 1 unit increase in LNFD decreases economic growth by 0.438%. Likewise, a 1 unit increase VAI-PG, RQI-EG and ROL-IG index increases economic growth by 0.656%, 0.575% and 0.542% respectively. In system-GMM, post estimation

diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 15, with the estimated results system-GMM (robustness analysis) in table 15, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNT, LNSS LNTP, VAI-PG and ROL-IG positively impact economic growth in high-income countries. The coefficients are positive and have statistical significance across all the entire models. However, LNFD appear to decreases economic growth.

3.5 DISCUSSION

In terms of external finance, the evidence reveals that FDI inflow positively impacts economic growth. It is because FDI inflow indicates a strong spillover effect in middle-income countries, its sub-income group, middle-income countries with seaports, and high-income countries. It is because, in the recent period, the middle-income countries promote FDI inflow by providing various incentive schemes and lower barriers; therefore, FDI inflow injects positive externalities (spillover effect) by transferring more technology to the local firm and increasing competition. Several studies also found a positive association between FDI inflow and economic growth in different regions and countries, which reinforce the findings of this study[302] [303] [304] [305]. Foreign aid induces economic growth in middle-income countries, full sample, and lower-middle-income countries. It is because foreign aid contributes to the development process, which further helps in increasing the per capita income. Furthermore, during the development phase in lower-middle-income countries, foreign aid positively increase infrastructure development, institutions' effectiveness, and human capital,

[302]K. Lehnert, M.Benmamoun, and H.Zhao. "FDI inflow and human development: analysis of FDI's impact on host countries' social welfare and infrastructure." *Thunderbird International Business Review* 55.3,2013.p.285-298.
[303]M.A, Fadhil,and M.K.Almsafir. "The role of FDI inflows in economic growth in Malaysia (time series: 1975-2010)." *Procedia economics and finance* 23,2015.p.1558-1566.
[304]A.T, Okwu, I.Olasunkanmi Oseni, and Rowland Tochukwu Obiakor. "Does foreign direct investment enhance economic growth? Evidence from 30 leading global economies." *Global Journal of Emerging Market Economies* 12.2,2020.p.217-230.
[305]W.O, Shittu,[et al.], "The impacts of foreign direct investment and globalisation on economic growth in West Africa: examining the role of political governance." *Journal of Economic Studies* 47.7,2020.p.1733-1755.

which positively increase per capita income[306]. Numerous studies also found a positive association between foreign aid and economic growth, which affirm the finding of this study[307] [308] [309]. Domestic saving positively increases economic growth in middle-income countries full sample, upper-middle-income countries, lower-middle-income countries, and middle-income countries with seaports. It is because the domestic saving enables local investors to invest more by adding up more equity without any foreign corporation; therefore, it positively impacts the per capita economic growth. These findings align with previous studies[310] [311]. On the other hand, international trade also increases per capita income in upper-middle-income countries, middle-income countries with seaports, and high-income countries. It is because trade liberalization induces more industrialization and productivity, which further positively impacts employment. More jobs increase the individual income. Several studies also found a positive association between trade and economic growth, affirming this study's finding[312] [313]. Likewise, middle-income countries with seaports hold a comparative advantage due to seaports and infrastructure; therefore, it also indicates a significant relationship with economic growth[314]. Nevertheless, the results indicate that financial development in terms of domestic credit to private sector percentage of GDP indicates a negative association with economic growth for upper-middle-income, lower-middle-income, and high-income countries. It is because the financial sector does not develop much, and there may be high volatility of interest rate by which credit is provided to the private sector; therefore, it does not contribute to economic growth. Another research claims that high-interest rate volatility usually represents the macro-economic uncertainty that has a

[306]J.Glennie,"The role of aid to middle-income countries: a contribution to evolving EU development policy." *London: Overseas Development Institute* 2011.
[307]S.Chatterjee, P.Giuliano, and I.Kaya. "Where has all the money gone? Foreign aid and the quest for growth." 2007.
[308]M. Irandoust, and J.Ericsson. "Foreign aid, domestic savings, and growth in LDCs: An application of likelihood-based panel cointegration." *Economic Modelling* 22.4,2005.p.616-627.
[309] X.Liu, X.Zhang, and C-C Chao. "Foreign aid, leisure–effort choice, and economic growth." *Economic Modelling* 43,2014.p.435-438.
[310]E.Anoruo, and Y.Ahmad. "Causal relationship between domestic savings and economic growth: Evidence from seven African countries." *African development review* 13.2,2001.p.238-249.
[311]P. Aghion,[et al.], "When does domestic savings matter for economic growth?." *IMF Economic Review* 64,2016.p.381-407.
[312]T.Singh,."Does international trade cause economic growth? A survey." *The World Economy* 33.11,2010.p.1517-1564.
[313]D.B, Osei, Y.Awudu Sare, and M.Ibrahim. "On the determinants of trade openness in low-and lower–middle-income countries in Africa: how important is economic growth?." *Future Business Journal* 5.1,2019.p.2.
[314]R. Irshad, and N.Ghafoor. "Infrastructure and economic growth: evidence from lower middle-income countries." *Journal of the Knowledge Economy* 14.1,2023.p.161-179.

negative impact on economic growth[315]. Furthermore, another author argued that domestic credit to the private sector is not used in growth-oriented areas; therefore, it might be negatively associated with economic growth[316]. Several previous studies also indicate a negative association between domestic credit to private sector percentage of economic growth and GDP, which confirms the findings of this study[317] [318]. Furthermore, human capital appears to impact economic growth in lower-middle-income and high-income countries positively. The findings affirm the human capital theory, which states that investing in education increases economic growth through productivity and a healthier lifestyle[319]. Several other previous empirical studies also highlighted that human capital is proxied by secondary school enrolment and economic growth[320] [321]. Regarding technological advancement, the total patents and economic growth indicate a positive association. It is because patents lead to more investment in research and development and increases invocations, further promoting economic growth[322]. Several empirical findings also confirm positive associations[323] [324]. The findings also reveal that government effectiveness appears to be positively associated with economic growth in lower-middle-income countries. It is because, in lower-middle-income countries, the government builds up the civil institutions to attract more foreign direct investment and effectively allocate official development aid, further enhancing the economic growth process. Another author also affirms the positive association between economic growth and government effectiveness[325]. Likewise, my findings also reveal that strong-anti corruption policies enhance economic growth in

[315]L. Katusiime, "Private sector credit and inflation volatility." *Economies* 6.2,2018.p.28.
[316]A.H, Arıç,. "The effects of financial development on economic growth in the European Union: a panel data analysis." *International journal of economic practices and theories* 4.4,2014.p.466-471.
[317] H-A,Al-Malkawi, H.A. Marashdeh, and N.Abdullah. "Financial development and economic growth in the UAE: Empirical assessment using ARDL approach to co-integration." *International Journal of Economics and Finance* 4.5,2012.p.105-115.
[318]R.Oluitan,Oluwatoyin. "Bank credit and economic growth: Evidence from Nigeria." *International Business and Management* 5.2,2012.p.102-110.
[319]R.Burnett,. "Theodore W. Schultz (1902–1998)." *The Palgrave Companion to Chicago Economics*. Cham: Springer International Publishing, 2023..p. 401-420.
[320]R. Barro, and J-W Lee. "Sources of economic growth." *Carnegie-Rochester conference series on public policy*. Vol. 40. North-Holland, 1994.
[321]S.Gumus, and S.Kayhan. "The Relationship between Economic Growth and School Enrollment Rates: Time Series Evidence from Turkey." *Educational Policy Analysis and Strategic Research* 7.1,2012.p.24-38.
[322]H.M, Ortiz-Villajos. "PATENTS AND ECONOMIC GROWTH IN THE LONG TERM. A QUANTITATIVE APPROACH." *Brussels Economic Review* 52,2009.
[323]K. Idris. "A Power Tool for Economic Growth." *WIPO publication* 888 (2003).
[324]D.Sinha,. "Patents, innovations and economic growth in Japan and South Korea: evidence from individual country and panel data." *Applied Econometrics and International Development* 8.1,2008.
[325]Md, R. Alam E. Kiterage, and B.Bizuayehu. "Government effectiveness and economic growth." *Economic Bulletin* 37.1,2017.p.222-227.

middle-income countries, upper-middle income countries, lower-middle income countries, and middle-income countries with seaports. Another author found that strong anti-corruption policies and implications enhance the effectiveness of local institutions that foster the economic growth process[326]. Several previous studies, also found a positive association between anti-corruption policies and economic growth[327] [328] [329]. Similarly, my findings also reveal that regulatory quality and the rule of law foster economic growth in high-income countries. In terms of regulator quality, as it increases to promote the private sector by implementing friendly business policies and issues permits, it promotes economic growth; the positive impact on economic growth[330]. On the other hand, the rule of law appears to be positively associated with economic growth in high-income countries. It is because in high-income achieving effective judicial system, quality of contract enforcement and property rights further enhance the business community's confidence and increase economic growth. Other author also affirms the positive association between the rule of law and economic prosperity[331].

3.6 SUMMARY OF RESEARCH FINDINGS

This research aims to highlight the impact of external financial, trade, and financial development on economic growth under the shadow of governance indicators for 56 middle-income countries and 21 high-income countries. For empirical estimation, fixed effect Driscoll- Kraay stand error estimation is applied as a static model (main), and system-gmm is used as dynamic model (robust) estimation. The findings reveal that convergence exists in all panels of middle-income countries; thus, developing countries achieve economic growth faster than developed countries. Furthermore, foreign direct investment positively impacts economic growth in middle-income and high-income countries. In contrast, official development assistance only impacts economic growth in lower-middle-income and middle-income countries with seaports. Trade increases economic growth in upper-middle-income countries, middle-income countries with seaports, and high-income countries. However, financial development indicates a

[326]D.Kennedy,. "The Internaitonal Anti-Corruption Campaign." *Conn. J. Int'l L.* 14,1999.p.455.
[327]Olsen, William P. "The anti-corruption handbook." *How to protect your business in the global marketplace* 172,2010.p.1-193.
[328]R.Hanna,[et al.], "The effectiveness of anti-corruption policy." *EPPI Centre Report* 3.1,2011.
[329]V.A, Nutassey, and S.Frimpong. "The role of corruption in financial development-foreign direct investment nexus in Sub-Saharan African countries." *Int. J. Bus. Econ. Law* 23.1,2020,p.333-342.
[330]J.I,Haidar,. "The impact of business regulatory reforms on economic growth." *Journal of the Japanese and international economies* 26.3,2012.p.285-307.
[331]A.Ozpolat,[et al.], "Does rule of law affect economic growth positively." *Research in World Economy* 7.1,2016.p.107.

negative association with economic growth in upper-middle-income, lower-middle-income, and high-income countries. The findings also reveal that strong corruption control is the critical determinant of economic growth in all middle–income countries. In contrast, in lower-middle-income countries, economic growth is also induced by government effectiveness. Lastly, in high-income countries, regulatory quality and the rule of law enhance economic growth positively.

CHAPTER. 4 ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY

4.1 ENVIRONMENTAL SUSTAINABILITY

Environmental degradation has been considered the main obstacle to achieving sustainable growth because it keeps several ecological difficulties, such as global warming, climate change, water scarcity, deforestation, high global temperatures, and emission of GHG. However, a low level of carbon dioxide emission was recorded in 2020 due to the lockdown and slows down of economic growth caused by the pandemic crisis of Covid-19[332]. However, on the other hand, 2020 was recorded as one of the warmest. Therefore scientists warn that if current policies remain unaltered, global temperatures might rise by another 2-5°C by the end of the century, potentially causing catastrophic economic harm. Most emerging and developed countries have been concerned about combating environmental challenges aggravated by individual human actions[333] [334] [335]. The majority of the world leaders emphasize collective efforts to protect the earth from the damages of global warming[336] [337] [338]. Likewise, unsustainable economic growth patterns appear to be a significant cause of greenhouse gas emissions [339] [340]. My research questions the growth–finance-environment trilemma by presenting the empirical discoveries which fill a lacuna in the literature. This research also highlights the role of governance and economic prosperity in discovering its impact on environmental sustainability.

Similarly, this research work adds a new perspective and highlights whether external finance, trade, and financial development improve environmental sustainability

[332]G.Ali, [et al.], "Environmental impacts of shifts in energy, emissions, and urban heat island during the COVID-19 lockdown across Pakistan." *Journal of Cleaner Production* 291,2021,p. 125806.
[333] C.L.Erickson, *Environmental justice as social work practice*. Oxford University Press, 2018.
[334]T.M.Letcher, "Introduction with a focus on atmospheric carbon dioxide and climate change." *Future energy*. Elsevier, 2020. 3-17.
[335]R.Ulucak and B.Ozcan. "Relationship between energy consumption and environmental sustainability in OECD countries: the role of natural resources rents." *Resources Policy* 69,2020,p.101803.
[336]M.McGrath,[et al.], "The consolidated European synthesis of CO2 emissions and removals for the European Union and United Kingdom: 1990–2020." *Earth System Science Data* 15.10,2023,p.4295-4370.
[337]J.B.Fitzgerald,. "Working time, inequality and carbon emissions in the United States: A multi-dividend approach to climate change mitigation." *Energy Research & Social Science* 84,2022,p. 102385.
[338]M.Panait[et al.]., "Impact factors to reduce carbon emissions. Evidences from Latin America." *Kybernetes* 52.11,2023,p. 5669-5686.
[339] M.Baloch, and Danish. "CO2 emissions in BRICS countries: what role can environmental regulation and financial development play?." *Climatic Change* 172.1-2 ,2022,p. 9.
[340]S.Naz,[et al.]., "Moderating and mediating role of renewable energy consumption, FDI inflows, and economic growth on carbon dioxide emissions: evidence from robust least square estimator." *Environmental Science and Pollution Research* 26,2019,p.2806-2819.

and dim its impact. The conclusion reveals, inter alia, that economic growth deteriorates the environment by increasing greenhouse gases and international financeinflow. The findings reveal that trade is a significant cause of greenhouse emissions due to political stability in middle-income countries, lower-middle-income countries, and middle-income countries with seaports. In essence, economic prosperity is a crucial determinant of environmental sustainability. This research also highlights that foreign direct investment, official development assistance, and trade impact on greenhouse gas emissions vary according to middle-income countries' sub-income groups. Likewise, the conclusion suggests that upper-middle-income countries should emphasize efficient and practical use of foreign direct investment, remittance inflow, and official development for the growth process via increasing environmental regulatory standards for improving environmental sustainability. Applicable environmental regulatory standards and environmental compliance policies for consumption and production in upper-middle-income countries could allow upper-middle-income countries to escape the middle-income trap efficiently and effectively. These are a significant contribution to the growth-finance-environmental sustainability literature, which justifies engaging in this research work, especially from a perspective of middle-income trapped countries. Economic growth is a crucial determinant of greenhouse gases, especially carbon dioxide emissions[341] [342]. Furthermore, economic growth is positively enhanced by international finance[343]. Considering the high emission of carbon dioxide is a critical issue in middle-income countries, as middle-income countries cause CO2 by 43.39% of total carbon dioxide emission of the world. Therefore, my study justifies engaging in this empirical research work, especially from an income-group perspective. Several researchers empirically analyzed the nexus between economic growth and environmental sustainability and argued that unsustainable production and consumption patterns harm the environment[344] [345] [346] [347]. It has been argued that the lack of renewable

[341]W.Beckerman, Wilfred. "Economic growth and the environment: Whose growth? Whose environment?." *World development* 20.4,1992.p.481-496.
[342]Md., Haque,[et al.] "Contribution of greenhouse gas emissions during cropping and fallow seasons on total global warming potential in mono-rice paddy soils." *Plant and Soil* 387 (2015): 251-264.
[343] Ibid,97.
[344] M.Pereira, M.Teresa, and A.Chatzidakis. "'Blame it on marketing': consumers' views on unsustainable consumption." *International Journal of Consumer Studies* 36.6,2012.p.656-667.
[345]S. Naz,[et al.], "Moderating and mediating role of renewable energy consumption, FDI inflows, and economic growth on carbon dioxide emissions: evidence from robust least square estimator." *Environmental Science and Pollution Research* 26,2019.p.2806-2819.

energy resources in the contract of fossil fuel consumption is the primary cause of carbon dioxide emission[348].Furthermore, the absence of green technology and environmentally friendly technology appears to damage the environment in the majority of developing countries[349] [350] [351]. Cross-border technology via foreign direct investment could improve environmental sustainability[352]. On the other hand, empirical studies also indicate that foreign direct investment inflow in developing countries is a significant cause[353] [354] [355] [356]. Likewise, unsustainable domestic consumption patterns in developing countries are also a major cause of carbon dioxide emission, which could increase by remittance inflow[357] [358]. Furthermore, in most middle-income countries trade also causes high emission of carbon dioxide[359] [360].Therefore, against this background, it becomes essential to investigate the economic growth, external finance, and environmental trilemma.

The study is a comparative analysis of economic growth and environmental sustainability from the growth-environmental sustainability paradigm. It incorporates other macroeconomic factors such as external finance, trade, and financial development

---

[346]I.Nwaka,[et al.], "Agricultural production and CO2 emissions from two sources in the ECOWAS region: New insights from quantile regression and decomposition analysis." *Science of the Total Environment* 748,2020.p.141329.

[347]L. Niessen, and N.MP Bocken. "Sustainable Production and Consumption." 2021.

[348]M.Mohsin, F.Taghizadeh-Hesary, and E.Rasoulinezhad. "Energy efficiency and electricity reforms: a way forward for clean power development." *The Handbook of Energy Policy*. Singapore: Springer Nature Singapore,2023.p.1-30.

[349]F.Abbasi, and K.Riaz. "CO2 emissions and financial development in an emerging economy: an augmented VAR approach." *Energy policy* 90,2016.p.102-114.

[350]M.Shahbaz,[et al.], "The effect of renewable energy consumption on economic growth: Evidence from the renewable energy country attractive index." *Energy* 207,2020.p.118162.

[351]M.Demiral,[et al.], "Non-renewable energy effects of trade in intermediate and final products: Evidence from emerging industrial economies." *Energy & Environment*,2023,p. 0958305X231167474.

[352]A.Repkine, and D.Min. "Foreign-funded enterprises and pollution halo hypothesis: A spatial econometric analysis of thirty Chinese regions." *Sustainability* 12.12,2020.p.5048.

[353]M.A.Aliyu, "Foreign direct investment and the environment: Pollution haven hypothesis revisted." 2005.

[354]S.M.Taylor,. "Unbundling the pollution haven hypothesis." *Advances in Economic Analysis & Policy* 4.2,2005.

[355]B.R.Copeland, "The pollution haven hypothesis." *Handbook on Trade and the Environment* 2.7 2008.

[356]M.Singhania and N.Saini. "Demystifying pollution haven hypothesis: Role of FDI." *Journal of Business Research* 123 (2021): 516-528.

[357]X.Yang, L.Geng, and K.Zhou. "Environmental pollution, income growth, and subjective well-being: regional and individual evidence from China." *Environmental Science and Pollution Research* 27,2020.p.34211-34222.

[358]Z.Wang,[et al.], "Disposable masks release microplastics to the aqueous environment with exacerbation by natural weathering." *Journal of hazardous materials* 417,2021.p.126036.

[359]Z.Lv,and T.Xu. "Trade openness, urbanization and CO2 emissions: dynamic panel data analysis of middle-income countries." *The Journal of International Trade & Economic Development* 28.3,2019.p.317-330.

[360]H. Ragoubi, and Z.Mighri. "Spillover effects of trade openness on CO2 emissions in middle-income countries: A spatial panel data approach." *Regional Science Policy & Practice* 13.3,2021.p.835-877.

for middle-income and high-income countries. The study comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of environmental sustainability. Using more effective technology and renewable energy usage might reduce carbon dioxide emissions and further enhance socio-economic development in upper-middle-income countries, highlighting a significant factor in the graduation process. Environmental sustainability heavily depends on socio-economic and socio-political factors[361]. Similarly, the timely transition toward environment-friendly and green technology is crucial for graduation from one income group to another[362] [363]. Therefore, this empirical analysis appeared to be a timely study as most middle-income countries strives toward achieving sustainable development goals, especially SDG 7. A panel for 56 middle-income countries and 21 high-income-countries is used to probe the discourse from 2000 to 2019. Furthermore, the middle-income countries are further divided based on income and geography, indicatively upper-middle-income countries as income group and middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of economic growth, external finance, trade, and financial development, on environmental sustainability. Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on carbon dioxide emission in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the upper-middle-income countries for their graduation process, from the middle-income group to the high-income group. This thesis aims to investigate how economic growth impacts the environment as SDG 7 in middle-income countries and its different sub-income groups. Therefore, this section provides an empirical investigation of whether economic growth improves environmental sustainability in the presence of external finance, trade and

[361]I.Khan, and F.Hou. "The impact of socio-economic and environmental sustainability on CO 2 emissions: a novel framework for thirty IEA countries." *Social Indicators Research* 155,2021.p. 1045-1076.

[362]R.F.Lubis, and P.Mahardika Adi Saputra. "The middle-income trap: is there a way out for asian countries?." *Journal of Indonesian Economy and Business: JIEB.* 30.3,2015.p.273.

[363]A.Andreoni, and F.Tregenna. "Escaping the middle-income technology trap: a comparative analysis of industrial policies in China, Brazil and South Africa." *Structural Change and Economic Dynamics* 54,2020.p.324-340.

financial development, and governance. A multidimensional approach is adopted, which estimated the nexus between economic growth, environmental sustainability, and other macro-economic variables performed on a total sample of middle-income countries than respective income and geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 4.2 presents a literature review, 4.3 highlights the research framework based on hypothesis, 4.4 indicates data along with the model specification and empirical estimation followed by results interpretation, 4.5 mentions discussion of results, and section 4.6 consist conclusion.

4.2 LITERATURE REVIEW

Despite increased investment in renewable energy and energy efficiency, initiatives to significantly increase private investment in green infrastructure, such as low-carbon and climate-resilient (LCR) infrastructure, continue to meet obstacles. Societal costs of emissions were not effectively reflected, and financially feasible low-carbon climate-resilient (LCR) projects are associated with increased risks and transaction costs; pricing signals frequently favor investment in unabated fossil-fuel intensive activities over low-carbon and climate-resilient (LCR) alternatives[364]. A few of the barriers to scaling up low-carbon and climate-resilient (LCR) infrastructure are those policies and regulations in the areas of environment, energy, and climate change that favour continued investment in fossil-fuel intensive activities over green infrastructure. Furthermore, regulatory policies with unintended consequences; thus, these refer to banking and financial regulations. Similarly, there is also the scarcity of acceptable financial products and funds with the characteristics that private investors seek. One of the biggest hurdles is screening monetary transactions and data directly or indirectly responsible for environmental degradation[365].Numerous other factors are highlighted below which directly or indirectly impact on the carbon dioxide emission.

[364] J.Corfee-Morlot,[et al.] "Towards a green investment policy framework: The case of low-carbon, climate-resilient infrastructure."2012.

[365] D.Röttgers, and B.Anderson. "Power struggle: Decarbonising the electricity sector-Effects of climate policies, policy misalignments and political economy factors on decarbonisation." *OECD Environment Working Papers* 139,2018,p.1-51.

ECONOMIC GROWTH AND CO_2 EMISSION

Several empirical findings suggest that economic growth increase carbon emission, thus increasing environmental degradation[366] [367] [368]. Similarly another author studied the effect of economic expansion, trade liberation, and urban population on CO_2 and SO_2 emissions. STIRPAT model was used to estimate the results of eleven Asian countries from 1980-to 2014. Johansen and Pedroni's test was applied to find cointegration among variables. Results of economic growth showed significant and positive signs. Furthermore, there found no effect of trade openness on carbon emissions in the long run. Error correction model was used to find the causal relationships among variables. So, it was indicated that there was a causal relation between free trade and carbon emission in the long run, while unidirectional relation ran from economic growth to carbon emissions[369]. Likewise another study which explored the effect of income on environmental quality used Ordinary Least Square estimator (OLS) to estimate the results of panel data of European Union countries. Results indicated that high-income countries had improved environmental quality while low-income counties had unfavorable environmental conditions[370]. Similarly, another author investigated a link between economic growth and the quality of the environment. Data was taken from 1960-1990 of 149 countries. Results indicated that environmental factors such as water and sanitation usage also increased due to the rise in income. However, he suggested that negative externalities of water pollution and CO_2 emissions are also produced when the income of the countries increases[371]. Likewise another empirical work examined the relationship between carbon dioxide emissions, energy consumption, and economic growth. Data was utilized from 1960 to 2005 in 19 European countries. Results showed co-integration among variables, particularly in Italy

[366] J. Wen, [et al.] "Does globalization matter for environmental degradation? Nexus among energy consumption, economic growth, and carbon dioxide emission." *Energy policy* 153.2021,p. 112230.
[367] M.Sehrawat, A. K. Giri, and G.Mohapatra. "The impact of financial development, economic growth and energy consumption on environmental degradation: Evidence from India." *Management of Environmental Quality: An International Journal* 26.5,2015,p.666-682.
[368] M.M.Rahman. "Environmental degradation: The role of electricity consumption, economic growth and globalisation." *Journal of environmental management* 253,2020,p.109742.
[369] K.Munir, and A.Ameer. "Assessing nonlinear impact of urbanization, economic growth, technology, and trade on environment: evidence from African and Asian emerging economies." *GeoJournal* 87.3,2022,p.2195-2208.
[370] A.M. Awan,[et al.] "Does globalization and financial sector development affect environmental quality? A panel data investigation for the Middle East and North African countries." *Environmental Science and Pollution Research* 27,2020,p. 45405-45418.
[371] S.Özokcu, and Ö.Özdemir. "Economic growth, energy, and environmental Kuznets curve." *Renewable and sustainable energy reviews* 72,2017.p.639-647.

and Denmark; findings support environment Kuznets curve analysis. Moreover, the error correction model illustrated the bidirectional relation between variables[372]. On the other hand, another author empirically investigated the relationship between carbon dioxide emissions, energy consumption, and economic development. Data was taken from 1965 to 2006 for South Africa. They used co-integration technique and their results indicated that there were long-run and short-run positive and significant relationships among variables. They recommended that South Africa standardize its economic development level to control pollution[373].

INTERNATIONAL FINANCE AND CO_2 EMISSION

An author conducted country-specific studies for Algeria using time series from 1970 to 2018 to investigate the impact of financial inflows such as FDI, remittances, and ODA on CO2. His results indicate that FDI inflow, aid, and energy use hold a positive association with CO2 Emissions in the long run, whereas remittances indicate a negative association with CO2 Emissions. Furthermore, short-run foreign direct investment, ODA, and GDP per capita indicate a conclusive and significant impact on air pollution[374]. Another research work used times series data of Bangladesh over the period 1990 to 2019 for investigating the impact of FDI inflow, tourism, electricity consumption, and economic development on CO2 Emissions. Their findings suggest that FDI inflow, electricity consumption, and economic growth positively impact CO2 Emissions, thus increasing CO2 emissions. However, tourism indicates a negative impact. Therefore their research reveals that the pollution heaven hypothesis found true for Bangladesh[375]. Likewsie another empirical work, indicate a positive association between FDI and CO_2 Emissions for China, Sri Lanka, and India using time series analysis[376]. For investigating the impact of FDI inflow on CO2 in the context of income group of countries, an author empirically analyze the panel data from 21 countries

[372]S.S.Akadiri,[et al.], "Examining the impact of globalization in the environmental Kuznets curve hypothesis: the case of tourist destination states." *Environmental Science and Pollution Research* 26,2019,p.12605-12615.
[373] M.E.Bildirici, and S.M.Gökmenoğlu. "Environmental pollution, hydropower energy consumption and economic growth: Evidence from G7 countries." *Renewable and Sustainable Energy Reviews* 75,2017.p.68-85.
[374] L.R.Janjua,. "Financial flows and environmental degradation: empirical evidence from algeria using auto regressive distributed lag estimation (ARDL)." *International Journal of Circular Economy and Waste Management (IJCEWM)* 1.2,2021,p.1-15.
[375]A. Rahman,[et al.] "Factors Influencing Farmers' Awareness and Risk Perception of Environmental Degradation in Bangladesh." *Polish Journal of Environmental Studies* 31.2,2022.
[376] Z.Rahman, H.Cai, and M.Ahmad. "A new look at the remittances-FDI-energy-environment nexus in the case of selected Asian nations." *The Singapore Economic Review* 68.01.2023,p.157-175.

divided by income level for the period 2011 to 2017. They employed panel ARDL for estimating the model. Their results reveal that FDI inflow increases CO2 Emissions in middle-income countries; however, in the case of high-income countries, it decreases CO2 Emissions. Furthermore, they also highlighted that trade openness also has adverse effects on CO2 emissions, thus increasing CO2 emissions[377]. Another empirical work used panel data from 76 countries over the period 2002 and 2012 to analyze the impact of FDI on CO2 emission between developed and development and vice versa[378]. Their empirical findings suggest that FDI originating from developed countries decreases CO2 Emissions in low- and lower-middle-income and high-middle income host countries. On the other hand, FDI from the developing countries appeared to increase CO2 emission in low- and lower-middle-income host countries. Another study also revealed that the FDI inflow positively increases CO2 emission in Middle-income countries. Thus pollution heave hypothesis was found valid for middle-income countries. Another empirical study based on panel data analysis for 170 countries worldwide for the period 1990 to 2018 to investigate the impact of foreign direct investment inflow and another control variable on CO2 emission. They conclude that FDI inflow, energy use, and economic growth in social globalization increase CO2 emissions. Whereas exports of natural resources, export of fuel resources, and export of ore and metal resources, urbanization, economic globalization, and political globalization reduce carbon emission[379]. In the case of Ghana[380], it has been concluded that FDI positively increases carbon emission. For Kuwait, author reveals FDI causes carbon dioxide emission[381].Another author used panel data from BRICS countries over the period 2000 and 2018 for investigating the nexus among CO2 emission, renewable energy, FDI export, and economic growth using PMG and MG estimation. Their findings suggest that FDI increases economic growth in BRICS countries which further positively increase CO2 Emission in BRICS countries. Furthermore, they also

[377] A.C.Marques, and R.Caetano. "The impact of foreign direct investment on emission reduction targets: Evidence from high-and middle-income countries." *Structural Change and Economic Dynamics* 55.2020.p.107-118.

[378] R.Adeel-Farooq, M.Faraz Riaz, and T.Ali. "Improving the environment begins at home: Revisiting the links between FDI and environment." *Energy* 215,2021,p.p119150.

[379] B.Muhammad,and M.K.Khan. "Foreign direct investment inflow, economic growth, energy consumption, globalization, and carbon dioxide emission around the world." *Environmental Science and Pollution Research* 28.39,2021,p. 55643-55654.

[380] S.Solarin,[et al.], "Investigating the pollution haven hypothesis in Ghana: an empirical investigation." *Energy* 124,2017.p. 706-719.

[381] M.Salahuddin,[et al.] "The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO2 emissions in Kuwait." *Renewable and sustainable energy reviews* 81,2018.p.2002-2010.

highlighted that CO2, renewable energy consumption; exports, FDI, and savings have a significant positive long-run impact on economic growth, while interest rates and trade openness affect economic growth negatively[382]. Likewisem, another study support the pollution haven hypothesis for BRICS. Regarding Aid nexus with CO2 emission, the author empirically analyze the panel of 59 low-income and lower-middle-income countries in the presence of urbanization as a threshold variable. Their findings reveal that a 1% increase in ODA inflow causes a 0.2259% increase in CO2 emission. Furthermore, as urbanization crosses the threshold value, a 1% increase in ODA inflow further causes a 0.2281% increase in CO2 emission[383]. Similarly, another empirical study also used panel data from 52 recipient countries from 1980 to 2016; reveal that climate aid helps reduce greenhouse gases in recipient countries[384].An empirical investigation analyzed the association between aid inflow, growth, remittance, and CO2 emission. Their empirical findings suggest that foreign aid and remittance reduce carbon emissions in Nepal, whereas financial development and high economic growth increase CO2 emissions[385]. Another author also conducted penal data analyses for five remittance-receiving countries for investigating the impact of remittance inflow on the environment. They used India, the Philippines, Egypt, Pakistan, and Bangladesh as sample countries from 1980 to 2016[386]. They used panel ARDL estimation for their empirical analysis. The findings suggest that remittance inflow, economic growth, and agriculture value-added help mitigate carbon emissions from review sample countries. On the other hand, financial development and industry value added cause carbon emission in the long run. However, the also argue that the inflow of remittances and agriculture value-added increase carbon emissions in the short run. Furthemore, another empirical research work investigated the impact of remittances, income, energy use, and foreign direct investment (FDI) on carbon emission. Thye used BRICS countries using panel common correlated effect mean group (CCEMG) and fully modified least squares

[382] A.Iqbal,[et al.], "The dynamic nexus between air transport, technological innovation, FDI, and economic growth: evidence from BRICS-MT countries." *Environmental Science and Pollution Research* 29.45,2022.p.68161-68178.

[383]A. Khan,[et al.], "The impression of technological innovations and natural resources in energy-growth-environment nexus: a new look into BRICS economies." *Science of the Total Environment* 727,2020.p.138265.

[384] X.Wu, A.Pan, and Q.She. "Direct and indirect effects of climate aid on carbon emissions in recipient countries." *Journal of Cleaner Production* 290,2021.p.125204.

[385]K.Sharma,B.Bhattarai, and S.Ahmed. "Aid, growth, remittances and carbon emissions in Nepal." *The Energy Journal* 40.1,2019,p.129-142.

[386]Z.Wang[et al.], "Impact of remittances on carbon emission: fresh evidence from a panel of five remittance-receiving countries." *Environmental Science and Pollution Research* 28.37,2021.p.52418-52430.

(FM-LS) estimation. The period of review for their analysis covered from 1986 to 2016. Their results reveal that for Brazil, Russia, and China remittances-led emission hypothesis was found positive. However, on the other hand, for India, remittance inflow decreases carbon emission[387]. An empirical study analyze the nexus among remittance, FDI inflow energy used, and CO_2 emission for 6 Asian countries using ARDL estimation from 1982-2014. Their empirical findings suggest that Sri Lanka, Pakistan, the Philippines, and Bangladesh show a positive association with remittance inflow in the long and short run for Pakistan, the Philippines, and Sri Lanka. In the case of FDI, China, Sri Lanka, and India indicate a positive association with CO_2 emission in both the long and short-run; thus pollution heaven hypothesis is found true for these countries[388]. Another author empirically analyze the dynamic association among remittance inflow, export, human capital, and CO_2 emission using other control variables such as renewable energy and economic growth using panel data for 22 countries from 1986 to 2017. Their findings suggest that remittance inflow, export, and renewable energy are negatively associated with carbon emission[389]. In another empirical study the author, investigated the impact of economic growth, trade openness, financial development, and remittance inflow on the environment for G-20 countries using panel data estimation (DOLS) and (FMOLS) methodology over the period 1990 to 2019. Their findings reveal that remittance inflow increases carbon emission in sample countries in the presence of financial development and economic growth. However, renewable energy reduces carbon emissions in G-20 countries[390].

FINANCIAL DEVELOPMENT AND CO_2 EMISSION

Theoretically, several studies exist in the literature that explores and highlight the nexus between environment and financial progress; however, most of the studies conclude conflicting reviews[391]. Similarly, financial development eventually helps to attract foreign direct investment (FDI) and further enhance research and development

[387]Z. Khan, M.Ahmad, and A.Khan. "On the remittances-environment led hypothesis: empirical evidence from BRICS economies." *Environmental Science and Pollution Research* 27 2020.p.16460-16471.
[388]MD.Rahman,[et al]. "The effect of remittance on energy consumption: Panel cointegration and dynamic causality analysis for South Asian countries." *Energy* 220,2021.p.119684.
[389]M.W Zafar,[et al.], "The dynamic linkage between remittances, export diversification, education, renewable energy consumption, economic growth, and CO2 emissions in top remittance-receiving countries." *Sustainable Development* 30.1,2022.p.165-175.
[390]K.Jamil,[et al.], "Do remittance and renewable energy affect CO2 emissions? An empirical evidence from selected G-20 countries." *Energy & Environment* 33.5,2022,p.916-932.
[391]M. Usman, [et al.], "Modeling financial development, tourism, energy consumption, and environmental quality: Is there any discrepancy between developing and developed countries?." *Environmental Science and Pollution Research* 28.41,2021,p.58480-58501.

(R&D) activities, which can help to increase economic activities and, as a result, improve environmental quality[392]. Numerous studies explained financial development as a new potential of carbon dioxide emission, thus a GHG[393] [394]. An empirical analysis using panel ARDL estimation for MERCOSUR countries covering the period 1980 to 2014, concluded that financial openness increases the CO_2 emissions both in short- and in the long run. Furthermore, their results also indicate that economic growth, consumption of primary energy, and agricultural production are responsible for increased emissions in the MERCOSUR countries[395]. Another panel data analysis for ASEAN-5 countries, the covered period from 1971 to 2019; using a random and fixed effect regression model, the finding indicates that financial development, energy consumption, and urbanization boost carbon dioxide emissions[396]. Another study also conducted the empirical analysis to investigate the nexus between financial development and environmental degradation for 1971 to 2011 for Pakistan using the ARDL-bounds test. They concluded that financial development positively increases carbon dioxide emissions[397]. Likewise, another empirical study investigated the nexus among macroeconomic variables and environmental degradation using time series ARDL for Ghana, covering 1980 to 2012. Their empirical analysis concludes that economic, foreign direct investment, urban population, financial development, and international trade positively impact CO_2 Emissions, while institutional quality decreases emissions in Ghana. Furthermore, in the case of India, the author used ARDL estimation covering the period between 1971 and 2008 and concluded that financial development is a significant cause of CO2 Emissions and energy consumption. Similar results were also affirmed by other author. Similarly, another study also used panel mean group and FMOLS estimation for one belt one road 49 initiative countries and the covered period between 1990 and 2014. They concluded that financial development positively increases carbon dioxide emission, whereas globalization negatively impacts

[392]J.Frankel, D.H.Romer, and T.Cyrus. "Trade and growth in East Asian countries: cause and effect?." 1996.
[393] C.Piñeiro, J.A.Tamazian, and K.C Vadlamannati. "Does higher economic and financial development lead to environmental degradation: evidence from BRIC countries." *Energy Policy* 37.1,2017,p.2009.
[394] A.Tamazian,J.P.Chousa, and K.C. Vadlamannati. "Does higher economic and financial development lead to environmental degradation: evidence from BRIC countries." *Energy policy* 37.1.2009,p.246-253.
[395] M.Koengkan,. "The positive impact of trade openness on consumption of energy: Fresh evidence from Andean community countries." *Energy* 158,2018.p.936-943.
[396]L.H.Phong, "Globalization, financial development, and environmental degradation in the presence of environmental Kuznets curve: evidence from ASEAN-5 countries." *International Journal of Energy Economics and Policy*,2019.
[397]F. Abbasi, and K.Riaz. "CO2 emissions and financial development in an emerging economy: an augmented VAR approach." *Energy policy* 90,2016.p.102-114.

ecological footprint, carbon footprint, and carbon dioxide emissions[398]; furthermore, similar results were also indicated by other authors[399] [400] . In general financial development increases environmental degradation because it provides funds/loans to entrepreneurs at a low cost for expanding new production lines installing/renting more equipment. Furthermore, on the other hand, for enhancing the acquisition of energy-intensive machineries such as automobiles and vehicles requires finance. Thus it is true to argue that financial development usually becomes the cause of more energy consumption which directly enhances more GHG emission, thus resulting in environmental degradation. For Venezuela, a author revealed in their study that financial development is reducing environmental damage. This means that Venezuelan financial institutions may assist in developing the country's sustainable energy concept and the Venezuelan government can cut carbon emissions through financial development[401]. In the case of China, a empirical study investigated the impact of financial development, economic growth, and energy consumption on environmental pollution from 1953 to 2006 using a time series ARDL estimate. Their results conclude that CO2 emissions are mainly determined by income, energy consumption, and trade openness in the long run. However, financial development reduces CO2 Emissions[402]. Another country-level empirical researchfor Malaysia indicates that financial development reduces CO_2 emissions. Furthermore, energy consumption and economic growth increase carbon dioxide emissions. For their empirical analysis, they have used ARDL bound test estimation and covered the period from 1971 to 2011[403]. On the other hand, author empirically estimated the nexuses among financial development, non-renewable and renewable energy use, and ecological sustainability by using the panel cointegration method. They used a sample panel of 23 renewable energy economies

[398]S.Saud, S.Chen, and A.Haseeb. "The role of financial development and globalization in the environment: accounting ecological footprint indicators for selected one-belt-one-road initiative countries." *Journal of Cleaner Production* 250,2020.p.119518.

[399]M.Usman. and N.Hammar. "Dynamic relationship between technological innovations, financial development, renewable energy, and ecological footprint: fresh insights based on the STIRPAT model for Asia Pacific Economic Cooperation countries." *Environmental Science and Pollution Research* 28.12,2021.p.15519-15536.

[400]L.Jiang, [et al.] "Effects of warming on carbon emission and microbial abundances across different soil depths of a peatland in the permafrost region under anaerobic condition." *Applied Soil Ecology* 156,2020.p.103712.

[401] S.Mohammed,[et al.], "Do government expenditure and financial development impede environmental degradation in Venezuela?." *PloS one* 14.1,2019. e0210255.

[402]A,Jalil, and M.Feridun. "Energy-driven economic growth: Energy consumption—economic growth nexus revisited for China." *Emerging Markets Finance and Trade* 50.5,2014.p.159-168.

[403]M.Shahbaz,[et al.], "The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia." *Tourism Economics* 23.1,2017,p.168-186.

from 1985-to 2011. They conclude that financial development decreases environmental degradation by providing loans/incentives for updated production technologies to improve environmental quality.[404] An empirical investigation conducted for 12 MENA countries using simultaneous-equation panel data models concludes no significant relationship between exit financial development and carbon dioxide emission[405]. Another time series analysis, using ARDL estimation for Kuwait for 1980–2013, concludes that financial development has no significant impact on carbon dioxide emissions[406]. Similar results also reveal by other author for Turkey that no significant relationship exists between financial development and environmental degradation[407]. In the case of middle-income countries, financial development may hurt the environment, which shows a positive link by increasing carbon emissions thus GHG as the industrial sector expands. Therefore positive sign is expected of financial development with carbon dioxide emission. Domestic credit to the private sector is used as a proxy of financial development in the model[408] [409].

TRADE AND CO_2 EMISSION

Trade openness is considered an important determinant affecting environmental and carbon emissions. Trade openness affects the environment in three ways: technology effect, scale effect, and composition effect[410]. In the technology effect, technology improves when trade activities increase and carbon emissions start decreasing. In scale effect, if free trade activities enhance, then trade output and trade volume also increases, and as a result, it starts to affect the environment deleteriously. In the composition effect, low-income countries prefer to invest in those industries;

[404]E.Dogan, and F.Seker. "The influence of real output, renewable and non-renewable energy, trade and financial development on carbon emissions in the top renewable energy countries." *Renewable and Sustainable Energy Reviews* 60,2016.p.1074-1085.
[405]A.Omri, [et al.], "Financial development, environmental quality, trade and economic growth: What causes what in MENA countries." *Energy economics* 48,2015.p.242-252.
[406]M.Salahuddin,[et al.], "The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO2 emissions in Kuwait." *Renewable and sustainable energy reviews* 81,2018,p.p2002-2010.
[407] I.Ozturk,and A.Acaravci. "The long-run and causal analysis of energy, growth, openness and financial development on carbon emissions in Turkey." *Energy economics* 36,2013.p.262-267.
[408] O.Muftau, M.Iyoboyi, and A.S.Ademola. "An empirical analysis of the relationship between CO2 emission and economic growth in West Africa." *American Journal of Economics* 4.1,2014.p. 1-17.
[409] H-T.Pao and C-M Tsai. "Modeling and forecasting the CO2 emissions, energy consumption, and economic growth in Brazil." *Energy* 36.5,2011,p.2450-2458.
[410] S.Shahzad,[et al.], "Carbon emission, energy consumption, trade openness and financial development in Pakistan: a revisit." *Renewable and Sustainable Energy Reviews* 70,2017.p.185-192.

making the environment more polluted[411]. On the other hand, another author explained the pollution haven hypothesis and factor endowment hypothesis to clarify the relationships between trade openness and Co_2 emissions. In the pollution haven hypothesis, developing countries with a low level of income are interested in producing pollutant goods which become the cause of the increase in CO_2 emissions[412]. Furthermore, due to the absence of environmental safety policies, developing countries turn into a haven for multinational companies that are taking advantage by planting their factories into these low-level income countries, making the environment harmful. According to the factor, the endowment hypothesis develops that countries that prefer to produce clean goods without affecting nature can benefit from free trade compared to developing countries. Furthermore, it has been said that free trade was formulated after World War II, and gradually the concept turned into a theory. However, theory started to use in practice, and in the 1980s, it became easy to access communication and transportation means at a low cost[413]. Likewise, it has been claimed that due to the increase in trade openness activities, fuel utilization also increased in transportation and energy production[414].

Furthermore, another author studied the impact of the North American Free Trade Agreement on the climate. The comparative advantage analysis was preceded by the panel data of Canada, the United States of America, and Mexico during the years 1980-1991. The result showed that climate conditions became unfavorable as trade and economic activities happened, but after the increase in income per capita, the environmental pollution decreased[415]. Likeiwse an empirical study examined the countries that were skilled in exporting and producing pollution-intensive goods, which influenced the environment. Countries were divided into two regions as South region and North region. Furthermore, it was concluded that the South region generated pollution and suggested that the environment can be made unpolluted through

[411] K.Bakhsh,[et al.], "Economic growth, CO2 emissions, renewable waste and FDI relation in Pakistan: New evidences from 3SLS." *Journal of environmental management* 196,2017.p.627-632.
[412]S.F.AYADI, "Pollution Haven Hypothesis (PHH) in selected West African economies: A panel generalized method of moments (PGMM) approach." *Journal of Economic Studies (JES)* 17.1,2020.p. 68-78.
[413]D.Rodrik, "What do trade agreements really do?." *Journal of economic perspectives* 32.2,2018.p.73-90.
[414]M.Murshed, "An empirical analysis of the non-linear impacts of ICT-trade openness on renewable energy transition, energy efficiency, clean cooking fuel access and environmental sustainability in South Asia." *Environmental Science and Pollution Research* 27.29,2020.p.36254-36281.
[415]G.Liobikienė, and M.Butkus. "Scale, composition, and technique effects through which the economic growth, foreign direct investment, urbanization, and trade affect greenhouse gas emissions." *Renewable energy* 132,2019.p.1310-1322.

environmental reforms and investment in clean projects[416]. On the other hand, another empirical investigation analyzed the impact of trade openness on the environment. Scale, composition, and technological effects were analyzed by taking panel data of high-level countries from 1971-1996 and low-level countries from 1980-1996. The results indicated that trade liberalization impacts the environment at both high level and low-level countries[417]. Some countries' trade openness significantly affected climate change, while others showed a more negligible effect on atmosphere alteration. Trade openness reduces carbon dioxide emission in Malaysia[418], Turkey[419] and Pakistan[420].

URBANIZATION AND CO_2 EMISSION

Urabanization defined as a process in which many people who are permanent inhabitants of rural areas migrate towards urban areas and, as a result, make country towns crowded[421]. Also, urbanization is the restructuring process in which agricultural areas shift into industrial areas. Substantial gathering of people in cities creates an unfavourable increase in expenditures social discrepancies and adversely impacts the atmosphere. Urbanization has been considered an essential condition for economic development, particularly in developing countries. At the time of the industrial revolution, it has been indicated that the inter-linkage of industry and urbanization led the economy towards growth and development. Later, it was analyzed that the linkage of industry and urbanization was futile because it started to damage the environment of developed countries. Recently, it also affected the climate of developing and emerging economies. It is related to shifting the rural agricultural workforce into urban services and industrial sectors and the procedure to assemble rural areas structures into urban areas structures[422]. It has been indicated that an incremental change of 50% in

[416] Q. Zhang,[et al.], "Inter-regional spillover of China's sulfur dioxide (SO2) pollution across the supply chains." *Journal of Cleaner Production* 207,2019.p. 418-431.
[417] S.Dasgupta, and E.D.Cian. "The influence of institutions, governance, and public opinion on the environment: Synthesized findings from applied econometrics studies." *Energy Research & Social Science* 43,2018,p.77-95.
[418]M.Shahbaz,[et al.], "The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia." *Tourism Economics* 23.1,2017.p.168-186.
[419]F. Halicioglu,. "An econometric study of CO2 emissions, energy consumption, income and foreign trade in Turkey." *Energy policy* 37.3,2009,p.1156-1164.
[420]M.Shahbaz,H-H Lean, and M.S.Shabbir. "Environmental Kuznets curve hypothesis in Pakistan: cointegration and Granger causality." *Renewable and Sustainable Energy Reviews* 16.5,2012.p.2947-2953.
[421]J.Shang,[et al.], "The relationship between population growth and capital allocation in urbanization." *Technological Forecasting and Social Change* 135,2018.p.249-256.
[422] Z.Li,[et al.], "Urbanization-driven changes in land-climate dynamics: A case study of Haihe River Basin, China." *Remote Sensing* 12.17,2020,p.2701.

urbanization had been noticed globally in the early period of the twenty-first century[423]. In 1970, the world population statistics was increased by 1.52 billion people, and further, it has estimated that in 2030, it will extend to 4.6 billion people. This noticeable change has happened due to the rapid increase in urbanization activities. Panel Dynamic Ordinary Least Squares (DOLS) method applied and found little but positive relation of urbanization with CO_2 emission in the long run [424].Another author investigated the effect of population and economic growth on CO_2 emission. STIRPAT analytical tool was used to explain the separate potential impact of the total population and gross domestic product on the environment. Data was taken from the year 1990 to 2014 in Taiwan. Results showed negative coefficients in the case of economic growth, but population coefficients were positive. It means CO_2 emission reduced as the GDP (per capita income) increased in Taiwan's economy from 1990 to 2014, but as the population increased, CO_2 emissions also increased. Moreover, the impact of population on carbon emission was more than the effect of economic growth on the environment. Thus, Taiwan suffers from environmental deterioration, but if its economic growth rises continuously by 1.7% till 2025, then an inverted U shape curve will be expected[425].

GOVERNANCE AND CO2 EMISSION

Numerous studies highlight the influential role of regulatory institutions in reducing carbon dioxide emissions. Likewise, another empirical study analyzes the nexus between FDI inflow, institutional quality, and carbon dioxide emission in Asian countries. Their findings suggest that energy consumption harms the environment in the long run, whereas greenhouse gases are significantly reduced in the presence of environmental quality regulations[426]. A similar study conducted by another author, concluded in their research work that effective political institutions positively decrease carbon dioxide emissions in South Africa, thus improving environmental quality[427].

[423] P.K.Crossley, "China Normal: Patterns of urbanization, industrialization, and trade on a Eurasian discursive base." *Modern Asian Studies* 54.4,2020.p.1278-1314.
[424] M.F.Rahman, and K.Alam. "Clean energy, population density, urbanization and environmental pollution nexus: Evidence from Bangladesh." *Renewable Energy* 172,2021,p.1063-1072.
[425] J-C.Yeh, and C-H Liao. "Impact of population and economic growth on carbon emissions in Taiwan using an analytic tool STIRPAT." *Sustainable Environment Research* 27.1,2017,p.41-48.
[426]H.S.M.Abbas, X.Xu, and C.Sun. "Role of foreign direct investment interaction to energy consumption and institutional governance in sustainable GHG emission reduction." *Environmental Science and Pollution Research* 28.40,2021.p.56808-56821.
[427]S.A.Sarkodie,and S.Adams. "Renewable energy, nuclear energy, and environmental pollution: accounting for political institutional quality in South Africa." *Science of the total environment* 643.2018.p.1590-1601.

Other studies that also indicate institutional quality positively improves the environment [428] [429] [430].

4.3 RESEARCH FRAMEWORK - ENVIRONMENTAL SUSTAINABILITY

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for upper-middle-income countries to leave the middle-income trap. Furthermore, this research work also provides a comparative analysis regarding the impact of economic growth, external finance, trade, and financial development along with the governance on environmental sustainability for middle-income countries and high-income countries. Likewise, this work also highlights the impact of economic growth on environmental sustainability in the panel of middle-income countries which possess seaports. Based on the research goals below a relevant research framework is mentioned in figure 4.

[428] M.H.Ibrahim and S.Hook Law. "Institutional Quality and CO2 Emission–Trade Relations: Evidence from S ub-S aharan A frica." *South African Journal of Economics* 84.2,2016.p.323-340.

[429]M.Azam, Muhammad, L.Liu, and N.Ahmad. "Impact of institutional quality on environment and energy consumption: evidence from developing world." *Environment, Development and Sustainability* 23,2021,p.1646-1667.

[430]D.I. Godil[et al.], "The dynamic nonlinear influence of ICT, financial development, and institutional quality on CO2 emission in Pakistan: new insights from QARDL approach." *Environmental Science and Pollution Research* 27,2020,p.24190-24200.

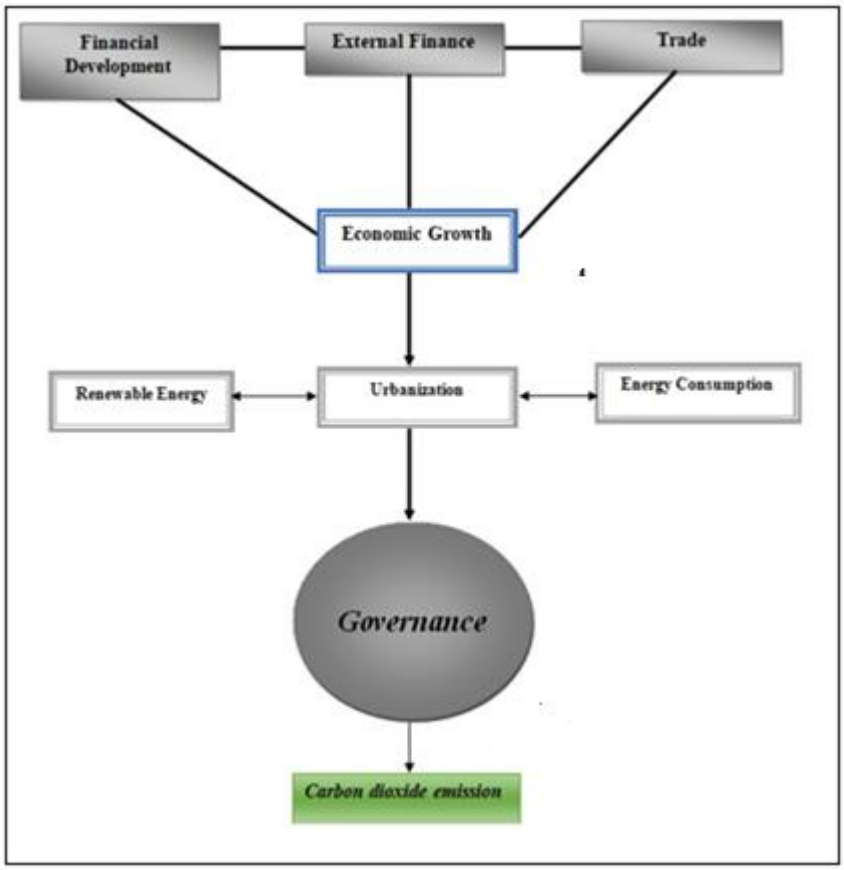


FIGURE 4. RESEARCH FRAMEWORK FOR THE MODEL OF ENVIRONMENT

4.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique.

4.4.1 DATA

The present study investigates growth–finance-environmental sustainability trilemma for middle-income and high-income countries for the period covering from 2001 to 2021. For evaluating the impact of economic growth on environmental sustainability, Carbon Emission metric ton per capita is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and environmental sustainability for testing the formulated hypothesis in figure 4.1. The other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage

of GDP, T is the total trade percentage of GDP, FD is the financial development refers to domestic credit to private sector percentage of GDP, EN is the energy consumption, URB is the urban population percentage of total population, RE is the renewable energy consumption percentage of total energy. Likewise, GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 17 contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

TABLE 17. DATA SOURCES, ABBREVIATION AND DESCRIPTION- ENVIRONMENTAL SUSTAINABILITY

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
CO_2	Carbon Emission metric ton per capita	Climate Watch World Resources Institute- Washington- USA	Endogenous
GDPPC	GDP per Capita (Constant USD 2015) –Economic growth	World Bank Development Indicator	Exogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
RE	Renewable Energy consumption (% of Total energy)	International Energy Agency	Exogenous
URB	Urban Population (% of total population)	World Bank Development Indicator	Exogenous
EN	Energy consumption	International Energy Agency	Exogenous
PSI-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VAI-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GEI-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQI-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
COC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
ROL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

4.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS (ENVIRONMENTAL SUSTAINABILITY)

By limiting the discussion to the variable of interest, economic growth, external finance, Carbon Emission metric ton per capita and renewable energy consumption, the comparative statistics of variables are shown in table 18 for middle-income-countries and table 19 indicate correlation analysis among the variables. Likewise table 20 indicate comparative statistics of variables for high-income-countries and table 21 correlation analyses among the variables respectively.

TABLE 18. SUMMARY STATISTICS (MIC-FS, ENVIRONMENTAL SUSTAINABILITY)

VARIABLE	MIDDLE-INCOME GROUP, FULL SAMPLE				
	OBS	MEAN	STD. DEV	MIN	MAX
CO_2	1176	2.239	2.342	0.088	15.04
GDPPC	1176	8840.9	5165.8	1409.4	28421.4
FDI	1176	3.983	4.921	-11.62	55.07
REM	1176	5.691	6.418	0.0001	34.49
ODA	1176	2.779	3.136	-0.616	21.43
FD	1176	39.16	29.97	0.007	149.37
T	1176	78.31	32.85	20.72	220.40
RE	1176	37.89	27.05	0.059	93.72
EN	1176	996.2	827.2	32.2	4786.5
URB	1176	52.75	17.65	13.39	91.203
PSI-PG	1176	-0.460	0.745	-2.81	1.28
VAI-PG	1176	-0.369	0.598	-1.82	1.15
GEI-EG	1176	-0.366	0.505	-1.75	1.27
RQI-EG	1176	-0.289	0.511	-1.80	1.13
COC-IG	1176	-0.516	0.534	-1.52	1.35
ROL-IG	1176	-0.497	0.489	-1.66	0.73

According to table 18, as per middle-income-countries the average real GDP per capita income is 3539.17 (USD Constant, 2015), with Cambodia having the lowest at 485.86 (USD Constant, 2015) in 2000 and Costa Rice showing the highest in 2019 with 12654.69 (USD Constant, 2015). The standard deviation appeared as 2377.1. The average foreign direct investment inflow percentage of GDP is 3.983%, with Mauritania having the lowest at -11.624% in 2019 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.921. Similarly, the average remittance inflow percentage of GDP is 5.691%, with Angola having the lowest at 0.00013% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.418. Furthermore, the average official development assistance inflow percentage of GDP is 2.779%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic

showed the highest in 2005 with 21.43%, with a standard deviation of 3.163.In terms of CO_2, the average Carbon Emission metric ton per capita is 2.239, with Tanzania having the lowest at 0.088 in 2000 and Kazakhstan showing the highest in 2013 with 15.047 and the standard deviation is 2.342. Likewise, for RE, the average renewable energy usage percentage of total energy consumption is 38.89% with, Algeria is the lowest 0.059% in 2015 and Tanzania with highest 93.725% in 2000.

Furthermore according to the table 4.3 indicate correlation analysis among the endogenous and exogenous variables, which is below 0.08 thus no multicollinearity exit.

TABLE 19. CORRELATION ANALYSIS (MIC-FS, ENVIRONMENTAL SUSTAINABILITY)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE																
VARIABLE	**CO2**	**GDPPC**	**FDI**	**REM**	**ODA**	**FD**	**T**	**RE**	**EN**	**URB**	**PSI-PG**	**VAI-PG**	**GEI-EG**	**RQI-GE**	**COC-IG**	**ROL-IG**
CO2	1															
GDPPC	0.835	1														
FDI	0.290	0.239	1													
REM	-0.024	-0.050	0.003	1												
ODA	-0.476	-0.626	0.064	0.221	1											
FD	0.466	0.430	0.080	0.262	-0.176	1										
T	0.424	0.368	0.453	-0.055	-0.007	0.298	1									
RE	-0.708	-0.532	-0.161	-0.049	0.370	-0.288	-0.239	1								
EN	0.871	0.780	0.270	-0.118	-0.486	0.380	0.377	-0.586	1							
URB	0.660	0.627	0.307	-0.108	-0.402	0.184	0.231	-0.480	0.556	1						
PSI-PG	0.263	0.243	0.208	-0.222	0.033	0.147	0.438	-0.029	0.183	0.189	1					
VAI-PG	0.056	0.175	0.023	0.140	-0.071	0.124	-0.062	0.155	0.024	0.184	0.243	1				
GEI-EG	0.404	0.500	0.137	-0.047	-0.280	0.463	0.305	-0.214	0.365	0.244	0.395	0.429	1			
RQI-EG	0.316	0.460	0.278	0.119	-0.212	0.361	0.235	-0.086	0.330	0.281	0.292	0.591	0.774	1		
COC-IG	0.230	0.359	0.005	-0.015	-0.061	0.319	0.210	-0.064	0.147	0.145	0.497	0.492	0.761	0.567	1	
ROL-IG	0.274	0.385	0.106	0.001	-0.101	0.381	0.266	-0.117	0.212	0.117	0.481	0.497	0.807	0.702	0.796	1

TABLE 20. SUMMARY STATISTICS (HIC, ENVIRONMENTAL SUSTAINABILITY)

VARIABLE	HIGH-INCOME GROUP, FULL SAMPLE				
	OBS	MEAN	STD. DEV	MIN	MAX
CO_2	420	9.089	7.834	1.351	47.700
GDPPC	420	35395.440	18100.050	11176.520	99147.290
FDI	420	10.146	27.541	-40.081	280.132
REM	420	0.791	1.146	0.000	6.877
ODA	420	0.290	0.645	-0.250	8.305
FD	420	83.916	55.773	2.149	255.310
T	420	112.258	71.641	19.560	442.620
RE	420	11.844	12.592	0.000	60.729
EN	420	3693.486	3744.267	759.096	22120.430
URB	420	74.059	17.068	40.766	100.000
PSI-PG	420	0.584	0.553	-1.630	1.590
VAI-PG	420	0.587	0.782	-2.000	1.620
GEI-EG	420	0.785	0.684	-1.700	1.910
RQI-EG	420	0.787	0.726	-1.680	2.230
COC-IG	420	0.662	0.729	-1.820	1.960
ROL-IG	420	0.759	0.645	-1.520	1.860

According to the table 20, as per high-income countries the average real GDP per capita income is 23062.75 (USD Constant, 2015), with Equatorial Guinea having the lowest at 4454.03 (USD Constant, 2015) in 2000 and Ireland showing the highest in 2019 with 75112.81 (USD Constant, 2015). The standard deviation appeared as 14308.82. The average foreign direct investment inflow percentage of GDP is 10.145%, with Hungary having the lowest at -40.0811% in 2018 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 27.54. Similarly, the average remittance inflow percentage of GDP is 0.790%, with Uruguay having the lowest at 0.0000288917% in 2001 and Croatia showing the highest in 2019 with 6.876%, with a standard deviation of 1.146. Furthermore, the average official development assistance inflow percentage of GDP is 0.555%. Mauritius had the lowest at -0.2496% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134. In terms of CO_2, the average Carbon Emission metric ton per capita is 9.432, with Uraguay having the lowest at 1.350 in 2003 and Qatar showing the highest in 2005 with 47.699 and the standard deviation is 7.833. Likewise, for RE, the average renewable energy usage percentage of total energy consumption is 11.844% with, Qatar is the lowest 0.0001% in 2000 and Uruguay with highest 60.729% in 2018 and the standard deviation is 12.593.

Furthermore, according to the outcome there is no multicollinearity exit among the variables.

TABLE 21. CORRELATION ANALYSIS (HIC, ENVIRONMENTAL SUSTAINABILITY)

HIGH-INCOME-COUNTRIES																
VARIABLE	**CO2**	**GDPPC**	**FDI**	**REM**	**ODA**	**FD**	**T**	**RE**	**EN**	**URB**	**PSI-PG**	**VAI-PG**	**GEI-EG**	**RQI-GE**	**COC-IG**	**ROL-IG**
CO2	1															
GDPPC	0.827	1														
FDI	-0.101	0.041	1													
REM	-0.226	-0.254	0.137	1												
ODA	-0.133	-0.258	0.018	0.098	1											
FD	-0.115	0.169	0.370	-0.161	-0.264	1										
T	-0.077	0.191	0.250	0.048	0.169	0.129	1									
RE	-0.483	-0.465	-0.058	0.182	-0.103	-0.187	-0.328	1								
EN	0.970	0.811	-0.126	-0.179	-0.125	-0.123	-0.099	-0.398	1							
URB	0.461	0.502	-0.061	-0.454	-0.378	0.227	-0.042	-0.085	0.456	1						
PSI-PG	0.038	0.101	0.034	0.107	0.042	0.014	0.253	0.077	0.094	-0.227	1					
VAI-PG	-0.522	-0.361	0.068	0.090	-0.105	0.373	-0.098	0.272	-0.486	-0.176	0.227	1				
GEI-EG	-0.119	0.153	0.142	-0.073	-0.202	0.634	0.157	-0.099	-0.076	0.212	0.213	0.738	1			
RQI-EG	-0.150	0.133	0.130	-0.063	-0.307	0.577	0.203	-0.068	-0.127	0.200	0.204	0.743	0.790	1		
COC-IG	-0.029	0.238	0.129	-0.234	-0.198	0.534	0.143	0.034	0.004	0.369	0.282	0.630	0.802	0.805	1	
ROL-IG	-0.053	0.208	0.102	-0.204	-0.241	0.616	0.127	-0.084	-0.026	0.261	0.274	0.733	0.800	0.792	0.799	1

4.4.3 MODEL SPECIFICATION- ENVIRONMENTAL SUSTAINABILITY

The hypotheses will be tested by estimating a series of panel data models. The models will explain the variables that measure the elements that characterize particular sustainability pillars. For evaluating the impact of economic dimension on environmental sustainability more specifically on green house gases, Carbon Emission metric ton per capita is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and environmental sustainability for testing the formulated hypothesis in figure 3. Based on research hypothesis as mentioned in Figure 4.3.1 initially below model will be formed,

$$CO2_{it} = \alpha_o + \alpha_1 FDI_{it} + \alpha_2 REM_{it} + \alpha_3 ODA_{it} + \alpha_4 GDPPC_{it} + \alpha_5 T_{it} + \alpha_6 FD_{it} + \alpha_7 RE_{it} + \alpha_8 EN_{it} + \alpha_9 URB_{it} + e_{it} \quad \textit{(Equation 1)}$$

Carbon Emission metric ton per capita refer to green house gasses emission thus environmental sustainability, FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP.EN is the energy consumption, URB is the urban population percentage of total population, RE is the renewable energy consumption percentage of total energy. GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in Table 5.3.1. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore above equation above 1 will be ,

$$LNCO2_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNRE_{it} + \alpha_8 LNEN_{it} + \alpha_9 LNURB_{it} + e_{it} \quad \textit{(Equation 2)}$$

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the impact of external finance, economic properity and governance indicators on sustainability. Therefore, below model will be estimated

which incorporate the impact of political governance along with economic sustainability and international financeon infant mortality rate. By incorporating political governance index in equation 2 , given below model will estimated.

$$LNCO_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNRE_{it} + \alpha_8 LNEN_{it} + \alpha_9 LNURB_{it} + \alpha_{10} PSI\text{-}PG + \alpha_{11} VAI\text{-}PG + e_{it}$$ *(Equation 3)*

In above equation 3, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm. However, by incorporating economic and institutional governance in equation 2, the estimated equations will be written as,

$$LNCO_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNRE_{it} + \alpha_8 LNEN_{it} + \alpha_9 LNURB_{it} + \alpha_{10} GEI\text{-}EG + \alpha_{11} RQI\text{-}EG + e_{it}$$ *(Equation 4)*

And,

$$LNCO_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNRE_{it} + \alpha_8 LNEN_{it} + \alpha_9 LNURB_{it} + \alpha_{10} COC\text{-}IG + \alpha_{11} ROL\text{-}IG + e_{it}$$ *(Equation 5)*

In above equation 4, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 5, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$$LNCO_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNRE_{it} + \alpha_8 LNEN_{it} + \alpha_9 LNURB_{it} + \alpha_{10} PSI\text{-}PG_{it} + \alpha_{11} VAI\text{-}PG_{it} + \alpha_{12} GEI\text{-}EG_{it} + \alpha_{13} RQI\text{-}EG_{it} + \alpha_{14} COC\text{-}IG_{it} + \alpha_{15} ROL\text{-}IG_{it} + e_{it}$$ *(Equation 6)*

4.4.4 EMPIRICAL ESTIMATION

The estimation begins with fixed effect Driscoll-Kraay (main) of middle-income-countries for analysing the impact of economic growth and other exogenous variable on carbon dioxide emission. Similarly System-GMM is used as robust estimation.[431]

TABLE 22. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (MIC-FS, STATIC MODEL ESTIMATION)

VARIABLE	FIXED EFFECT –DRISCOLL- KRAAY (FULL SAMPLE)				
	1	2	3	4	5
LNGDP	0.707 (0.152)***	0.657 (0.139)***	0.695 (0.155)***	0.684 (0.146)***	0.674 (0.133)***
LNFDI	0.023 (0.008)**	0.021 (0.008)**	0.024 (0.009)**	0.023 (0.009)**	0.022 (0.008)**
LNREM	0.066 (0.019)***	0.068 (0.020)***	0.065 (0.018)***	0.066 (0.018)***	0.065 (0.019)***
LNODA	0.024 (0.008)***	0.025 (0.006)***	0.026 (0.009)***	0.024 (0.007)***	0.023 (0.006)***
LNFD	-0.017 (0.010)	-0.012 (0.007)	-0.019 (0.011)	-0.001 (0.009)	-0.011 (0.008)
LNT	0.093 (0.024)***	0.018 (0.026)***	0.090 (0.025)***	0.091 (0.025)***	0.105 (0.028)***
LNRE	-0.229 (0.038)***	-0.221 (0.036)***	-0.234 (0.039)***	-0.231 (0.040)***	-0.217 (0.039)***
LNEN	0.429 (0.040)***	0.444 (0.045)***	0.427 (0.039)***	0.426 (0.040)***	0.460 (0.047)***
LNURB	1.037 (0.0988)***	1.018 (0.010)***	1.048 (0.099)***	1.047 (0.105)***	1.054 (0.102)***
PS-PG	-	0.053 (0.010)***	-	-	0.063 (0.015)***
VA-PG	-	0.046 (0.014)***	-	-	0.083 (0.022)***
GE-EG	-		-0.026 (0.063)	-	-0.002 (0.056)
RQ-EG	-		0.038 (0.037)	-	0.066 (0.041)
CC-IG	-		-	0.015 (0.045)	0.022 (0.041)
RL-IG	-		-	-0.071 (0.030)**	-0.176 (0.052)***
Constant	0.233 (0.053)**	0.652 (0.065)**	0.758 (0.074)**	0.841 (0.069)**	0.632 (0.074)**
R^2	0.658	0.665	0.659	0.660	0.672
Groups	56				
Observation	1045				

Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.

[431] **The methodology of estimation is mentioned in Chapter 3 section 3.4.4 in detailed form.**

Table 22 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on carbon dioxide emission (CO2), empirically investigated by fixed-effect Driscoll-Kraay estimation for full sample of middle-income-countries. Column (1) shows that among nine exogenous variables, except LNRE and LNFD, all other variables increase CO2. As per the results, a 1 unit increase in LNGDP increases (CO2) by 0.707%. In terms of external finance, 1 unit increase in LNFDI, LNREM and LNODA increases CO2 by 0.023%, 0.066% and 0.024%.Furthermore, LNT, LNEN and LNURB also significantly increase environmental pollution; thus, a 1 unit increase in LNT, LNEN, and LNURB increase CO2 emission by 0.093%, 0.0429 %, and 1.037%, respectively. However, a 1 unit increase in LNRE decreases CO2 emission by 0.229%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNREM, LNODA, LNT, LNRE, LNEN and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the political stability index and voice and accountability index appeared to increase CO2 emission; thus, a 1 unit increase in PSI-PG and VAI-PG index increased CO2 emission by 0.053% and 0.046%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG and RQ-EG appeared to be insignificant. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except governance indicators; however, RL-IG indicates a negative association with CO2 emission. The results reveal that a 1 unit increase in RL-IG improved the environment by 0.071%.Similarly; column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE and RL-IG improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE and RL-IG decreases CO2 emission by 0.217% and 0.176%, respectively. Furthermore, economic growth, trade and urbanization also increase CO2 emissions. LNGDP, LNT and LNURB increase CO2 emission by 0.674%, 0.105% and 1.054%, respectively. The estimated results also reveal that a 1 unit increase in LNFDI, LNREM and LNODA increases CO2 by 0.022%, 0.065% and 0.023%. Likewise, the estimated results also reveal that a 1 unit increase in PS-PG and VA-PG increases CO2 by 0.063% and 0.083%.

TABLE 23. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (MIC-FS, DYNAMIC MODEL ESTIMATION)

VARIABLES	SYSTEM-GMM (FULL SAMPLE)				
	1	**2**	**3**	**4**	**5**
Lag.LNCO$_2$	0.976 (0.016)****	0.973 (0.020)***	0.973 (0.021)***	0.979 (0.014)***	0.969 (0.018)***
LNGDP	0.013 (0.010)**	0.015 (0.011)**	0.016 (0.013)**	0.010 (0.011)**	0.006 (0.011)**
LNFDI	0.004 (0.002)*	0.005 (0.003)**	0.006 (0.002)**	0.007 (0.002)***	0.008 (0.003)***
LNREM	0.003 (0.001)***	0.007 (0.002)**	0.008 (0.002)**	0.003 (0.001)*	0.004 (0.002)**
LNODA	0.001 (0.002)	0.009 (0.003)	0.010 (0.002)*	0.009 (0.001)	0.008 (0.002)*
LNFD	-0.009 (0.004)	-0.010 (0.012)	-0.007 (0.005)	-0.007 (0.004)	-0.006 (0.004)
LNT	0.002 (0.016)**	0.012 (0.019)*	0.025 (0.008)**	0.019 (0.006)*	0.022 (0.012)*
LNRE	-0.055 (0.032)*	-0.008 (0.048)*	-0.009 (0.049)*	-0.058 (0.003)*	-0.008 (0.043)**
LNEN	0.071 (0.014)*	0.013 (0.018)	0.013 (0.018)	0.063 (0.010)*	0.020 (0.014)**
LNURB	0.046 (0.016)***	0.041 (0.018)***	0.049 (0.019)**	0.054 (0.015)***	0.052 (0.014)***
PS-PG	-	0.015 (0.005)***	-	-	0.015 (0.004)***
VA-PG	-	-0.012 (0.077)	-	-	0.018 (0.066)
GE-EG	-	-	0.021 (0.016)	-	0.018 (0.013)
RQ-EG	-	-	0.023 (0.013)*	-	0.024 (0.012)**
CC-IG	-			0.032 (0.010)***	0.028 (0.012)**
RL-IG	-			-0.028 (0.009)***	-0.029 (0.126)**
Constant	0.102 (0.044)*	0.118 (0.071)*	0.121 (0.088)*	0.123 (0.074)*	0.325 (0.158)*
AR(2)	0.923	0.921	0.967	0.942	0.956
Hansen	0.271	0.170	0.130	0.150	0.263
Groups	56	56	56	56	56
Observation	996	996	996	996	996
Instrument	48	50	50	50	54
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 23 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on CO2 emission. System-GMM estimation is a robust model compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNCO2 is significant and positive for all estimated equations, as

indicated in columns (1) to (5). The lag value has a positive impact on CO2 emission, which means that CO2 emission in the past few years has had a positive and significant impact on the current CO2 emission for the full sample of middle-income countries. Column (1) shows that among nine exogenous variables, except LNRE, all other variables such as LNGDP, LNFDI, LNREM, LNEN, and LNURB increase CO2 emission. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.013%. In terms of external finance, a 1 unit increase in LNFDI and LNREM increases CO2 by 0.004% and 0.003% respectively. Furthermore, LNT, LNEN, and LNURB also significantly increase environmental pollution; thus, a 1 unit increase in LNURB, LNT, and LNEN also increases CO2 emission by 0.046%, 0.002%, and 0.071%, respectively. However, a 1 unit increase in LNRE decreases CO2 emission by 0.005%.Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNREM, LNT, LNRE, LNEN, and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appeared to increase CO2 emission; thus, a 1 unit increase in the PS-PG index increased CO2 emission by 0.015% at a 1% significance level. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, RQ-EG appeared to be significant. Thus, a 1 unit increase in PS-PG also increases CO2 emission by 0.015%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG, and RQ-EG; however, CC-IG appears to increase LNCO2 emission, and indicatively, RL-IG decreases LNCO2 emission. A 1 unit increase in CC-IG increases CO2 by 0.032% and a 1 unit increase in RL-IG decreases 0.028% CO2. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.008%. Furthermore, economic growth and trade increase the requirement for energy consumption, thus which increases CO2 emissions. According to results, a 1 unit increase in LNGDP and LNT increases CO2 emission by 0.006% and 0.002%, respectively. Economic activity induces more energy consumption; thus, a 1 unit increase in LNEN increases CO2 by 0.020%. Similarly, rural-urban flow increases due to economic activity; thus, a 1 unit increase in LNURB also increases CO2 emission by 0.052%. The estimated results also reveal that a 1 unit

increase in LNFDI and LNREM increases CO2 by 0.008% and 0.004%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in PS-PG, GE-EG, and CC-IG increases LNCO2 by 0.015%, 0.024%, and 0.028%. Furthermore, a 1 unit increase in RL-IG increases CO2 by 0.029%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 22 with the estimated results system-GMM (robustness analysis) in table 23, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNGDP, LNFDI, LNREM, LNT, LNEN, LNURB, and PS-PG damage the environment and cause more CO2 emissions in the full sample of middle-income countries. The coefficients are positive and have statistical significance across all the models estimated by fixed-effect Driscoll-Kraay and system-GMM. Similarly, LNRE and RL-IG appeared to have a negative coefficient across the entire estimations of fixed effect Driscoll-Kraay and system-GMM and appeared to be statistically significant, thus helpful in the reduction of CO2 emission.

TABLE 24. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (UMIC, STATIC MODEL ESTIMATION)

VARIABLE	FIXED EFFECT –DRISCOLL- KRAAY (UPPER-MIDDLE INCOME COUNTRIES				
	1	**2**	**3**	**4**	**5**
LNGDP	0.268 (0.072)***	0.242 (0.051)***	0.055 (0.055)**	0.131 (0.056)**	0.106 (0.049)**
LNFDI	-0.036 (0.084)	-0.013 (0.094)	-0.012 (0.088)	-0.077 (0.094)	-0.018 (0.010)*
LNREM	-0.074 (0.011)	-0.046 (0.073)	-0.017 (0.015)	-0.010 (0.010)	-0.012 (0.010)
LNODA	0.013 (0.014)	0.014 (0.012)	0.013 (0.012)	0.0138 (0.015)	0.014 (0.011)
LNFD	0.025 (0.022)	0.013 (0.016)	0.022 (0.012)	0.023 (0.016)	0.023 (0.012)*
LNT	0.101 (0.017)***	0.073 (0.025)***	0.065 (0.012)***	0.085 (0.020)***	0.055 (0.024)**
LNRE	-0.119 (0.035)***	-0.118 (0.027)***	-0.110 (0.033)***	-0.098 (0.065)***	-0.116 (0.030)***
LNEN	0.715 (0.070)***	0.756 (0.068)***	0.728 (0.062)***	0.726 (0.065)***	0.760 (0.060)***
LNURB	0.246 (0.078)***	0.406 (0.065)***	0.433 (0.062)**	0.323 (0.084)***	0.520 (0.088)***
PS-PG		-0.017 (0.095)*	-	-	-0.016 (0.010)
VA-PG		0.232 (0.026)***	-	-	-0.200 (0.034)***
GE-EG			-0.040 (0.053)	-	-0.054 (0.036)
RQ-EG			0.222 (0.043)***	-	0.184 (0.044)***
CC-IG				0.057 (0.044)	0.0123 (0.045)
RL-IG				0.120 (0.034)***	-0.035 (0.055)
Constant	0.852 (0.254)	0.745 (0.352)*	0.769 (0.385)*	0.787 (0.582)	0.724 (0.452)
R^2	0.612	0.663	0.649	0.635	0.683
Groups	25				
Observation	456				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 24 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on carbon dioxide emission (CO2), empirically investigated by fixed-effect Driscoll-Kraay estimation for upper-middle-income countries. Column (1) shows that among nine exogenous variables, except LNRE, other variables such as LNGDP, LNT, LNEN, and LNURB increase CO2. As

per the results, a 1 unit increase in LNGDP increases CO2 by 0.268. In terms of external finance, all variables appeared to be insignificant. Furthermore, LNT, LNEN and LNURB significantly increase environmental pollution; thus, a 1 unit increase in LNT, LNEN, and LNURB increase CO2 emission by 0.101%, 0.715%, and 0.246%, respectively. However, a 1 unit increase in LNRE decreases CO2 emission by 0.119%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNT, LNRE, LNEN and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the PS-PG and VA-PG appeared to increase LNCO2 emission; thus, a 1 unit increase in the PS-PG and VA-PG index increases LNCO2 emission by 0.017% and 0.232%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, LNFDI and RQ-EG appeared to be significant and increase CO2 emission. A unit increase in LNFDI and RQ-EG increases CO2 by 0.012% and 0.222%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except governance indexes; however, RL-IG appeared to be significant and increased CO2 emission. Thus a 1 unit increase in RL-IG increases CO2 emission by 0.120%. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.116%, respectively. Furthermore, economic growth, trade, energy consumption and urbanization also increase CO2 emissions. LNGDP and LNT increase CO2 emission by 0.106% and 0.055%, respectively. Economic activity induces more energy consumption and increases urbanization, which causes more CO2 emissions. A 1 unit increase in LNEN and LNURB increase CO2 by 0.760% and 0.520%, respectively. The estimated results also reveal that a 1 unit increase in VA-PG and RQ-EG increases CO2 by 0.200% and 0.184%.

TABLE 25. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION)

VARIABLES	UPPER-MIDDLE-INCOME				
	1	**2**	**3**	**4**	**5**
Lag.lnCO2	1.250 (0.104)***	0.933 (0.172)***	0.896 (0.187)**	0.775 (0.218)**	0.090 (0.146)***
LNGDP	0.035 (0.033)**	0.058 (0.092)*	0.064 (0.112)***	0.156 (0.106)**	0.141 (0.088)**
LNFDI	-0.011 (0.042)**	-0.063 (0.020)	-0.013 (0.015)	-0.074 (0.019)	0.080 (0.017)
LNREM	-0.067 (0.052)	-0.011 (0.022)	-0.016 (0.026)	-0.021 (0.022)	-0.014 (0.023)
LNODA	0.015 (0.075)**	0.052 (0.018)**	0.084 (0.032)**	0.068 (0.027)**	0.048 (0.017)**
LNFD	0.026 (0.014)*	0.068 (0.034)**	0.134 (0.054)**	0.107 (0.046)**	0.070 (0.030)**
LNT	0.039 (0.014*	0.084 (0.067)***	0.066 (0.051)**	0.250 (0.091)**	0.078 (0.065)***
LNRE	-0.051 (0.021)**	-0.253 (0.050)***	-0.216 (0.049)***	-0.221 (0.049)***	-0.276 (0.048)***
LNEN	0.264 (0.108)***	0.240 (0.182)***	0.464 (0.282)***	0.312 (0.257)***	0.188 (0.140)***
LNURB	0.029 (0.028)*	0.063 (0.039)**	0.105 (0.017)***	0.138 (0.014)**	0.178 (0.015)***
PS-PG	-	-0.044 (0.040)	-	-	-0.047 (0.038)
VA-PG	-	0.264 (0.069)***	-	-	-0.298 (0.074)***
GE-EG	-	-	-0.147 (0.114)	-	-0.022 (0.107)
RQ-EG	-	-	0.054 (0.141)	-	0.160 (0.122)
CC-IG	-	-	-	0.152 (0.075)	0.098 (0.063)
RL-IG	-	-	-	-0.020 (0.092)	-0.027 (0.083)
Constant	0.082 (0.010)*	0.099 (0.011)*	0.093 (0.013)*	0.094 (0.012)*	0.089 (0.015)*
AR(2)	0.802	0.784	0.696	0.840	0.503
Hansen	0.267	0.314	0.441	0.474	0.523
Groups	25	25	25	25	25
Observation	447	447	447	447	447
Instrument	18	20	20	20	24

Table 25 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on CO2 emission. System-GMM estimation is robust compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNCO2 is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on CO2 emission,

which means that CO2 emission in the past few years has had a positive and significant impact on the current CO2 emission for the full sample of middle-income countries.

Column (1) shows that among nine exogenous variables, except LNFDI and LNRE, all other variables such as LNGDP, LNODA, LNFD, LNT, LNEN, and LNURB increase CO2 emission. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.035%. Furthermore, a 1 unit increase in LNODA increases CO2 by 0.015%, in terms of external finance. Economic growth induces more economic activities, increasing consumption of energy and increasing CO2 emission. Therefore, LNFD, LNT, LNURB and LNEN also significantly increase environmental pollution; thus, a 1 unit increase in LNFD, LNT, LNURB and LNEN also increases CO2 emission by 0.026%, 0.039%, 0.029% and 0.264%, respectively. However, a 1 unit increase in LNFDI and LNRE decreases CO2 emission by 0.011% and 0.051%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNODA, LNFD, LNT, LNRE, LNEN, and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the voice and accountability index appeared to increase CO2 emission; thus, a 1 unit increase in the VA-PG index increased CO2 emission by 0.026%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG and RQ-EG appeared to be insignificant. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG, and RQ-EG; however, CC-IG and RL-IG appear to be insignificant. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.276% at a 1% significance level. Furthermore, economic growth and trade increase the requirement for energy consumption, thus which increases CO2 emissions. According to the results, a 1 unit increase in LNGDP and LNT increases CO2 emission by 0.141% and 0.078%, respectively. Economic activity induces more energy consumption; thus, a 1 unit increase in LNEN increases CO2 by 0.188%. Similarly, rural-urban flow increases due to economic activity; thus, a 1 unit increase in LNURB also increases CO2 emission by 0.178%. The estimated results also reveal that a 1 unit increase in LNODA and LNFD increases CO2 by 0.048% and 0.070%. Likewise, the

estimated results also reveal that a 1 unit increase in VA-PG increases CO2 by 0.029%. Furthermore, a 1 unit increase in RL-IG increases CO2 by 0.029%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 24 with the estimated results system-GMM (robustness analysis) in table 25, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNGDP, LNT, LNEN, LNURB, and VA-PG damage the environment and cause more CO2 emissions in the upper-middle-income countries. The coefficients are positive and have statistical significance across all the models estimated by fixed-effect Driscoll-Kraay and system-GMM. Similarly, LNRE appeared to have a negative coefficient across the entire estimations of fixed effect Driscoll-Kraay and system-GMM and appeared to be statistically significant, thus helpful in the reduction of CO2 emission.

TABLE 26. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (LMIC, STATIC MODEL ESTIMATION)

VARIABLE	FIXED EFFECT –DRISCOLL- KRAAY (LOWER-MIDDLE INCOME COUNTRIES)				
	1	**2**	**3**	**4**	**5**
LNGDP	0.743 (0.130)***	0.702 (0.111)***	0.717 (0.115)***	0.739 (0.104)***	0.682 (0.102)***
LNFDI	0.029 (0.011)**	0.026 (0.010)**	0.026 (0.010)**	0.028 (0.011)**	0.027 (0.010)**
LNREM	0.076 (0.026)**	0.084 (0.029)**	0.089 (0.030)***	0.084 (0.029)***	0.090 (0.031)**
LNODA	0.040 (0.010)***	0.046 (0.095)***	0.044 (0.010)***	0.040 (0.009)***	0.045 (0.009)**
LNFD	-0.020 (0.023)	-0.048 (0.014)	-0.091 (0.019)	-0.013 (0.019)	-0.050 (0.013)
LNT	0.090 (0.053)*	0.124 (0.066)*	0.120 (0.062)*	0.113 (0.062)*	0.135 (0.068)*
LNRE	-0.430 (0.029)***	-0.387 (0.025)***	-0.452 (0.047)***	-0.451 (0.046)***	-0.393 (0.028)***
LNEN	0.075 (0.102)	0.122 (0.113)	0.085 (0.105)	0.084 (0.100)	0.130 (0.112)
LNURB	0.301 (0.157)*	0.388 (0.162)**	0.283 (0.183)*	0.211 (0.180)*	0.395 (0.181)**
PS-PG	-	0.113 (0.026)***	-		0.097 (0.021)***
VA-PG	-	-0.022 (0.019)	-		-0.075 (0.026)
GE-EG	-	-	0.112 (0.067)		0.074 (0.067)
RQ-EG	-	-	-0.090 (0.103)		-0.064 (0.100)
CC-IG	-	-	-	0.094 (0.037)**	0.051 (0.041)
RL-IG	-	-	-	-0.028 (0.036)	-0.086 (0.059)
Constant	0.174 (0.022)*	0.198 (0.018)*	0.203 (0.013)*	0.207 (0.011)*	0.181 (0.102)*
R^2	0.717	0.734	0.727	0.720	0.738
Groups	31				
Observation	577				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 26 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on carbon dioxide emission (CO2), empirically investigated by fixed-effect Driscoll-Kraay estimation for lower-middle-income countries. Column (1) shows that among nine exogenous variables, except LNRE, other variables such as LNGDP, LNFDI, LNREM, LNODA, LNT, and LNURB increase CO2. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.743%.

In terms of external finance, LNFDI, LNREM, and LNODA, all variables appeared to be significant and caused CO2 emissions. A 1 unit increase in LNFDI, LNREM, and LNODA causes CO2 emission by 0.029%, 0.076% and 0.040%. Furthermore, LNT and LNURB significantly increase environmental pollution; thus, a 1 unit increase in LNT and LNURB increase CO2 emission by 0.090% and 0.301%, respectively. However, a 1 unit increase in LNRE decreases CO2 emission by 0.430%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNREM, LNODA, LNT, LNRE, and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the PS-PG appeared to increase CO2 emission; thus, a 1 unit increase in the PS-PG index increases CO2 emission by 0.113%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG and RQ-EG appeared to be insignificant. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except governance indexes; however, CC-IG appeared to be significant and increased CO2 emission. Thus a 1 unit increase in CC-IG increases CO2 emission by 0.094%. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.393%, respectively, at a 1% significance level. Furthermore, economic growth, trade, energy consumption and urbanization also increase CO2 emissions. LNGDP and LNT increase CO2 emission by 0.682% and 0.135%, respectively. Economic activity induces urbanization; thus, people migrate from rural areas to urban areas, which cause more CO2 emissions. A 1 unit increase in LNURB increases CO2 by 0.395%, respectively. Similarly, all the external financial inflow causes CO2 emission. Thus, a 1 unit increase in LNFDI, LNREM, and LNODA increases CO2 emission by 0.027%, 0.090% and 0.045%, respectively. The estimated results also reveal that a 1 unit increase in PS-PG increases CO2 by 0.097%.

TABLE 27. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (LMIC, DYNAMIC MODEL ESTIMATION)

VARIABLES	LOWER-MIDDLE-INCOME-COUNTRIES				
	1	**2**	**3**	**4**	**5**
Lag.LNCO2	0.356 (0.025)***	0.116 (0.030)***	0.404 (0.228)*	0.340 (0.257)**	0.247 (0.275)***
LNGDP	0.291 (0.192)**	0.434 (0.234)*	0.248 (0.138)*	0.283 (0.183)**	0.334 (0.158)**
LNFDI	0.030 (0.017)***	0.020 (0.016)***	0.030 (0.016)*	0.029 (0.017)*	0.010 (0.015)**
LNREM	0.076 (0.018)**	0.033 (0.030)**	0.016 (0.020)**	0.077 (0.017)**	0.037 (0.031)**
LNODA	0.015 (0.021)*	0.038 (0.024)	0.014 (0.021)	0.019 (0.024)**	0.030 (0.026)**
LNFD	-0.062 (0.064)	-0.076 (0.063)	-0.064 (0.069)	-0.067 (0.065)	-0.068 (0.056)
LNT	0.083 (0.124)**	0.042 (0.111)*	0.057 (0.100)**	0.080 (0.125)**	0.093 (0.092)*
LNRE	-0.233 (0.090)**	-0.256 (0.078)***	-0.180 (0.067)**	-0.236 (0.088)**	-0.287 (0.061)***
LNEN	0.213 (0.112)**	0.279 (0.100)*	0.201 (0.099)*	0.224 (0.103)	0.256 (0.105)**
LNURB	0.043 (0.227)***	0.342 (0.314)***	0.171 (0.024)**	0.070 (0.228)**	0.375 (0.319)***
PS-PG	-	0.088 (0.059)**	-	-	0.078 (0.052)**
VA-PG	-	-0.138 (0.099)	-	-	-0.091 (0.096)
GE-EG	-	-	0.175 (0.075)	-	0.142 (0.094)
RQ-EG	-	-	-0.023 (0.120)*	-	-0.021 (0.098)**
CC-IG	-	-	-	0.042 (0.103)	0.030 (0.083)
RL-IG	-	-	-	-0.020 (0.081)	-0.041 (0.012)
Constant	0.332 (0.178)	0.428 (0.155)	0.447 (0.162)	0.452 (0.158)	0.336 (0.169)
AR(2)	0.342	0.396	0.304	0.370	0.291
Hansen	0.096	0.124	0.101	0.171	0.119
Groups	31	31	31	31	31
Observation	550	550	550	550	550
Instrument	17	19	19	19	23

Table 27 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on CO2 emission. System-GMM estimation is robust compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNCO2 is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on CO2 emission,

which means that CO2 emission in the past few years has had a positive and significant impact on the current CO2 emission for the full sample of middle-income countries. Column (1) shows that among nine exogenous variables, except LNRE, all other variables such as LNGDP, LNFDI, LNREM, LNODA, LNT, LNEN, and LNURB increase CO2 emission. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.291% at a 5% significance level.1 unit increase in LNFDI, LNREM, and LNODA increases CO2 by 0.030%, 0.076% and 0.015%, in terms of external finance. Economic growth induces more economic activities, increasing energy consumption and increasing CO2 emission. Therefore, LNT, LNURB and LNEN also significantly increase environmental pollution; thus, a 1 unit increase in LNT, LNEN and LNURB also increases CO2 emission by 0.083%, 0.213% and 0.043%. However, a 1 unit increase in LNRE decreases CO2 emission by 0.287%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNREM, LNODA, LNT, LNRE, LNEN, and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the voice and accountability index appeared to increase CO2 emission; thus, a 1 unit increase in the PS-PG index increased CO2 emission by 0.088%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, RQ-EG appeared to be significant. Thus, 1 a unit increases in RQ-EG decreases CO2 emission by 0.023%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG, and RQ-EG; however, CC-IG and RL-IG appear to be insignificant. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.287%. Furthermore, economic growth and trade increase the requirement for energy consumption, thus which increases CO2 emissions. According to the results, a 1 unit increase in LNGDP and LNT increases CO2 emission by 0.334% and 0.093%, respectively. Economic activity induces more energy consumption; thus, a 1 unit increase in LNEN increases CO2 by 0.256%. Similarly, rural-urban flow increases due to economic activity; thus, a 1 unit increase in LNURB increases CO2 emission by 0.375%. The estimated results also reveal that a 1 unit increase in LNFDI, LNREM and LNODA increases CO2 by 0.010%, 0.037% and 0.030%.Likewise, the estimated results

also reveal that a 1 unit increase in PS-PG increases CO2 by 0.078%. Furthermore, a 1 unit increase in RQ-EG increases CO2 by 0.021%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 26 with the estimated results system-GMM (robustness analysis) in table 27, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNGDP, LNFDI, LNREM, LNODA, LNT, LNEN, LNURB, and PS-PG damage the environment and cause more CO2 emissions in the lower-middle-income countries. The coefficients are positive and have statistical significance across all the models estimated by fixed-effect Driscoll-Kraay and system-GMM. Similarly, LNRE appeared to have a negative coefficient across the entire estimations of fixed effect Driscoll-Kraay and system-GMM and appeared to be statistically significant, thus helpful in the reduction of CO2 emission.

TABLE 28. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION)

VARIABLE	FIXED EFFECT –DRISCOLL- KRAAY (MIDDLE INCOME COUNTRIES WITH SEAPORTS)				
	1	**2**	**3**	**4**	**5**
LNGDP	0.379 (0.020)***	0.376 (0.019)***	0.444 (0.024)***	0.422 (0.022)***	0.445 (0.035)***
LNFDI	-0.033 (0.011)**	-0.035 (0.014)**	-0.022 (0.011)*	-0.036 (0.012)***	-0.021 (0.015)
LNREM	0.013 (0.004)***	0.027 (0.004)***	0.016 (0.005)***	0.010 (0.004)**	0.029 (0.003)***
LNODA	0.025 (0.006)***	0.016 (0.007)**	0.024 (0.008)***	0.030 (0.006)***	0.016 (0.007)**
LNFD	0.131 (0.031)***	0.117 (0.034)***	0.148 (0.037)***	0.144 (0.033)***	0.140 (0.035)***
LNT	0.147 (0.027)***	0.080 (0.031)**	0.162 (0.031)***	0.149 (0.027)***	0.098 (0.036)**
LNRE	-0.208 (0.006)**	-0.201 (0.004)***	-0.183 (0.006)***	-0.205 (0.007)***	-0.191 (0.006)***
LNEN	0.594 (0.014)***	0.599 (0.017)***	0.600 (0.014)***	0.575 (0.016)***	0.600 (0.025)***
LNURB	0.316 (0.537)**	0.326 (0.039)***	0.325 (0.053)***	0.324 (0.055)***	0.308 (0.039)***
PS-PG	-	0.109 (0.010)***	-	-	0.123 (0.014)***
VA-PG	-	-0.070 (0.013)***	-	-	0.036 (0.029)
GE-EG	-		0.022 (0.049)	-	0.014 (0.065)
RQ-EG	-		-0.191 (0.051)***	-	-0.232 (0.039)***
CC-IG	-			-0.108 (0.069)	-0.098 (0.082)
RL-IG	-			0.025 (0.068)	0.511 (0.060)
Constant	-8.638 (0.168)***	-8.344 (0.138)	-9.540 (0.221)***	-9.030 (0.194)***	-9.141 (0.203)***
R^2	0.898	0.901	0.902	0.899	0.904
Groups	46				
Observation	855				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 28 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on carbon dioxide emission (CO2), empirically investigated by fixed-effect Driscoll-Kraay estimation for middle-income countries with seaports. Column (1) shows that among nine exogenous variables, except LNFDI and LNRE, all other variables increase CO2. As per the results, a 1 unit increase in LNGDP increases (CO2) by 0.379%. In terms of external finance, a 1 unit increase in

LNREM and LNODA increases CO2 by 0.013% and 0.025%. Furthermore, LNFD, LNT, LNEN and LNURB also significantly increase environmental pollution; thus, a 1 unit increase in LNFD, LNT, and LNEN, increase CO2 emission by 0.131%, 0.147%, 0.594%, respectively and a 1 unit increase in LNURB increases CO2 emission by 0.316%. However, a 1 unit increase in LNFDI and LNRE decreases CO2 emission by 0.033% and 0.208%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNREM, LNODA, LNFD, LNT, LNRE, LNEN and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appeared to increase CO2 emission; thus, a 1 unit increase in the PS-PG index increased CO2 emission by 0.109%. However, on the other hand, VA-PG improved environmental quality. As per estimated results, a 1 unit increase in VA-PG decreases CO2 by 0.070%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, RQ-EG appeared to be significant and decreased CO2. A unit increase in RQ-EG decreases CO2 by 0.191%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG and RQ-EG; however, CC-IG and RL-IG appeared to be insignificant. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE and RQ-EG improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE and RL-IG decreases CO2 emission by 0.191% and 0.232%, respectively. Furthermore, economic growth, financial development, trade and urbanization also increase CO2 emissions. LNGDP, LNFD and LNT increase CO2 emission by 0.445%, 0.140%, and 0.098%. Economic activity induces more energy consumption and increases urbanization, which causes more CO2 emissions. A 1 unit increase in LNEN and LNURB increases CO2 by 0.600 and 0.308%, respectively. The estimated results also reveal that a 1 unit increase in LNREM and LNODA increases CO2 by 0.029% and 0.016%. Likewise, the estimated results also reveal that a 1 unit increase in PS-PG increases CO2 by 0.123%.

TABLE 29. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION)

VARIABLES	MIDDLE INCOME COUNTRIES WITH SEA PORTS				
	1	**2**	**3**	**4**	**5**
Lag.LNCO2	0.893 (0.042)***	0.890 (0.043)***	0.896 (0.044)***	0.906 (0.040)***	0.901 (0.043)***
LNGDP	0.019 (0.036)*	0.012 (0.035)**	0.023 0.036)**	0.085 (0.035)*	0.014 (0.033)*
LNFDI	-0.053 (0.052)	-0.047 (0.048)	-0.055 (0.049)	-0.059 (0.053)	-0.064 (0.043)
LNREM	0.015 (0.053)**	0.032 (0.067)*	0.023 (0.059)**	0.029 (0.052)**	0.037 (0.065)**
LNODA	0.010 (0.059)	0.025 (0.062)	0.030 (0.063)	0.017 (0.059)	0.020 (0.059)
LNFD	0.019 (0.012)	0.018 (0.013)	0.169 (0.012)	0.017 (0.012)	0.017 (0.012)
LNT	0.011 (0.015)**	0.012 (0.020)*	0.096 (0.020)**	0.080 (0.017)*	0.059 (0.018)**
LNRE	-0.025 (0.012)**	-0.026 (0.011)**	-0.022 (0.011)***	-0.023 (0.012)*	-0.022 (0.011)**
LNEN	0.065 (0.032)**	0.070 (0.035)**	0.064 (0.034)*	0.061 (0.033)*	0.066 (0.036)*
LNURB	0.011 (0.031)	0.018 (0.035)	0.020 (0.032)	0.063 (0.030)	0.080 (0.034)
PS-PG	-	0.014 (0.010)**	-	-	0.013 (0.096)*
VA-PG	-	-0.039 (0.015)	-	-	-0.056 (0.016)
GE-EG	-	-	0.022 (0.027)	-	0.021 (0.028)
RQ-EG	-	-	-0.026 (0.0322)	-	-0.036 (0.031)
CC-IG	-	-	-	0.018 (0.027)	0.017 (0.026)
RL-IG	-	-	-	-0.011 (0.024)	-0.017 (0.028)
Constant	-0.589 (0.377)	-0.518 (0.382)	-0.609 (0.434)	-0.438 (0.338)	-0.485 (0.395)
AR(2)	0.940	0.922	0.944	0.937	0.926
Hansen	0.178	0.101	0.112	0.116	0.136
Groups	46	46	46	46	46
Observation	815	815	815	815	815
Instrument	30	32	32	32	36

Table 29 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on CO2 emission. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNCO2 is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on

CO2 emission, which means that CO2 emission in the past few years has had a positive and significant impact on the current CO2 emission. Column (1) shows that among nine exogenous variables, except LNRE, all other variables such as LNGDP, LNREM, LNT, and LNEN increase CO2. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.019%. A 1 unit increase in LNREM increases CO2 by 0.015%, in terms of external finance. Furthermore, LNT and LNEN also significantly increase environmental pollution; thus, a 1 unit increase in LNT and LNEN increase CO2 emission by 0.011% and 0.065%, respectively. However, a 1 unit increase in LNRE decreases CO2 emission by 0.025%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNREM, LNT, LNRE, and LNEN; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appeared to increase CO2 emission; thus, a 1 unit increase in the PS-PG index increased CO2 emission by 0.014%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG and RQ-EG appeared to be insignificant. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG, and RQ-EG; however, CC-IG and RL-IG appeared to be insignificant. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNRE improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNRE decreases CO2 emission by 0.022%. Furthermore, economic growth and trade increase the requirement for energy consumption, thus which increases CO2 emissions. According to the results, A 1 unit increase in LNGDP and LNT increases CO2 emission by 0.014% and 0.059%, respectively. Economic activity induces more energy consumption; thus, a 1 unit increase in LNEN increases CO2 by 0.066%. The estimated results also reveal that a 1 unit increase in LNREM increases CO2 by 0.037%. Likewise, the estimated results also reveal that a 1 unit increase in PS-PG increases CO2 by 0.066%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 28 with the estimated results system-GMM (robustness analysis) in table 29, the

interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNGDP, LNREM, LNT, LNEND, and PS-PG damage the environment and cause more CO2 emissions in seaport middle-income countries. The coefficients are positive and have statistical significance across all the models estimated by fixed-effect Driscoll-Kraay and system-GMM. Similarly, LNRE appeared to have a negative coefficient across the entire estimations of fixed effect Driscoll-Kraay and system-GMM and appeared to be statistically significant, thus helpful in the reduction of CO2 emission.

TABLE 30. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (HIC, STATIC MODEL ESTIMATION)

VARIABLE	FIXED EFFECT –DRISCOLL- KRAAY (HIGH-INCOME COUNTRIES)				
	1	**2**	**3**	**4**	**5**
LNGDP	0.176 (0.053)***	0.180 (0.050)***	0.150 (0.048)***	0.165 (0.052)***	0.150 (0.049)***
LNFDI	0.008 (0.006)	0.008 (0.007)	0.009 (0.005)	0.010 (0.005)*	0.010 (0.004)*
LNREM	-0.009 (0.005)*	-0.009 (0.006)	-0.008 (0.005)	-0.009 (0.006)	-0.007 (0.006)
LNODA	0.005 (0.003)	0.005 (0.003)	0.005 (0.003)	0.004 (0.003)	0.005 (0.003)*
LNFD	-0.131 (0.017)***	-0.132 (0.018)***	-0.133 (0.016)***	-0.130 (0.016)***	-0.131 (0.016)***
LNT	-0.045 (0.055)	-0.047 (0.056)	-0.029 (0.052)	-0.050 (0.057)	-0.039 (0.050)
LNRE	-0.045 (0.019)**	-0.045 (0.019)**	-0.044 (0.019)**	-0.040 (0.017)*	-0.040 (0.020)*
LNEN	0.660 (0.073)***	0.656 (0.078)***	0.661 (0.071)***	0.661 (0.073)***	0.066 (0.082)***
LNURB	-1.495 (0.503)***	-1.479 (0.501)***	-1.447 (0.495)***	-1.448 (0.509)**	-1.408 (0.473)***
PS-PG		-0.018 (0.034)	-	-	-0.009 (0.034)
VA-PG		0.025 (0.043)	-	-	0.003 (0.056)
GE-EG			-0.071 (0.028)**	-	-0.108 (0.034)***
RQ-EG			0.075 (0.030)**	-	0.043 (0.040)
CC-IG				0.070 (0.029)**	0.082 (0.032)**
RL-IG				-0.016 (0.043)	-0.022 (0.055)
Constant	0.225 (0.147)***	0.235 (0.158)***	0.238 (0.152)***	0.241 (0.158)***	0.230 (0.138)***
R^2	0.509	0.5100	0.514	0.515	0.523
Groups	21				
Observation	386				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 30 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on carbon dioxide emission (CO2), empirically investigated by fixed-effect Driscoll-Kraay estimation for high-income countries. Column (1) shows that among nine exogenous variables, except LNFD, LNRE and LNURB, other variables such as LNGDP and LNEN increase CO2. As per the results, a 1 unit increase in LNGDP and LNEND increases CO2 by 0.176% and

0.660%. All variables appeared to be insignificant in terms of external finance, LNFDI, LNREM, and LNODA. However, a 1 unit increase in LNFD, LNURB and LNRE decreases CO2 emission by 0.131%, 0.045% and 1.495%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFD, LNRE, LNEN and LNURB; however, the magnitude of coefficients is slightly different. Similarly, the PS-PG and VS-PG appeared to be insignificant. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG appeared to be significant and reduces CO2 emission. Thus a 1 unit increase in GE-EG index decreases 0.071%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except governance indexes; however, RL-IG appeared to be significant and reduces CO2 emission. Thus a 1 unit increase in RL-IG increases CO2 emission by 0.016%. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNFD, LNRE and LNURB improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNFD, LNURB, and LNRE decreases CO2 emission by 0.131%, 1.408% and 0.040%, respectively. Furthermore, economic growth and energy consumption increase CO2 emissions. LNGDP and LNEN increase CO2 emission by 0.150% and 0.066%. The estimated results also reveal that a 1 unit increase in GE-EG and RL-IG improved the environment by decreasing CO2 by 0.108% and 0.022%.

TABLE 31. ECONOMIC GROWTH AND ENVIRONMENTAL SUSTAINABILITY (HIC, DYNAMIC MODEL ESTIMATION)

VARIABLES	HIGH INCOME COUNTRIES				
	1	**2**	**3**	**4**	**5**
Lag.LNCO2	1.589 (0.279)***	1.376 (0.173)***	1.589 (0.312)***	1.576 (0.292)***	1.489 (0.249)***
LNGDP	0.473 (0.130)***	0.373 (0.086)***	0.517 (0.160)***	0.466 (0.141)***	0.560 (0.131)***
LNFDI	0.026 (0.015)*	0.022 (0.011)*	0.031 (0.020)	0.029 (0.016)*	0.026 (0.020)**
LNREM	-0.008 (0.020)	-0.004 (0.014)	-0.003 (0.021)	-0.004 (0.019)	-0.003 (0.017)
LNODA	0.019 (0.014)	0.135 (0.010)	0.021 (0.014)	0.017 (0.013)	0.021 (0.014)
LNFD	-0.040 (0.055)*	-0.068 (0.031)**	-0.047 (0.057)**	-0.039 (0.055)*	-0.019 (0.049)**
LNT	-0.079 (0.065)**	-0.063 (0.047)*	-0.056 (0.068)	-0.058 (0.063)*	-0.025 (0.048)
LNRE	-0.026 (0.025)**	-0.008 (0.015)*	-0.036 (0.022)**	-0.033 (0.021)**	-0.001 (0.018)**
LNEN	0.728 (0.278)**	0.512 (0.186)**	0.721 (0.034)***	0.068 (0.031)*	0.068 (0.033)**
LNURB	-0.033 (0.208)**	-0.024 (0.141)***	-0.026 (0.230)**	-0.088 (0.192)**	-0.118 (0.099)**
PS-PG	-	-0.028 (0.040)	-	-	-0.071 (0.055)
VA-PG	-	0.059 (0.040)	-	-	0.028 (0.100)**
GE-EG	-	-	-0.201 (0.135*	-	-0.185 (0.131)*
RQ-EG	-	-	0.191 (0.129)*	-	0.215 (0.110)
CC-IG	-	-	-	0.101 (0.074)	0.031 (0.071)
RL-IG	-	-	-	-0.104 (0.082)	-0.230 (0.143)
Constant	0.673 (0.118)	0.652 (0.125)	0.638 (0.129)	0.642 (0.132)	0.665 (0.117)
AR(2)	0.752	0.778	0.780	0.812	0.902
Hansen	0.175	0.208	0.211	0.228	0.312
Groups	21	21	21	21	21
Observation	375	375	375	375	375
Instrument	13	15	15	15	19

Table 31 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on CO2 emission. System-GMM estimation is robust compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNCO2 is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on CO2 emission,

which means that CO2 emission in the past few years has had a positive and significant impact on the current CO2 emission for the full sample of middle-income countries. Column (1) shows that among nine exogenous variables, except LNFD, LNT, LNRE and LNURB all other variables such as LNGDP, LNFDI and LNEN increase CO2 emission. As per the results, a 1 unit increase in LNGDP increases CO2 by 0.473%. Similarly, 1 unit increase in LNFDI increases CO2 by 0.026%, in terms of external finance. Economic growth induces more economic activities, increasing energy consumption and increasing CO2 emission. Thus, a 1 unit increase in LNEN increases CO2 emission by 0.728%. However in high income countries financial development, trade and urbanization does not cause air pollution. Therefore, LNFD, LNT and LNURB decreases environmental pollution; thus, a 1 unit increase in LNFD, LNT and LNURB decreases CO2 emission by 0.040%, 0.079% and 0.033%. However, a 1 unit increase in LNRE decreases CO2 emission by 0.728%. Similarly, in column (2), the estimated results indicate the statistical significance and consistent signs of LNGDP, LNFDI, LNFD, LNT, LNRE, LNEN, and LNURB; however, the magnitude of coefficients is slightly different. Similarly, PS-PG and VA-PG index appeared to be insignificant. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2) except PS-PG and VA-PG; however, GE-EG appeared to be significant. Thus, 1 a unit increases in GE-EG decreases CO2 emission by 0.201%. Furthermore, in column (4), the results also indicate consistent signs of variables as mentioned in columns (1) to (3) except PS-PG, VA-PG, GE-EG, and RQ-EG; however, CC-IG and RL-IG appear to be insignificant. Similarly, column (5) presents the impact of nine exogenous variables and six governance index variables on CO2 emission. The estimated results reveal that LNFD, LNRE and LNURB improved the environment by decreasing CO2 emission; thus, a 1 unit increase in LNFD, LNRE and LNURB decreases CO2 emission by 0.019%, 0.001% and 0.118%. Furthermore, economic growth, foreign direct investment inflow and energy consumption increase increases CO2 emissions. According to the results, a 1 unit increase in LNGDP, LNFDI and LNEN increases CO2 emission by 0.560%, 0.026% and 0.068% respectively. Likewise, the estimated results also reveal that a 1 unit increase in GE-EG decreases CO2 by 0.185%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences.

Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 30 with the estimated results system-GMM (robustness analysis) in table 31, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNGDP, LNFDI, and LNEN damage the environment and cause more CO2 emissions in the high-income countries. The coefficients are positive and have statistical significance across all the models estimated by fixed-effect Driscoll-Kraay and system-GMM. Similarly, LNFD, LNT, LNRE, LNURB and GE-EG appeared to have a negative coefficient across the entire estimations of fixed effect Driscoll-Kraay and system-GMM and appeared to be statistically significant, thus helpful in the reduction of CO2 emission.

4.5 DISCUSSION

This research work questions the growth-finance-environmental sustainability trilemma by presenting empirical evidence from middle-income countries and high-income countries, filling the lacuna in the literature. The estimated results reveal that the positive and significant relations depict that incremental economic growth increases CO_2 emissions in middle-income countries and its sub-group and high-income countries. Economic activities generally require more energy consumption, which further causes an emission of more greenhouse gases.

Compared to economic growth on carbon dioxide emission, the highest effect has been observed in lower-middle-income countries; that might be due to high economic activity and thus require more energy consumption. Thus, the positive association between economic growth and carbon dioxide emission is also indicated by numerous previous studies[432] [433] [434]. The outcome supports the argument that economic activities deteriorate the environment due to the lack of sustainable production and consumption pattern[435]. Results indicate that international financeimpacts carbon dioxide emission differently in various income groups. FDI inflow causes carbon dioxide emissions in middle-income countries full sample, lower-middle-income

[432]M.Arouri,[et al.], "Energy consumption, economic growth and CO2 emissions in Middle East and North African countries." *Energy policy* 45,2012,p.342-349.
[433] M.Shahbaz,[et al.] "Economic growth, energy consumption, financial development, international trade and CO2 emissions in Indonesia." *Renewable and sustainable energy reviews* 25,2013,p.109-121.
[434] L.Dauda [et al.], "The effects of economic growth and innovation on CO 2 emissions in different regions." *Environmental Science and Pollution Research* 26,2019,p.15028-15038.
[435] M.Hirschnitz-Garbers,[et al.] "Key drivers for unsustainable resource use–categories, effects and policy pointers." *Journal of Cleaner Production* 132,2016,p.13-31.

countries, and high-income countries. FDI inflow in middle-income countries, lower-middle-income countries, and high-income countries are usually the stem from industrialization for economic activities, which directly harm the environment and causes more carbon dioxide emission. This research confirms the existence of the pollution haven hypothesis for middle-income countries, lower-middle-income countries, and high-income countries. Thus due to a lack of environmental regulations and laws, unfriendly environmental industries transfer to middle-income and lower-middle-income countries, further damaging the environment. These findings are affirmed by other authors for middle-income and lower-middle-income countries [436] [437] [438]. Furthermore, due lack of environmental regulations in high-income countries; FDI inflow causes more carbon dioxide emissions[439].

Likewise, on the other hand, the results reveal that remittance inflow also causes more carbon emissions in middle-income countries, lower-middle-income countries, and middle-income countries with seaports. It is because remittance inflow increases the purchasing power capacity of family members of immigrants, which further spend more money on consumption such as transportation or home appliances. These factors contribute to more energy consumption, which further causes more carbon dioxide emissions. Previous studies also confirmed the outcome of this research[440] [441]. The evidence also indicates that the remittance inflow deteriorates the environment more in lower-middle-income countries than in middle-income countries with seaports. Likewise, foreign direct investment and remittance and official development assistance also cause environmental degradation in middle-income countries full sample and lower-middle-income countries. Once official development assistance is deployed or used for infrastructure development, it increases economic activities, leading to more

[436] J.Acharyya, "FDI, growth and the environment: Evidence from India on CO2 emission during the last two decades." *Journal of economic development* 34.1,2009,p.43.
[437]K.Gökmenoğlu, and N.Taspinar. "The relationship between CO2 emissions, energy consumption, economic growth and FDI: the case of Turkey." *The Journal of International Trade & Economic Development* 25.5,2016,p.706-723.
[438] O.K.Essandoh, M.Islam, and M.Kakinaka. "Linking international trade and foreign direct investment to CO2 emissions: any differences between developed and developing countries?." *Science of the Total Environment* 712,2020,p.136437.
[439] M.Mert, G.Bölük, and A.Çağlar. "Interrelationships among foreign direct investments, renewable energy, and CO 2 emissions for different European country groups: a panel ARDL approach." *Environmental Science and Pollution Research* 26,2019.p.21495-21510.
[440]Rehman, Abdul, et al. "The effect of carbon dioxide emission and the consumption of electrical energy, fossil fuel energy, and renewable energy, on economic performance: evidence from Pakistan." *Environmental Science and Pollution Research* 26 (2019): 21760-21773.
[441] Yang, Jie, et al. "Driving forces of China's CO2 emissions from energy consumption based on Kaya-LMDI methods." *Science of the Total Environment* 711 (2020): 134569.

energy consumption[442].Furthermore, infrastructure development and economic activities lead to more greenhouse gas emissions. The positive correlation between official development assistance and carbon dioxide emission is also supported by previous studies[443] [444] [445]. Likewise, the primary reason for official development assistance as the deteriorating factor for the environment in lower-middle-income countries is the absence of strict environmental rules and regulations. Strong and effective governance significantly improves the environment on the effectiveness of official development assistance inflow[446].

The estimated results reveal that the positive and significant relations depict that incremental trade increases CO_2 emissions in middle-income countries and its sub-group. It is because more economic activities induce trade. High economic activities require more energy consumption, which further causes the emission of greenhouse gases. Furthermore, trade activities usually increase transportation that further case emission of greener house gases. Numerous studies, found that there is a positive association between trade and carbon dioxide emission in different regions and countries, which reinforces the findings of this research work[447] [448] [449]. Renewable energy resources are negatively associated with carbon dioxide emissions. It is because renewable energy technologies are a clean source of energy and eventually have a much lower impact on the environment than the energy produced from fossil fuels. This research also indicates a negative association between renewable energy and carbon dioxide for middle-income countries, their sub-income-group, and high-income group. Several studies also found a negative relationship between renewable energy and carbon dioxide emission in different regions and countries which affirms the findings of this

[442]Sahoo, Pravakar, and Ashwani Bishnoi. "Role of Japanese official development assistance in enhancing infrastructure development in India." *Contemporary South Asia* 24.1 (2016): 50-74.
[443]Q.Wang, J.Guo, and R.Li. "Official development assistance and carbon emissions of recipient countries: a dynamic panel threshold analysis for low-and lower-middle-income countries." *Sustainable Production and Consumption* 29,2022,p.158-170.
[444]K.Sharma,B.Bhattarai, and S.Ahmed. "Aid, growth, remittances and carbon emissions in Nepal." *The Energy Journal* 40.1,2019,p.129-142.
[445]M.Panait,[et al.], "Impact factors to reduce carbon emissions. Evidences from Latin America." *Kybernetes* 52.11,2023.p.5669-5686.
[446]M.Li, W.Du, and S.Tang. "Assessing the impact of environmental regulation and environmental co-governance on pollution transfer: Micro-evidence from China." *Environmental Impact Assessment Review* 86,2021.p.106467.
[447] M.Shahbaz [et al.] "Economic growth, energy consumption, financial development, international trade and CO2 emissions in Indonesia." *Renewable and sustainable energy reviews* 25,2013.p.109-121.
[448]J.M. Balogh, and A.Jámbor. "Determinants of CO." *Int J Energy Econ Policy* 7.5 ,2017,p.217-226.
[449] S.Muhammad,[et al.], "Effect of urbanization and international trade on CO2 emissions across 65 belt and road initiative countries." *Energy* 196,2020,p.117102.

study[450] [451] [452]. On the other hand, urbanization also appears to be a major cause of carbon dioxide emissions in middle-income countries and their low-income groups. Urbanization increases cities' urban concentration, which further increases transportation services and energy consumption. Both factors cause more carbon dioxide emissions, thus harming the environment. The positive relations between urbanization and carbon dioxide emissions are also confirmed by other authors which confirms the findings of this study[453] [454] [455]. Furthermore, the evidence reveals that urbanization does not harm the environment in high-income countries. In high-income countries, urbanization is eventually planned, and usually, clean energy is used for domestic consumption; therefore, it does not harm the environment. Likewise, in high-income countries, industrial estates are usually established outside the city areas, which further cause a reduction in carbon dioxide emissions. Other author also reveal in their empirical analysis that urbanization does not harm the environment in high-income countries[456] [457]. The evidence also reveals that high energy consumption harms the environment in middle-income countries, its sub-income group, and middle-income countries with seaports. High consumption of fossil fuels for energy production in most middle-income countries causes more carbon dioxide emissions. The finding of this research also supported by previous studies[458] [459] [460].

[450]K.Saidi, and A.Omri. "Reducing CO2 emissions in OECD countries: do renewable and nuclear energy matter?." *Progress in Nuclear Energy* 126,2020.p.103425.
[451]L.K Chu,[et al.], "The influence of shadow economy, environmental policies and geopolitical risk on renewable energy: A comparison of high-and middle-income countries." *Journal of Environmental Management* 342,2023.p.118122.
[452]A.Razmjoo,[et al.], "A Technical analysis investigating energy sustainability utilizing reliable renewable energy sources to reduce CO2 emissions in a high potential area." *Renewable Energy* 164,2021.p.46-57.
[453]U.Al-Mulali,[et al.], "Exploring the relationship between urbanization, energy consumption, and CO2 emission in MENA countries." *Renewable and Sustainable Energy Reviews* 23.2013.p.107-112
[454]Z. Ahmed,Z.Wang, and S.Ali. "Investigating the non-linear relationship between urbanization and CO 2 emissions: An empirical analysis." *Air Quality, Atmosphere & Health* 12.2019.p.945-953.
[455]X.Liu, and J.Bae. "Urbanization and industrialization impact of CO2 emissions in China." *Journal of cleaner production* 172.2018.p.178-186.
[456]P.Poumanyvong, and S.Kaneko. "Does urbanization lead to less energy use and lower CO2 emissions? A cross-country analysis." *Ecological economics* 70.2,2010.p.434-444.
[457] L.B.Ponce de, Diego, and J.D.Marshall. "Relationship between urbanization and CO2 emissions depends on income level and policy." *Environmental science & technology* 48.7.2014.p.3632-3639.
[458]Y.L.Zhang, et al. "Large contribution of fossil fuel derived secondary organic carbon to water soluble organic aerosols in winter haze in China." *Atmospheric chemistry and physics* 18.6.2018.p.4005-4017.
[459]M.Salahuddin,[et al.], "The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO2 emissions in Kuwait." *Renewable and sustainable energy reviews* 81,2018.p.2002-2010.
[460]A.O.Acheampong,. "Economic growth, CO2 emissions and energy consumption: what causes what and where?." *Energy Economics* 74,2018.p.677-692.

Regarding governance indicators, the political stability index harms the environment in middle-income countries, lower-middle-income countries, and middle-income countries with seaports. Recently, political stability in middle-income countries has increased economic activities in middle-income countries and tends to increase energy demand. Higher energy consumption emits more carbon dioxide, harming the environment. Other author also found a positive association between the political stability index and carbon dioxide emission which affirms the findings of this study[461] [462]. On the other hand, an increase in voice and accountability also harms upper-middle-income countries' environment. A strong voice and accountability index appears to be the engine of high economic growth. Therefore more energy consumption for the economic growth process harms the environment. The finding of this research is also supported by previous studies[463] [464]. Furthermore, the rule of law appears to hinder the harmful effect of carbon dioxide emission on environmental sustainability. In middle-income countries, a higher rule of law decreases carbon dioxide emissions. In upper-middle-income countries, the regulatory institutions are continuously working on environmental compliance regulations, which enforcement agencies further monitor; therefore, the rule of law appears to help improve the environment. Other author also found a similar finding for most developing countries by stating that the growth process rule of law appears to improve environmental sustainability[465].Likewise, in high-income countries, government effectiveness improves environmental sustainability. The research reveals a negative association between government effectiveness and carbon dioxide emission. In high-income countries, the government and institutions are actively involved in the formulation and implementation of environmental policies, which eventually reduces carbon dioxide emission. Other author also found that the influential

[461]A.Purcel,. "Does political stability hinder pollution? Evidence from developing states." *Economic Research Guardian* 9.2,2019.p.75-98.
[462]A.Sohail, et al. "The nonlinearity and nonlinear convergence of CO2 emissions: Evidence from top 20 highest emitting countries." *Environmental Science and Pollution Research* 29.39,2022.p.59466-59482.
[463]G.Halkos, and N.G. Tzeremes. "Renewable energy consumption and economic efficiency: Evidence from European countries." *Journal of Renewable and Sustainable Energy* 5.4,2013.
[464]J.OMOJOLAIBI, C.YAMEOGO, and O.J. OGUNBUSOLA. "CARBON DIOXIDE EMISSIONS CONVERGENCE AND INSTITUTIONAL QUALITY IN ECOWAS." *Journal of Academic Research in Economics* 12.1,2020.
[465]A.Gani,. "The relationship between good governance and carbon dioxide emissions: evidence from developing economies." *Journal of Economic Development* 37.1,2012.p.77.

role of government in implementing environmental policies improves environmental quality[466] [467].

4.6 SUMMARY OF RESEARCH FINDINGS-ENVIRONMENTAL SUSTAINABILITY

This section empirically investigates the impact of economic growth on environmental sustainability in the presence of external finance, trade, and financial development for middle-income countries and high-income countries over the period 2000 to 2019. The empirical findings reveal that economic growth harms the environment by causing the emission of greenhouse gases in all the sample panels. Economic growth harms the environment with a more significant positive magnitude (0.682) in lower-middle-income countries and then followed by middle-income countries full sample (0.674). The findings reveal that foreign direct investment inflow also causes environmental pollution in middle-income countries full sample, lower-middle-income countries, and middle-income countries with seaports. In contrast, remittance inflow also harms the environment in the full sample of middle-income countries, lower and middle countries with seaports. Similarly, official development assistance harms the environment in middle-income countries full sample and lower-middle-income countries. Likewise, international financetrade harms the environment in all middle-income countries and their sub-income countries, whereas financial development reduces environmental pollution in high-income countries. In terms of middle-income countries' full sample, lower-middle-income countries and middle-income countries with seaports harm the environment; however, in upper-middle-income countries, voice & accountability cause environmental pollution; lastly, government effectiveness and the rule of law protecting the environment in high-income countries and middle-income countries full sample.

[466]Q.Zhu, J.Cordeiro, and J.Sarkis. "Institutional pressures, dynamic capabilities and environmental management systems: Investigating the ISO 9000–Environmental management system implementation linkage." *Journal of environmental management* 114,2013.p.232-242.

[467]T. Liu,[et al.], "Linking economic performance and sustainable operations of China's manufacturing firms: What role does the government involvement play?." *Sustainable Cities and Society* 67,2021.p.102717.

CHAPTER. 5 ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY

5.1.1 POVERTY

International finance and trade can complexly impact poverty, affecting it both positively and negatively. International trade can lead to economic growth and jobs in export-oriented industries. This can help lift people out of poverty by providing them income-generating opportunities[468]. Trade and foreign direct investment can facilitate the transfer of technology and knowledge, boosting productivity in various industries and improving living standards. International trade can result in access to a broader variety of goods and services at competitive prices, benefitting consumers, especially those with lower incomes.Furthermore , international finance and investment enhance economic diversification thus reduces the impact on single sector economy[469]. However; the impact of international finance and trade on poverty depends on various factors, including government policies, the structure of the economy, the distribution of gains, and the ability of vulnerable populations to adapt to changes. To maximize the positive impact and mitigate negative effects, it's essential for governments to implement policies that promote inclusive growth, protect vulnerable groups, and invest in education and skills development to help people adapt to changing economic conditions. At the moment more than 700 million people living in extreme poverty today and struggling to fulfil the most basic needs like health education and access to water & sanitation. Due to the pandemic crises global poverty increases by 8% and on the other hand, pandemic crises push over 70 million into extreme poverty[470]. Pandemic crises highly impact poor population in developing countries and especially in Sub-Saharan countries, pandemic crises creates more health issue and increases hunger[471] [472].

---

[468] N.Habib-Mintz,. "To what extent can the informal economy concept adequately explain the dynamism of the non-formal sector in developing countries." *Journal of International Business and Economy* 10.1,2009.p.1-19.

[469]P.Ozili,. "Covid-19 pandemic and economic crisis: The Nigerian experience and structural causes." *Journal of Economic and Administrative Sciences* 37.4,2021.p.401-418.

[470] https://www.un.org/sustainabledevelopment/poverty/

[471]O.Ekwebelem,[et al.], "Threats of COVID-19 to achieving United Nations sustainable development goals in Africa." *The Americ an Journal of Tropical Medicine and Hygiene* 104.2.2021.p. 457.

[472]P.A.Vitenu-Sackey, and R. Barfi. "The impact of COVID-19 pandemic on the global economy: Emphasis on poverty alleviation and economic growth. The Economics and Finance Letters, 8 1.,2021.p.32-43.

My research questions the growth–finance-poverty trilemma by presenting the empirical discoveries which fill a hiatus in the literature. This research also highlights the role of governance and economic prosperity in discovering its impact on the poverty reduction. Similarly, this research work adds a new perspective and highlights whether international financealleviates poverty or worsens it. The conclusion reveals that, economic growth reduces poverty in the entire sample panels. Furthermore, in terms of external financial foreign direct investment reduces poverty only in full sample of middle-income countries and middle-income countries with seaports. However remittances and official development assistance impact on poverty reduction also varies in different income groups. Remittance inflow decreases poverty in lower and middle-income countries with seaports; whereas official development assistance reduces poverty only in upper and lower-middle-income countries.

Considering the impact of economic growth on poverty reduction, the literature suggests that economic growth reduces poverty and improve well-being[473]. Considering that poverty and its consequences are critical in middle-income and low-income countries, my study justifies engaging in this empirical research work, especially from an income-group perspective. Several pieces of research identified the nexus between economic growth and poverty reduction[474] [475]. In developing countries, financial constraints are emerging issue in the development process[476]. It has been argued by other author in his work that international financedrives development and well-being in emerging economies by creating more jobs[477]. Foreign direct investment increases the individual well-being by creating more jobs and further reduces poverty[478] [479].Likewise financial in majority of the development countries migrants remittance inflow appear to be key determinant of poverty reduction and increases quality of life[480].

[473]G.Fields, "The dynamics of poverty, inequality and economic well-being: African economic growth in comparative perspective." *Journal of African Economies* 9.Supplement_1,2000,p.p45-78.
[474]F. Bourguignon,. "The pace of economic growth and poverty reduction." *Delta* 2000.
[475]A.Vetterlein,. "Economic growth, poverty reduction, and the role of social policies: The evolution of the World Bank's social development approach." *Global Governance* 13,2007,p. 513.
[476]C.Kirkpatrick, and C.Green. "Finance and development: an overview of the issues." *Journal of International Development* 14.2,2002.p.207.
[477]N.Kutivadze,. *Public debt, domestic and external financing, and economic growth*. No. 2011-12. 2011.
[478]T.Tambunan, "The impact of foreign direct investment on poverty reduction: A survey of literature and a temporary finding from Indonesia. Consultative meeting on 'Foreign direct investment and policy changes: Areas for new research'." Bangkok, Thailand: United Nations Conference Centre, 2005.
[479]M.Agarwal, P.Atri, and S.Kundu. "Foreign direct investment and poverty reduction: India in regional context." *South Asia Economic Journal* 18.2,2017.p.135-157.
[480]M. Pradhan, and G.Uddin Khan. "Role of Remittance for improving quality of life: Evidence from Bangladesh." *Turkish Economic Review* 2.3,2015.p.160-168.

Furthermore, social sustainable cannot achieve without removing the poverty in developing countries, as it induces serious health issues and other social issues[481]. In majority of the middle income countries high level of inequality and poverty are the major issue and considering the fact numerous upper-income countries unable to graduate to other income group due to the massive poverty incidences in the middle-class and lower-middle class of the population[482]. In this regard, developing countries, especially middle-income countries, face stagnant economic growth, and a high level of income inequalities cause hurdles in their graduation toward the high-income group[483]. Therefore, against this background, it becomes essential to investigate the economic growth, external finance, and poverty trilemma. The study is a comparative analysis of economic growth and poverty from the growth-poverty paradigm. It incorporates other macroeconomic factors such as external finance, trade, and financial development for middle-income and high-income countries. The study comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of socio-economic development as reduction of poverty which might highlight a significant factor in the graduation process.

A panel for 56 middle-income countries and 21 high-income-countries is used to probe the discourse from 2000 to 2015. Furthermore, the middle-income countries are further divided based on income and geography, indicatively upper-middle-income countries as income group and middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of economic growth, external finance, trade, and financial development on the poverty reduction Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on poverty in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the

[481]D.Foot, and S.Ross. "Social sustainability." *Teaching business sustainability*.2017.p.107-125.
[482]N.Groce,[et al.], "Poverty and disability–a critical review of the literature in low and middle-income countries." *Leonard Cheshire Research Centre Working Paper Series* 16,2011.
[483] H.Kharas, and H.Kohli. "What is the middle income trap, why do countries fall into it, and how can it be avoided?." *Global Journal of Emerging Market Economies* 3.3,2011.p.281-289.

upper-middle-income countries for their graduation process, from the middle-income group to the high-income group.

To achieve the objective of this thesis, which is to investigate whether economic growth enhances social sustainability by reducing poverty as SDG goal 1 or dims its impact? Therefore, this section provides an empirical investigation of whether economic growth reduces the poverty in the presence of external finance, trade, financial development, and governance. A multidimensional approach is adopted, which estimated the nexus between poverty, economic growth, and other macro-economic variables performed on a total sample of middle-income countries than respective income and geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 5.1.2 presents a literature review, 5.1.3 highlights the research framework based on hypothesis, 5.1.4 indicates data along with the model specification and empirical estimation followed by results interpretation, 5.1.5 mentions discussion of results, and section 5.1.6 consist summary of research findings.

5.1.2 LITERATURE REVIEW

Therefore are numerous factors which direct or indirectly impact the incidences of poverty. Considering the fact the in different regions of worlds there are different drivers of growth therefore; these drivers affect per capita income differently[484]. Below section review the different factor which directly or indirectly income on the poverty.

ECONOMIC GROWTH AND POVERTY

Social sustainability contributes in sustainable development in multiple ways. By providing justice in the society it encourages the distribution of economic resources equally. Furthermore, social sustainability emphasizes the influential role of government by providing essential social services such as health and education and saving drinking water for everyone.[485].Social sustainability merely depends on the economic

[484]D.Bloom, D.Canning, and P.N.Malaney. "Population dynamics and economic growth in Asia." *Population and development review* 26,2000.p.257-290.
[485]M. Hoff,. *Sustainable community development: Studies in economic, environmental, and cultural revitalization*. CRC Press, 1998.

growth.[486]Several studies highlight that occurrence of economic growth reduce poverty[487] [488] [489]. Economic growth induces by high productivity and creates more employment opportunities; therefore by creating more jobs it increase per capita income.Effective of economic growth on poverty reduction depend on the many factor[490]. Initially it depends on the economic structure of the countries and further it associated with the income distribution level. Nevertheless, institutional governance also plays significant role in poverty reduction. Economic growth impact on poverty depend on the demographic factors; as the in urban areas economic growth marginal more effect on poverty reduction than rural areas. As in urban areas massive employment opportunities are available for the people however in rural areas availability of jobs are quite limited[491].

INTERNATIONAL FINANCE AND POVERTY

Several authors used secondary macroeconomic data such as poverty headcount, income inequalities, human development index, or household consumption expenditure for measuring poverty in empirical analysis. Numerours authors used poverty headcount. [492] [493] [494], household consumption expenditure[495] and income inequalities[496] as proxy for poverty in their research. On the other hand, numerous researchers also used primary data collected via household surveys[497] [498] [499].

[486]S.Vallance, H.C. Perkins, and J.E. Dixon. "What is social sustainability? A clarification of concepts." *Geoforum* 42.3,2011.p.342-348.
[487]S.Klasen,. "Economic growth and poverty reduction: measurement and policy issues." 2005.
[488] N.Kakwani,. "Performance in living standards: an international comparison." *Journal of development economics* 41.2,1993.p.307-336.
[489]M.Škare, and R.P.Družeta. "Poverty and economic growth: A review." *Technological and Economic development of Economy* 22.1,2016.p.156-175.
[490]M.Roemer,and M.K.Gugerty. *Does economic growth reduce poverty?*. Cambridge, MA: Harvard Institute for International Development, 1997.
[491]C.Kessides,. *The urban transition in Sub-Saharan Africa: Implications for economic growth and poverty reduction*. Washington, DC: Cities Alliance, 2006.
[492]P.Acosta,[et al.], "Remittances and development in Latin America." *World Economy* 29.7,2006.p.957-987.
[493]R.H, Adams Jr,. "International remittances and the household: Analysis and review of global evidence." *Journal of African Economies* 15.suppl_2 ,2006.p.396-425.
[494]J.Jongwanich,. *Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries*. No. WP/07/01. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2007.
[495]M.T, Musakwa, and N.M. Odhiambo. "Remittance inflows and poverty dynamics in South Africa: An empirical investigation." *SAGE Open* 10.4,2020.p.2158244020983312.
[496]L.San Vincente Portes,. "Remittances, poverty and inequality." *Journal of Economic Development* 34.1,2009.p.127.
[497]B.Kumar,. "Remittances, poverty and welfare: Evidence from Cumilla, Bangladesh." *American Journal of Data Mining and Knowledge Discovery* 4.1,2019.p.46-52.

In terms of remittance impact on poverty reduction, an empirical study analyzes the impact of remittance inflow on poverty reduction for Nigeria, Rwanda, South Africa, Uganda, Bangladesh, and Vietnam. They concluded that internal and external remittances received bytoo many households' families, mainly in poor rural areas. Furthermore, they also highlighted that remittance inflow does not look helpful in reducing poverty; however, it improves living standards and overall wellbeing[500]. Likewise, another author used a household survey of Mali to evaluate the nexus between poverty and remittance inflow. The finding reveals that remittances inflow reduces the poverty rate by 5%[501]. Similarly, regarding the impact of remittances on poverty reduction, an author find that internal remittances inflow is more efficient than external remittance in poverty reduction for Ghana. They also used primary data to investigate the relationship between remittance and poverty reduction in their analysis[502].

In terms of foreign direct investment, a study conducted by another author investigates the impact of FDI inflow on poverty reduction and other control variables such as human capital, inflation rate, government spending, infrastructure, and proportion of outstanding debt to GDP. He used time series for the period 1980 to 2009. His results indicate that FDI reduces Poverty in Nigeria[503]. Another author used panel data from middle and low-income countries from 1975 to 1999 to investigate the impact of FDI on socio-economic progress. They used the human development index as a proxy for poverty and socio-economic progress. Their panel ordinary least regression results indicate that foreign direct investment positively impacts human development, thus reducing poverty[504]. Similarly on the other hand another author used panel data from 30 African countries from 1981 to 2011. Their empirical analysis consists of

---

[498]P.Nunnenkamp, R.Schweickert, and M.Wiebelt. "Distributional effects of FDI: how the interaction of FDI and economic policy affects poor households in Bolivia." *Development policy review* 25.4,2007.p.429-450.

[499]P-L, Tsai, and C-H Huang. "Openness, growth and poverty: The case of Taiwan." *World Development* 35.11,2007.p.1858-1871.

[500]A.McKay, and P.Deshingkar. "Internal remittances and poverty: Further evidence from Africa and Asia." 2014.

[501]F. Gubert, T.Lassourd, and S.Mesplé-Somps. "Do remittances affect poverty and inequality? Evidence from Mali." 2010.

[502]R.H, Adams Jr, Alfredo Cuecuecha, and John Page. "The impact of remittances on poverty and inequality in Ghana." *World Bank Policy Research Working Paper* 4732,2008.

[503]A.O. Israel,. "Impact of foreign direct investment on poverty reduction in Nigeria (1980–2009)." *Journal of Economics and Sustainable Development* 5.20,2014.p.34-45.

[504]B.Sharma and A.Gani. "The effects of foreign direct investment on human development." *Global economy journal* 4.2,2004.p.1850025.

dynamic panel Systems and different GMM. Their results indicate that FDI inflow significantly reduces poverty in the African region. They used poverty headcount data as an indicator of poverty[505]. Other panel empirical studies also affirm that FDI inflow reduces poverty[506] [507]. However, contrary to the positive impact of FDI on poverty reduction, few also indicate that FDI inflow increases Poverty[508].

Literature indicates mixed evidence regarding the impact of foreign aid on poverty reduction. In terms of empirical research, a author used panel data from Sub-Saharan African countries from 1981 to 2011 to investigate the impact of foreign aid on poverty reduction. He used dynamic panel estimation techniques and found that foreign aid does have a statistically significant poverty reduction effect[509]. Similar results were also indicated by other author for Sub-Saharan African countries[510]. Another author investigated the impact of official development aid on poverty. They used the infant mortality rate as a proxy for poverty. Their empirical analysis concludes that official development aid significantly reduces the infant mortality rate[511]. Another author also found a positive association between official development aid and poverty reduction[512]. It has been highlighted that the effectiveness of poverty aid depends on the channel by which aid is provided[513]. Likewise, it has been argued that well monitor aid reduces poverty incidences[514]. Nevertheless, another author argued that aid effectively reduces poverty when there is democracy in the country[515]. Similarly another author endorse

[505]B.Fowowe, and M.Shuaibu. "Impact of international remittance inflows on poverty in Nigeria." *The Journal of Developing Areas* 55.1,2021.
[506]A.Shamim, P.Azeem, and S.M. Muddassir Abbas Naqvi. "Impact of foreign direct investment on poverty reduction in Pakistan." *International Journal of Academic Research in Business and Social Sciences* 4.10,2014.p.465.
[507]G.Gohou, and I.Soumaré. "Does foreign direct investment reduce poverty in Africa and are there regional differences?." *World development* 40.1,2012.p.75-95.
[508]C-H, Huang, K-F Teng, and P-L Tsai. "Inward and outward foreign direct investment and poverty: East Asia vs. Latin America." *Review of World Economics* 146,2010.p.763-779.
[509]E.Mahembe,. "Does foreign aid reduce poverty in Sub-Saharan Africa? A dynamic panel-data analysis." 2018.
[510]F.O. Anetor, E.Esho, and G.Verhoef. "The impact of foreign direct investment, foreign aid and trade on poverty reduction: Evidence from Sub-Saharan African countries." *Cogent Economics & Finance* 8.1,2020,1737347.
[511]N.Masud, and B.Yontcheva. "Does foreign aid reduce poverty?: empirical evidence from nongovernmental and bilateral aid." 2005.
[512]E.Alvi, and A.Senbeta. "Does foreign aid reduce poverty?." *Journal of International Development* 24.8,2012.p.955-976.
[513]E.Mahembe, and N.M. Odhiambo. "On the link between foreign aid and poverty reduction in developing countries." *Revista Galega de Economia* 26.2,2017.p.113-128.
[514]R.M.Desai, and H.Kharas. "The California consensus: can private aid end global poverty?." *Survival* 50.4,2008.p.155-168.
[515]B.N.Arvin, and F.Barillas. "Foreign aid, poverty reduction, and democracy." *Applied Economics* 34.17,2002.p.2151-2156.

that in sub-Saharan regions, internal conflicts and security issues became a hurdle to aid effectiveness; however, aid is an effective tool for poverty alleviation but not too much[516].

TRADE AND POVERTY

In terms of the impact of trade on poverty reduction, the author argued that trade opening probably adds to aggregate welfare and thus might be helpful for poverty reduction[517]. As another author highlighted, international trade can contribute to economic growth and thus can help many poor people escape poverty[518]. Similar evidence has also been provided by other author that multilateral trade liberalization is conducive to poverty reduction in developing countries [519] [520]. It has been argued that international trade enables low and low-middle-income countries to integrate with other countries at the international level, therefore, helpful in poverty reduction[521]. Another author used time-series data from Pakistan covering the period of 1973 to 2003 to investigate the impact of trade openness, financial openness, and public intervention on poverty reduction. Their findings suggest that in the long run, trade openness reduces poverty; however, in the short run, no impact has been observed[522].

Furthermore, they also highlighted that poverty reduction is also associated with low taxation and high foreign investment. Another author also conducted a country-specific analysis for Indonesia to investigate the impact of trade liberalization on poverty reduction by using an Ordinary Least Square (OLS) method from 1984 to 2017. Their empirical results suggest that trade openness and labor force positively impact poverty; however, GDP and exchange rates negatively impact poverty[523]. Another author used micro-level data from different Thailand provinces to investigate the nexus between trade reforms and poverty reduction. Employers concentrating in industries subject to

[516]L. Brainard, and D.Chollet, eds. *Too poor for peace?: global poverty, conflict, and security in the 21st century*. Rowman & Littlefield, 2007.
[517]R.Vos,"What we do and don't know about trade liberalization and poverty reduction." 2007.
[518]D.Mitra,. "Trade liberalization and poverty reduction." *IZA World of Labor* 2016.
[519]L.A,Winters, . "Trade and Poverty: Is there a connection?." *Trade Policy, Growth and Poverty in Asian developing Countries*. Routledge, 2003.p.38-74.
[520]S.K.Gnangnon, "Does multilateral trade liberalization help reduce poverty in developing countries?." *Oxford Development Studies* 47.4,2019.p.435-451.
[521]P. Goldberg, and T.Reed. "Demand-side constraints in development: The role of market size, trade, and (in) equality." *Demand-Side Constraints in Development: The Role of Market Size, Trade, and (In) Equality: Goldberg, Pinelopi| uReed, Tristan*. [Sl]: SSRN, 2023.
[522]M.Akmal,Shahbaz,[et al.], "An empirical investigation of the relationship between trade liberalization and poverty reduction: A case for Pakistan." *The Lahore Journal of Economics* 12.1,2007.p.99-118.
[523]M.A. Adha, F.Husnayeni Nahar, and M.Azizurrohman. "The impact of trade liberalization on poverty reduction in Indonesia." *Jurnal Ekonomi & Studi Pembangunan* 19.2,2018.p.178-185.

more significant tariff reductions enjoy faster poverty reduction and income growth than provinces less susceptible to tariff reductions[524]. Furthermore in another research based on panel data the author used data of 21 African countries covering the period 2005 to 2014 to reveal the nexus between trade liberalization and poverty. The results suggest that FDI inflow and inflation rate were positively associated with the human development index, while exchange rates and trade openness were negatively related to poverty[525].

FINANCIAL DEVELOPMENT AND POVERTY

Financial development improves human well-being[526]. Furthermore, financial development enhances economic growth in developing countries by improving productivity and creating employment opportunities[527]. Several studies highlight that financial development decreases poverty by increasing individual income[528] [529].Another author used time-series data from Bangladesh from 1975 to 2011 to investigate the impact of financial development and economic growth on poverty reduction. Their finding indicates that financial development reduces poverty in Bangladesh, and there is a long-run association between financial development, growth, and poverty. In their analyses, they used the ARDL methodology[530]. In another study based on time-series data for India and applied ARDL estimation from 1960 to 2016 the results indicate that financial development and economic growth reduce poverty in the short run; however, its impact is insignificant in the long[531]. Another author also applied ARDL estimation for Indonesia from 1980 to 2014. They also concluded that a long-run relationship exists between financial developments, growth, and poverty; however, in the short run, a bi-directional causal relationship exists between the financial sector and

[524]W.Durongkaveroj, and T.Ryu. "Relative effects of trade liberalization on poverty: Evidence from Thailand." *Progress in Development Studies* 19.4,2019.p.264-283.
[525]A.Onakoya, B.Johnson, and G.Ogundajo. "Poverty and trade liberalization: empirical evidence from 21 African countries." *Economic research-Ekonomska istraživanja* 32.1,2019.p.635-656.
[526]S.P.Nathaniel,. "Ecological footprint and human well-being nexus: accounting for broad-based financial development, globalization, and natural resources in the Next-11 countries." *Future Business Journal* 7.1,2021.p.1-18.
[527]M.Pagano, and G.Pica. "Finance and employment." *Economic Policy* 27.69,2012.p.5-55.
[528]F.Donou-Adonsou, and K.Sylwester. "Financial development and poverty reduction in developing countries: New evidence from banks and microfinance institutions." *Review of development finance* 6.1.p.2016.p.82-90.
[529]J.Rewilak, "The role of financial development in poverty reduction." *Review of development finance* 7.2,2017.p.169-176.
[530]Md.N, Uddin, . "Bangladesh: Income inequality and globalization." *Asian Business Review* 10.1,2020.p.43-52.
[531]Md.Q, Alam, and Md.Shabbir Alam. "Financial development, economic growth, and poverty reduction in India." *Etikonomi: Jurnal Ekonomi* 20.1,2021.p.13-22.

poverty[532].Similarly, another author also used time-series ARDL estimation for Pakistan and concluded that financial development has a positive impact on poverty reduction in the short run; however, in the long run, its impact is insignificant[533]. In terms of panel data the author used panel data from 67 low and middle-income countries from 1986 to 2012 to investigate the contribution of financial development to poverty reduction. He used the system GMM estimator and revealed that financial development reduces poverty in sample countries[534]. Similar results were also found by other author for Africa[535]. Another author used panel data from provinces that heavily contribute to fishing in china to investigate the nexus between financial development and poverty[536]. Their result indicates an indirect association between financial development, economic growth, and poverty reduction. Financial development affects poverty reduction with the help of economic growth as an intermediary role. Similarly in another empirical research the author used panel data for five African emerging economies from 1995 to 2015 to evaluate the relationship between financial development and poverty. They applied FMOLS estimation and used liquid liability as a percentage of GDP and bank domestic credit as a percentage of GDP as the primary financial development indicators. Their results indicate that financial development is helpful in poverty reduction[537].Another author examined the causal linkage between financial development and poverty in developing countries from 1970 to 1990. The finding suggests that from 1970 to 1980, financial development led to moderate poverty reduction; however, financial development is measured by liquid assets of the financial system as a share of GDP or by money and quasi money as a percentage of GDP[538]. Likewise, another author used panel data from 136 countries (both developed and developing countries) from 1995 to 2017 to investigate the impact of financial development and trade

[532]M.Majid, Shabri Abd,[et al.], "Does financial development reduce poverty? Empirical evidence from Indonesia." *Journal of the knowledge economy* 10,2019.p.1019-1036.
[533]R.Kousar, [et al.], "The impact of foreign remittances and financial development on poverty and income inequality in Pakistan: Evidence from ARDL-bounds testing approach." *The Journal of Asian Finance, Economics and Business* 6.1,2019.p. 71-81.
[534]J.Boukhatem,. "Assessing the direct effect of financial development on poverty reduction in a panel of low-and middle-income countries." *Research in International Business and Finance* 37,2016.p. 214-230.
[535]S.T,Bolarinwa, A.Adewale Adegboye, and X.Vinh Vo. "Is there a nonlinear relationship between financial development and poverty in Africa?." *Journal of Economic Studies* 48.7,2021.p.1245-1266.
[536]S.Wang, B.Lu, and K.Yin. "Financial development, productivity, and high-quality development of the marine economy." *Marine Policy* 130,2021.p.104553.
[537]M.Appiah, Michael, Doreen Idan Frowne, and Derrick Tetteh. "Re-examining the nexus between financial development and poverty reduction: evidence from emerging economies." *Applied Economics Journal* 27.2,2020.p.125-144.
[538]S.Perez-Moreno,. "Financial development and poverty in developing countries: a causal analysis." *Empirical Economics* 41,2011.p.57-80.

openness on poverty reduction. His results indicate that financial development affects poverty through the human capital channel. Additionally, the effect of financial development on poverty depends on countries' level of trade openness[539].

5.1.3 RESEARCH FRAMEWORK -POVERTY

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for upper-middle-income countries to leave the middle-income trap. Furthermore considering the fact that poverty appear to be a massive issue in middle-income-countries and its sub group such as upper-middle-income countries and lower-middle-income countries ; this research uncover the impact on economic growth , international finance, trade and financial development on it. Similarly, this work also highlights the impact of economic growth on the poverty rate in the panel of middle-income countries which possess seaports. Based on the research goals below, a relevant research framework is mentioned in figure 5.

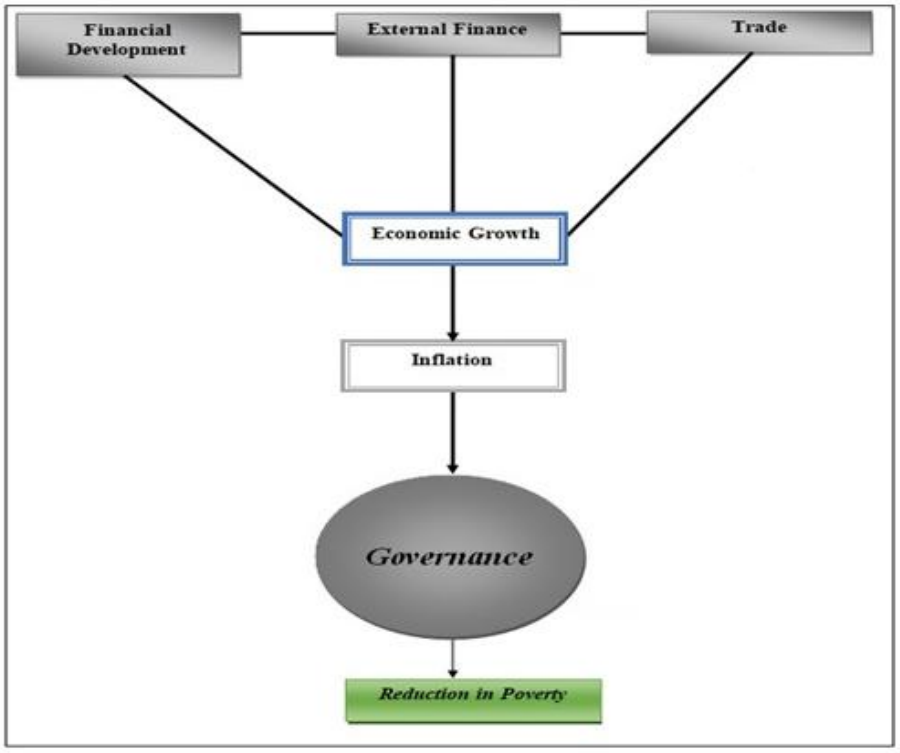


FIGURE 5. RESEARCH FRAMEWORK FOR THE MODEL OF POVERTY

[539]S.K,Gnangnon,. "Does multilateral trade liberalization help reduce poverty in developing countries?." *Oxford Development Studies* 47.4,2019.p.435-451.

5.1.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique

5.1.4.1 DATA

The present study investigates growth–finance-poverty trilemma for middle-income and high-income countries for the period covering from 2001 to 2020. For evaluating the impact of economic growth on social dimension more specifically on poverty, per capita consumption expenditure (PCE) growth is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 5. The other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP, INF is the inflation thus consumer price index and annual growth rate of GDP. Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 32 contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

TABLE 32. DATA SOURCES, ABBREVIATION AND DESCRIPTION, POVERTY

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
PCE	Per capita consumption expenditure growth- Proxy for poverty	PovcalNet	Endogenous
GDP	Annual growth rate of GDP	World Bank Development Indicator	Exogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
INF	Inflation	World Bank Development Indicator	Exogenous
PS-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VA-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GE-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQ-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
CC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

5.1.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS

By limiting the discussion to the variable of interest, economic growth, international financeand per capita consumption expenditure growth the comparative statistics of variables are shown in table 33 for middle-income-countries and the correlation analysis is displayed in table 34 for middle-income countries. Table 35 indicate summary statistics for high-income-countries and table 36 for high-income-countries correlation analysis respectively.

TABLE 33. SUMMARY STATISTICS (MIC-FS, POVERTY)

VARIABLE	FULL SAMPLE				
	OBSERVATIONS	MEAN	STD. DEV.	MIN	MAX
PCE	1,120	3.271	5.776	-36.104	70.913
FDI	1,120	3.984	4.921	-11.625	55.076
REM	1,120	5.691	6.419	0.000	34.499
ODA	1,120	2.780	3.137	-0.616	21.437
GDPGR	1,120	4.450	3.522	-15.136	34.5
T	1,120	78.316	32.851	20.723	220.407
FD	1,120	39.163	29.948	0.008	149.373
INF	1,120	6.187	6.239	-18.1	48.7
PSI-PG	1,120	-0.460	0.742	-2.81	1.28
VAI-PG	1,120	-0.369	0.598	-1.82	1.15
GEI-EG	1,120	-0.366	0.506	-1.78	1.27
RQI-EG	1,120	-0.290	0.511	-1.8	1.13
COC-IG	1,120	-0.517	0.534	-1.52	1.65
ROL-IG	1,120	-0.497	0.490	-1.66	0.73

As per middle-income-countries, the average real GDP per capita income is 3539.17 (USD Constant, 2015), with Cambodia having the lowest at 485.86 (USD Constant, 2015) in 2000 and Costa Rice showing the highest in 2019 with 12654.69 (USD Constant, 2015). The standard deviation appeared as 2377.1. The average foreign direct investment inflow percentage of GDP is 3.983%, with Mauritania having the lowest at -11.624% in 2019 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.921. Similarly, the average remittance inflow percentage of GDP is 5.691%, with Angola having the lowest at 0.00013% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.418. Furthermore, the average official development assistance inflow percentage of GDP is 2.779%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic showed the highest in 2005 with 21.43%, with a standard deviation of 3.163. In terms of growth in per capita consumption expenditure, the average is 3.271, with Bhutan having the lowest at -36.104 in 2006 and also Bhutan showing the highest in 2007 with 70.91 and standard deviation is 5.776. According to the table 34 connections among the exogenous and endogenous variables does not suggest the presence of multicollinearity as all the correlation coefficients are below 0.800.

TABLE 34. CORRELATION ANALYSIS (MIC-FS, POVERTY)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE														
VARIABLE	**PCE**	**FDI**	**REM**	**ODA**	**GDPGR**	**T**	**FD**	**INF**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
PCE	1													
FDI	0.118	1												
REM	-0.020	0.069	1											
ODA	0.016	0.060	0.159	1										
GDPGR	0.426	0.179	-0.018	0.131	1									
T	0.172	0.342	0.035	-0.031	0.107	1								
FD	-0.015	0.023	0.127	-0.210	-0.122	0.386	1							
INF	0.067	0.029	-0.057	0.062	0.047	0.104	-0.192	1						
PSI	0.083	0.124	-0.147	0.098	0.030	0.396	0.150	-0.097	1					
VAI	-0.076	-0.019	0.070	-0.074	-0.156	-0.119	0.094	-0.092	0.243	1				
GEI	0.039	0.044	-0.129	-0.195	-0.046	0.302	0.511	-0.190	0.396	0.430	1			
RQI	-0.026	0.156	0.069	-0.191	-0.097	0.199	0.375	-0.237	0.293	0.591	0.745	1		
COC	0.055	-0.053	-0.062	-0.004	-0.019	0.180	0.319	-0.165	0.497	0.492	0.761	0.568	1	
ROL	0.026	0.040	-0.039	-0.072	-0.054	0.254	0.425	-0.176	0.482	0.497	0.737	0.703	0.736	1

TABLE 35. SUMMARY STATISTICS (HIC, POVERTY)

VARIABLE	HIGH-INCOME COUNTRIES				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
PCE	420	2.328	4.148	-9.614	60.351
FDI	420	10.146	27.541	-40.081	280.132
REM	420	0.791	1.146	2.89E-05	6.877
ODA	420	0.556	1.134	-0.250	8.305
GDPGR	420	3.319	4.576	-10.15	26.17
T	420	112.258	71.641	19.560	442.62
FD	420	83.916	55.773	2.149	255.310
INF	420	2.979	3.612	-4.9	37
PSI-PG	420	0.584	0.553	-1.63	1.5
VAI-PG	420	0.587	0.782	-2	1.62
GEI-EG	420	0.785	0.684	-1.7	1.91
RQI-EG	420	0.787	0.726	-1.68	2.23
COC-IG	420	0.662	0.729	-1.82	1.96
ROL-IG	420	0.759	0.645	-1.52	1.86

As per high-income countries the average real GDP per capita income is 23062.75 (USD Constant, 2015), with Equatorial Guinea having the lowest at 4454.03 (USD Constant, 2015) in 2000 and Ireland showing the highest in 2019 with 75112.81 (USD Constant, 2015). The standard deviation appeared as 14308.82. The average foreign direct investment inflow percentage of GDP is 10.145%, with Hungary having the lowest at -40.0811% in 2018 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 27.54. Similarly, the average remittance inflow percentage of GDP is 0.790%, with Uruguay having the lowest at 0.0000288917% in 2001 and Croatia showing the highest in 2019 with 6.876%, with a standard deviation of 1.146. Furthermore, the average official development assistance inflow percentage of GDP is 0.555%. Mauritius had the lowest at -0.2496% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134. In terms of growth in per capita consumption expenditure, the average is 2.2328, with Equatorial Guinea having the highest at 60.35 in 2006 and Greece showing the lowest in 2011 with -9.614 and the standard deviation is 4.413.

TABLE 36. CORRELATION ANALYSIS (HIC, POVERTY)

HIGH INCOME COUNTRIES GRADUATED COUNTRIES														
VARIABLE	**PCE**	**FDI**	**REM**	**ODA**	**GEPGR**	**T**	**FD**	**INF**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
PCE	1													
FDI	-0.102	1												
REM	0.028	0.137	1											
ODA	0.023	-0.048	-0.060	1										
GDPGR	0.405	-0.025	-0.034	0.057	1									
T	0.098	0.250	0.048	-0.068	0.112	1								
FD	-0.228	0.370	-0.161	-0.066	-0.265	0.129	1							
INF	0.076	-0.047	-0.087	-0.019	0.091	0.022	-0.311	1						
PSI	0.068	0.034	0.107	-0.382	0.078	0.253	0.014	0.074	1					
VAI	-0.112	0.068	0.090	0.018	-0.189	-0.098	0.373	-0.093	0.227	1				
GEI	-0.144	0.142	-0.073	0.070	-0.081	0.157	0.634	-0.231	0.213	0.738	1			
RQI	-0.102	0.130	-0.063	-0.041	-0.055	0.203	0.577	-0.243	0.204	0.743	0.726	1		
COC	-0.102	0.129	-0.234	-0.013	0.001	0.143	0.534	-0.106	0.282	0.630	0.752	0.731	1	
ROL	-0.139	0.102	-0.204	-0.014	-0.077	0.127	0.616	-0.184	0.274	0.733	0.744	0.718	0.758	1

5.1.4.3 MODEL SPECIFICATION

The hypotheses will be tested by estimating a series of panel data models. The models will explain the variables that measure the elements that characterize particular sustainability pillars. For evaluating the impact of economic dimension on social dimension more specifically on poverty, per capita consumption expenditure growth is used as proxy for poverty and as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 5. Based on research hypothesis as mentioned in figure 5 initially below model will be formed,

$$PCE_{it} = \alpha_o + \alpha_1 FDI_{it} + \alpha_2 REM_{it+} \alpha_3 ODA_{it+} \alpha_4 GDPGR_{it+} \alpha_5 T_{it+} \alpha_6 FD_{it+} \alpha_7 INF_{it} + e_{it}$$ *(Equation 1)*

Where PCEGR is the growth rate of per capita consumption expenditure (proxy for poverty rate), FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP, INF is the inflation thus consumer price index and GDPGR is annual growth rate of GDP. Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in table 32. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore above equation above 1 will be ,

$$lnPCE_{it} = \alpha_o + \alpha_1 lnFDI_{it} + \alpha_2 lnREM_{it+} \alpha_3 lnODA_{it+} \alpha_4 lnGDPGR_{it+} \alpha_5 lnT_{it+} \alpha_6 lnFD_{it+} \alpha_7 lnINF_{it} + e_{it}$$ *(Equation 2)*

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the impact of external finance, economic and governance indicators on sustainability. Therefore, below model will be estimated which incorporate the impact of political governance along with economic sustainability and

international financeon poverty rate. By incorporating political governance index in equation 2, given below model will estimated.

$$lnPCE_{it} = \alpha_o + \alpha_1\ lnFDI_{it} + \alpha_2\ lnREM_{it+}\ \alpha_3 lnODA_{it+}\ \alpha_4 lnGDPGR_{it+}\ \alpha_5 lnT_{it+}\ \alpha_6 lnFD_{it+}\ \alpha_7 lnINF_{it} + \alpha_8 PSI\text{-}PG_{+}\ \alpha_9 VAI\text{-}PG + e_{it} \quad \textit{(Equation 3)}$$

In above equation 4, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm. However, by incorporating economic and institutional governance in equation 2, the estimated equations will be written as,

$$lnPCE_{it} = \alpha_o + \alpha_1\ lnFDI_{it} + \alpha_2\ lnREM_{it+}\ \alpha_3 lnODA_{it+}\ \alpha_4 lnGDPGR_{it+}\ \alpha_5 lnT_{it+}\ \alpha_6 lnFD_{it+}\ \alpha_7 lnINF_{it} + \alpha_8 GEI\text{-}EG_{+}\ \alpha_9 RQI\text{-}EG + e_{it} \quad \textit{(Equation 4)}$$

And,

$$lnPCE_{it} = \alpha_o + \alpha_1\ lnFDI_{it} + \alpha_2\ lnREM_{it+}\ \alpha_3 lnODA_{it+}\ \alpha_4 lnGDPGR_{it+}\ \alpha_5 lnT_{it+}\ \alpha_6 lnFD_{it+}\ \alpha_7 lnINF_{it} + \alpha_8 COC\text{-}IG_{+}\ \alpha_9 ROL\text{-}IG + e_{it} \quad \textit{(Equation 5)}$$

In above equation 5, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 6, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$$LNPCE_{it} = \alpha_o + \alpha_1\ LNFDI_{it} + \alpha_2\ LNREM_{it+}\ \alpha_3 LNODA_{it+}\ \alpha_4 LNGDPGR_{it+}\ \alpha_5 LNT_{it+}\ \alpha_6 LNFD_{it+}\ \alpha_7 LNINF_{it} + \alpha_8 PSI\text{-}PG_{it+}\ \alpha_9 VAI\text{-}PG_{it} + \alpha_{10} GEI\text{-}EG_{it+}\ \alpha_{11} RQI\text{-}EG_{it} + \alpha_{12} COC\text{-}IG_{it+}\ \alpha_{13} ROL\text{-}IG_{it} + e_{it} \quad \textit{(Equation 6)}$$

5.1.4.4 EMPIRICAL ESTIMATIONS

The study offer insight into the empirical linkage of economic growth, finance and poverty in middle-income-countries and high-income-countries. The presentation of empirical discoveries which fill essential gaps in the growth-finance-poverty literature showcases findings on whether economic, external finance, trade and financial development reduces poverty or not. The estimation begins with the fixed effect Driscoll-Kraay estimation and then with robust estimation of System-GMM[540].

[540] **The methodology of estimation is mentioned in Chapter 3 section 3.4.4 in detailed form.**

TABLE 37. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, STATIC MODEL ESTIMATION, POVERTY)

FULL SAMPLE OF MIDDLE-INCOME-COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.121 (0.047)**	0.114 (0.050)**	0.121 (0.046)**	0.124 (0.045)**	0.121 (0.046)**
LNREM	-0.084 (0.048)*	-0.082 (0.045)*	-0.075 (0.057)	-0.091 (0.052)	-0.083 (0.055)
LNODA	-0.024 (0.050)	-0.019 (0.050)	-0.014 (0.051)	-0.013 (0.053)	-0.012 (0.052)
LNGDPGR	0.421 (0.058)***	0.413 (0.061)***	0.422 (0.060)***	0.417 (0.057)***	0.404 (0.061)***
LNT	0.428 (0.168)**	0.447 (0.164)**	0.424 (0.172)**	0.418 (0.180)**	0.445 (0.171)**
LNFD	-0.177 (0.041)***	-0.214 (0.060)***	-0.188 (0.045)***	-0.185 (0.051)***	-0.212 (0.061)***
LNINF	-0.028 (0.045)	-0.015 (0.045)	-0.023 (0.045)	-0.019 (0.043)	-0.013 (0.046)
PSI-PG	-	0.145 (0.094)	-	-	0.159 (0.101)
VAI-PG	-	0.190 (0.182)	-	-	0.121 (0.248)
GEI-EG	-	-	0.205 (0.181)	-	0.053 (0.255)
RQI-EG	-	-	-0.033 (0.170)	-	-0.090 (0.117)
COC-IG	-	-	-	0.447 (0.111)***	0.428 (0.090)***
ROL-IG	-	-	-	-0.086 (0.233)	-0.187 (0.352)
Constant	-0.756 (0.845)	-0.574 (0.197)	-0.657 (0.878)	-0.508 (0.606)	-0.474 (0.971)
R.Sq	0.420	0.445	0.443	0.427	0.431
Observations	821				
Groups	56				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 37 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on poverty according to the fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, LNFDI, LNGDPGR, and LNT appear to positively impact poverty reduction in a full sample of middle-income countries. However, LNFD causes an increase in poverty in the sample countries. 1 unit increase in LNFDI and LNT causes poverty reduction by 0.121% and 0.428%. Similarly, a 1 unit increase in LNGDPGR causes poverty

reduction by 0.421 %. On the other hand, a 1% unit increase in LNFD via domestic credit to the private sector exacerbates poverty by 0.177%. Similarly, in Column (2), by incorporating political governance and other seven exogenous variables, the estimated results indicate consistent signs of LNFDI, LNGDPGR, LNT, and LNFD; however, the magnitudes of coefficients are slightly different. Similarly, PSI-PG and VAI-PG appear insignificant in poverty reduction for middle-income countries. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4), the results also indicate consistent LNFDI, LNGDPGR, LNT, and LNFD signs; however, COC-IG indication positive association with LNPCE. 1 unit increase in COC-IG causes poverty reduction by 0.447%. Column (5) presents the impact of seven exogenous variables and governance index on poverty reduction. The estimated results reveal that LNFDI, LNGDPGR, and LNT positively reduce poverty in the presence of COC-IG. In contrast, LNFD exacerbates poverty in a full sample of middle-income countries. According to the results, a 1 unit increase in LNFDI decreases poverty by 0.121%. Furthermore, a 1 unit increase in LNGDPGR and LNT decreases poverty by 0.404% and 0.445%. Similarly, the estimated results also reveal that LNFD in the full sample of middle-income countries causes an increase in poverty reduction. Thus, a 1 unit increase in LNFD decreases per capita consumption expenditure by 0.195%, thus increasing poverty. Likewise, the estimated results also reveal that a 1 unit increase in COC-IG increases per capita consumption expenditure by 0.428%, thus decreasing poverty.

TABLE 38.ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, DYNAMIC MODEL ESTIMATION, POVERTY)

FULL SAMPLE					
VARIABLE	**DYNAMIC SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.lnPCE	0.608 (0.187)***	0.602 (0.206)***	0.616 (0.195)***	0.613 (0.188)***	0.613 (0.210)***
LNFDI	0.017 (0.045)***	0.020 (0.045)***	0.018 (0.051)***	0.018 (0.045)***	0.019 (0.054)***
LNREM	-0.018 (0.017)	-0.016 (0.022)	-0.017 (0.019)	-0.017 (0.017)	-0.015 (0.024)
LNODA	-0.011 (0.037)	-0.012 (0.043)	-0.003 (0.040)	-0.006 (0.038)	-0.009 (0.046)
lnGDPGR	0.290 (0.115)**	0.296 (0.121)***	0.288 (0.118)***	0.291 (0.117)***	0.297 (0.012)***
LNT	0.293 (0.136)**	0.294 (0.130)**	0.274 (0.148)*	0.277 (0.144)*	0.278 (0.138)**
LNFD	-0.086 (0.045)*	-0.095 (0.050)*	-0.094 (0.047)**	-0.099 (0.048)**	-0.102 (0.053)*
LNINF	-0.027 (0.040)	-0.028 (0.044)	-0.024 (0.040)	-0.025 (0.040)	-0.033 (0.043)
PSI-PG	-	0.032 (0.081)	-	-	0.020 (0.081)
VAI-PG	-	0.040 (0.064)*	-	-	0.029 (0.094)
GEI-EG	-	-	0.066 (0.095)	-	0.010 (0.105)
RQI-EG	-	-	0.007 (0.112)	-	-0.042 (0.160)
COC-IG	-	-	-	0.030 (0.090)*	0.022 (0.107)*
ROL-IG	-	-	-	0.063 (0.099)	0.055 (0.128)
Constant	-0.863 (0.404)**	-0.807 (0.441)*	-0.746 (0.476)	-0.716 (0.467)	-0.697 (0.494)*
AR(2)	0.336	0.442	0.338	0.336	0.421
Hansen	0.489	0.471	0.476	0.482	0.460
Group	56	56	56	56	56
Observation	691	691	691	691	691
Instruments	24	26	26	26	30
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 38, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the system-GMM estimation which is robust model on contrast with Fixed effect Driscoll-Kraay Estimation .The results indicate that the lagged dependent variable coefficient lag.LNPCE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the poverty, which means that LNPCE has had a positive and significant impact on the current value of PCE growth

rate in the past few years. Column (1) shows the among seven exogenous variables FDI inflow, economic growth and trade appear to have positive impact on poverty reduction in full sample of middle-income countries. However; financial development cause increase in poverty in the sample countries. 1 unit increase in FDI inflow and trade causes 0.017% and 0.293% of poverty reduction. Similarly, 1 unit increase in GDP growth rate causes 0.290 % of poverty reduction. On the other hand, 1% unit increase in financial development via domestic credit to private sector and inflation exacerbates poverty by 0.086% and 0.027%. Similarly , in Column (2) by incorporating political governance along with other seven exogenous variables , the estimated results indicate consistent signs of FDI inflow , GDP growth rate , trade and financial development ; however the magnitude of coefficients are slightly different. Similarly, political stability index, voice and accountability index appear to be insignificant in poverty reduction for middle-income countries. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4) the results also indicate consistent signs of FDI inflow, GDP growth rate, trade, financial development and inflation; however control of corruption indication positive association with poverty reduction. 1 unit increase in control of corruption index causes 0.030% of poverty reduction. Column (5) presents, impact of seven exogenous variables along with governance index on poverty reduction. The estimated results reveals that FDI inflow, GDP growth rate and trade are positively reduces poverty in the presence control of corruption; whereas financial development and inflation exacerbates poverty in full sample of middle-income countries. According to the, results in all 5 estimation mentioned in Column (1) to Column (5), averagely 1 unit increase in FDI inflow in full sample of middle-income countries causes 0.018% of poverty reduction, similarly; 1 unit increase in GDP growth rate causes 0.295% thus poverty reduction and 1 unit increase in trade leads to an increase in per capita consumption expenditure by 0.283%. Similarly the estimated results also reveal that, financial development in full sample of middle-income countries cause increase poverty reduction; thus averagely, 1 unit increases in financial development and inflation leads to a decrease in per capita consumption expenditure by 0.195% and 0.095% , indicatively increases poverty. Likewise, the estimated results also reveals that, 1 unit increase in control of corruption averagely an increase per capita consumption expenditure by 0.026 % thus decreases poverty. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and

similarly; instruments are reliable, consistent, and suitable for drawing inferences. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 37 with the estimated results system-GMM (robustness analysis) in table 38, the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore; the results indicate that, FDI inflow, GDP growth rate, trade and control of corruption are favorable in poverty reduction in full sample of middle-income countries. The coefficients are positive and statistical significance across all the entire models. Similarly, financial development appear to have negative coefficient across all the model and statistically significant whereas; inflation only statistically significant in system-GMM estimation.

TABLE 39. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, STATIC MODEL ESTIMATION, POVERTY)

UPPER MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
lnFDI	0.057 (0.055)	0.021 (0.052)	0.050 (0.056)	0.036 (0.040)	0.014 (0.044)
lnREM	0.088 (0.082)	0.072 (0.087)	0.089 (0.088)	0.060 (0.085)	0.053 (0.095)
lnODA	0.175 (0.091)*	0.182 (0.092)*	0.201 (0.089)**	0.248 (0.097)**	0.215 (0.099)**
lnGDPGR	0.380 (0.066)***	0.373 (0.070)***	0.387 (0.069)***	0.399 (0.070)***	0.387 (0.071)***
lnT	0.742 (0.242)***	0.668 (0.285)**	0.698 (0.263)**	0.609 (0.269)**	0.630 (0.278)**
lnFD	-0.200 (0.083)**	-0.205 (0.087)**	-0.208 (0.093)**	-0.192 (0.086)**	-0.179 (0.088)*
lnINF	-0.058 (0.036)	-0.029 (0.041)	-0.054 (0.035)	-0.036 (0.034)	-0.016 (0.037)
PSI-PG	-	0.137 (0.114)	-	-	0.149 (0.145)
VAI-PG	-	0.858 (0.187)***	-	-	0.627 (0.156)***
GEI-EG	-	-	0.070 (0.349)	-	0.318 (0.391)
RQI-EG	-	-	0.133 (0.283)	-	0.258 (0.199)
COC-IG	-	-	-	0.350 (0.166)**	0.289 (0.237)**
ROL-IG	-	-	-	0.351 (0.210)	0.743 (0.413)*
Constant	-1.941 (0.036)	-1.451 (1.179)	-1.696 (1.076)	-1.125 (1.168)	-1.118 (1.152)
R.Sq	0.392	0.423	0.311	0.322	0.341
Observations	365				
Groups	25				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 39 , reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the fixed effect Driscoll-Kraay Estimation for upper-middle-income countries .Column (1) shows the among seven exogenous variables ODA inflow, economic growth and trade appear to have positive impact on poverty reduction in the upper-middle-income countries. However; financial development cause increase in poverty in the sample of upper-middle-income countries. According to the results 1 unit increase in ODA inflow and trade causes 0.175% and 0.742% of poverty reduction. Similarly, 1 unit increase in

GDP growth rate causes 0.380% of poverty reduction. On the other hand, 1% unit increase in financial development via domestic credit to private sector exacerbates poverty by 0.200%. Similarly , in Column (2) by incorporating political governance along with other seven exogenous variables , the estimated results indicate consistent signs of ODA inflow , GDP growth rate , trade and financial development ; however the magnitude of coefficients are slightly different. Furthermore, voice and accountability index appear to be significant in poverty reduction for upper-middle-income countries 1unit increase in voice and accountability index tends to decrease poverty by 0.858%. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4) the results also indicate consistent signs of ODA inflow , GDP growth rate , trade and financial development ; however control of corruption indication positive association with poverty reduction. 1 unit increase in control of corruption index causes 0.350% of poverty reduction. Column (5) presents, impact of seven exogenous variables along with governance index on poverty reduction. The estimated results reveals that FDI inflow, GDP growth rate and trade are positively reduces poverty in the presence control of corruption; whereas financial development exacerbates poverty in full sample of upper-middle-income countries. According to the, results in all 5 estimation mentioned in Column (1) to Column (5), averagely 1 unit increase in ODA inflow in full sample of upper-middle-income countries causes 0.204% of poverty reduction, similarly; 1 unit increase in GDP growth rate causes 0.385% thus poverty reduction and 1 unit increase in trade leads to an increase in per capita consumption expenditure by 0.714%. Similarly the estimated results also reveal that, financial development in full sample of middle-income countries cause increase poverty reduction; thus averagely, 1 unit increases in financial development leads to a decrease in per capita consumption expenditure by 0.201%, indicatively increases poverty. Likewise, the estimated results also reveals that, 1 unit increase in voice and accountability and control of corruption averagely an increase per capita consumption expenditure by 0.742% and 0.313% respectively; thus decreases poverty.

TABLE 40. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION, POVERTY)

UPPER MIDDLE INCOME COUNTRIES MIT					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNPCECR	0.036 (0.109)***	0.353 (0.118)***	0.348 (0.112)***	0.359 (0.108)***	0.351 (0.113)***
LNFDI	0.080 (0.156)	0.073 (0.150)	0.072 (0.166)	0.080 (0.160)	0.071 (0.166)
LNREM	0.008 (0.103)*	0.025 (0.118)	0.011 (0.109)	0.009 (0.115)	0.041 (0.129)
LNODA	0.057 (0.116)**	0.059 (0.118)**	0.046 (0.126)**	0.047 (0.118)**	0.052 (0.124)**
LNGDPGR	0.780 (0.288)***	0.788 (0.286)***	0.781 (0.279)***	0.788 (0.303)***	0.780 (0.289)***
LNT	0.988 (0.408)**	1.061 (0.503)**	0.999 (0.414)**	1.033 (0.437)**	1.176 (0.528)**
LNFD	-0.165 (0.164)**	-0.154 (0.200)**	-0.152 (0.174)**	-0.157 (0.178)**	-0.154 (0.197)**
LNINF	-0.031 (0.133)*	-0.029 (0.137)	0.018 (0.131)	-0.009 (0.132)	-0.004 (0.116)
PSI-PG	-	0.100 (0.288)**	-	-	-0.074 (0.259)**
VAI-PG	-	0.012 (0.239)**	-	-	0.012 (0.029)**
GEI-EG	-	-	0.146 (0.634)	-	0.156 (0.612)
RQI-EG	-	-	0.066 (0.717)	-	0.246 (0.592)
COC-IG	-	-	-	0.161 (0.570)**	0.263 (0.511)**
ROL-IG	-	-	-	0.262 (0.663)	0.420 (0.690)
Constant	-3.312 (1.147)**	-3.684 (1.900)*	-3.433 (1.497)**	-3.540 (1.709)**	-4.216 (2.180)*
AR(2)	0.169	0.159	0.195	0.163	0.165
Hansen	0.674	0.655	0.626	0.599	0.662
Group	25	25	25	25	25
Observation	303	303	303	303	303
Instruments	16	18	18	18	22

Table 40, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the system-GMM estimation which is robust estimation. The results indicate that the lagged dependent variable coefficient lag.LNPCE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the poverty, which means that LNPCE has had a positive and significant impact on the current value of PCE growth rate in the past few years. Column (1) shows the among

seven exogenous variables ODA inflow, economic growth and trade appear to have positive impact on poverty reduction in sample of upper-middle-income countries. However; financial development cause increase in poverty in the sample countries. According to the system-GMM estimation, 1 unit increase in ODA inflow and trade causes 0.057% and 0.988% of poverty reduction. Furthermore, 1 unit increase in GDP growth rate causes 0.780 % of poverty reduction. On the other hand, 1 unit increase in financial development via domestic credit to private sector and inflation exacerbates poverty by 0.165% and 0.031%. Similarly, in Column (2) by incorporating political governance along with other seven exogenous variables , the estimated results indicate consistent signs of ODA inflow , GDP growth rate , trade and financial development are significant ; however the magnitude of coefficients are slightly different. Similarly, political stability index along with voice and accountability index appear to be significant contributor in poverty reduction for upper-middle-income countries. The estimated results reveal that, 1 unit increase in political stability and voice and accountability index causes poverty reduction by 0.100% and 0.012% respectively. By incorporating economic governance and institutional governance in estimation, as mentioned in Column (3) and Column (4) the results also indicate consistent signs of ODA inflow, GDP growth rate, trade and financial development along with statistical; however control of corruption indication positive association with poverty reduction. 1 unit increase in control of corruption index causes 0.161% of poverty reduction. Column (5) presents, impact of seven exogenous variables along with governance index on poverty reduction. The estimated results reveals that ODA inflow, GDP growth rate and trade are positively reduces poverty under the shadow of political stability and control of corruption; whereas financial development exacerbates poverty in upper-middle-income countries. According to the, results in all 5 estimation mentioned from Column (1) to Column (5), averagely 1 unit increase in ODA inflow in upper-middle-income countries causes 0.053% of poverty reduction, similarly; 1 unit increase in GDP growth rate causes 0.782% of poverty reduction and 1 unit increase in trade leads to an increase in per capita consumption expenditure by 1.051%. Similarly the estimated results also reveal that, financial development in upper-middle-income countries cause increase poverty reduction; thus averagely, 1 unit increases in financial development leads to a decrease in per capita consumption expenditure by 0.159%, indicatively increases poverty. Likewise, the estimated results also reveals that, 1 unit increase in political stability and control of corruption index averagely an increase per capita

consumption expenditure by 0.087% and 0.212% respectively thus decreases poverty. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 39 with the estimated results system-GMM (robustness analysis) in table 40, the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore; the results indicate that, ODA inflow, GDP growth rate, trade, political stability control of corruption are favorable in poverty reduction in upper-middle-income countries. The coefficients are positive and statistical significance across all the entire models. Similarly, financial development appear to have negative coefficient across all the model and statistically significant whereas; inflation only statistically significant in system-GMM estimation in the absence of governance indicators.

TABLE 41. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, STATIC MODEL ESTIMATION, POVERTY)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLES	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.106 (0.088)	0.105 (0.087)	0.100 (0.090)	0.119 (0.081)	0.116 (0.083)
LNREM	0.016 (0.075)**	0.151 (0.074)*	0.146 (0.089)*	0.167 (0.077)**	0.138 (0.087)**
LNODA	0.214 (0.051)***	0.199 (0.054)***	0.209 (0.048)***	0.213 (0.048)***	0.196 (0.046)***
LNGDPGR	0.393 (0.095)***	0.364 (0.096)***	0.379 (0.096)***	0.378 (0.096)***	0.340 (0.095)***
LNT	0.278 (0.025)	0.328 (0.283)	0.335 (0.374)	0.308 (0.253)	0.417 (0.302)
LNFD	-0.089 (0.051)*	-0.126 (0.035)***	-0.109 (0.050)**	-0.083 (0.046)*	-0.126 (0.032)***
LNINF	-0.006 (0.046)	-0.021 (0.050)	-0.021 (0.046)	-0.005 (0.048)	-0.029 (0.052)
PSI-PG	-	0.170 (0.116)	-	-	0.148 (0.131)
VAI-PG	-	0.037 (0.147)	-	-	0.039 (0.249)
GEI-EG	-	-	0.313 (0.226)	-	0.368 (0.344)
RQI-EG	-	-	0.044 (0.247)	-	0.116 (0.183)
COC-IG	-	-	-	0.502 (0.286)*	0.433 (0.221)*
ROL-IG	-	-	-	-0.391 (0.364)	-0.671 (0.468)
Constant	-0.241 (1.195)	-0.240 (1.230)	-0.256 (1.257)	-0.284 (1.184)	-0.473 (1.332)
R.Sq	0.715	0.795	0.736	0.799	0.800
Observations	461				
Groups	31				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Similarly, Table 41, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the Fixed effect Driscoll-Kraay Estimation for lower-middle-income countries .Column (1) shows the among seven exogenous variables remittance inflow, official development aid inflow and economic growth appear to have positive impact on poverty reduction in lower-middle-income countries. However; financial development cause increase in poverty in the given sample of lower-middle-income countries. 1 unit increase in remittance and official development aid inflow causes 0.016% and 0.214 % of poverty

reduction. Furthermore among other variables, 1 unit increase in GDP growth rate causes 0.393 % of poverty reduction. On the other hand, 1% unit increase in financial development via domestic credit to private sector exacerbates poverty by 0.089%. Similarly , in Column (2) , (3) and (4) by incorporating political , economic and institutional governance along with other seven exogenous variables separately , the estimated results indicate consistent signs of remittance and official development aid inflow, GDP growth rate and financial development with statistical significance ; however the magnitude of coefficients are slightly different. Political, economic and institutional index appeared to be insignificant across all the estimations. Column (5) presents, impact of seven exogenous variables along with all governance index on poverty reduction. The estimated results are consistent with previous estimations as mentioned in column (1) to (5). According to the, results in all 5 estimation mentioned in Column (1) to Column (5), averagely 1 unit increase in remittance and official development aid inflow in lower-middle-income countries causes 0.079% and 0.207 of poverty reduction respectively. Similarly; 1 unit increase in GDP growth rate causes 0.375% decrease in poverty. Furthermore, the estimated results also reveal that, financial development in lower-middle-income countries cause increase poverty reduction; thus averagely, 1 unit increases in financial development leads to a decrease in per capita consumption expenditure by 0.115%, indicatively increases poverty.

TABLE 42. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, DYNAMIC MODEL ESTIMATION, POVERTY)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLES	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNPCE	0.448 (0.196)**	0.434 (0.192)**	0.444 (0.188)**	0.426 (0.196)**	0.425 (0.178)**
LNFDI	0.043 (0.148)	0.042 (0.146)	0.036 (0.131)	0.050 (0.134)	0.013 (0.139)
LNREM	0.045 (0.148)*	0.040 (0.093)**	0.095 (0.120)**	0.050 (0.090)**	0.078 (0.124)**
LNODA	0.194 (0.086)**	0.217 (0.084)*	0.157 (0.096)*	0.192 (0.089)**	0.154 (0.107)*
LNGDPGR	0.454 (0.200)**	0.452 (0.185)**	0.460 (0.207)**	0.442 (0.207)***	0.464 (0.201)**
LNT	0.554 (0.378)	0.519 (0.386)	0.440 (0.036)	0.569 (0.369)	0.358 (0.372)
LNFD	-0.026 (0.147)***	-0.004 (0.138)**	-0.021 (0.143)**	-0.004 (0.128)**	-0.026 (0.138)**
LNINF	-0.015 (0.078)	-0.027 (0.082)	-0.038 (0.080)	-0.011 (0.068)	-0.049 (0.084)
PSI-PG	-	0.124 (0.255)	-	-	0.090 (0.267)
VAI-PG	-	0.019 (0.278)*	-	-	0.197 (0.360)
GEI-EG	-	-	0.098 (0.431)	-	0.289 (0.506)
RQI-EG	-	-	0.521 (0.621)	-	0.581 (0.654)
COC-IG	-	-	-	0.125 (0.558)	0.099 (0.568)
ROL-IG	-	-	-	-0.347 (0.540)	-0.104 (0.544)
Constant	-1.523 (1.361)**	-1.198 (1.432)*	-0.738 (1.393)	-1.395 (1.329)	-0.320 (1.149)
AR(2)	0.221	0.243	0.216	0.247	0.243
Hansen	0.801	0.890	0.912	0.872	0.899
Group	31	31	31	31	31
Observation	389	389	389	389	389
Instruments	16	18	18	18	22

Table 42, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the system-GMM estimation which is robust estimation. The results indicate that the lagged dependent variable coefficient lag.LNPCE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the poverty, which means that LNPCE has had a positive and significant impact on the current value of PCE growth rate in the past few years. Column (1) shows the among

seven exogenous variables remittances along with official development assistance inflow and economic growth appear to have positive impact on poverty reduction in given sample of lower-middle-income countries. However; financial development cause increase in poverty in the sample countries. According to the system-GMM estimation, 1 unit increase in remittance and official aid inflow causes 0.045% and 0.194% of poverty reduction. Furthermore, 1 unit increase in GDP growth tends to decrease poverty by 0.454%. Furthermore, 1% unit increase in financial development via domestic credit to private sector exacerbates poverty by 0.026%. Similarly , in Column (2) , (3) and (4) by incorporating political , economic and institutional governance index along with other seven exogenous variables , the estimated results indicate consistent signs for remittance , official development, GDP growth rate and financial development which are statistical significant ; however the magnitude of coefficients are slightly different. Column (5) presents, impact of seven exogenous variables along with governance index on poverty reduction for lower-middle-income countries. The estimated results reveals that remittance inflow, official development aid inflow and GDP growth rate are positively reduces poverty; whereas financial development exacerbates poverty in upper-middle-income countries. According to the, results in (5), 1 unit increase in remittance inflow and official development aid inflow in lower-middle-income countries causes 0.078 % and 0.154% of poverty reduction in lower-middle-income countries. Similarly; 1 unit increase in GDP growth rate causes 0.464% of poverty reduction in lower-middle-income countries. Similarly the estimated results also reveal that, financial development in lower-middle-income countries cause increase poverty reduction; thus 1 unit increases in financial development leads to a decrease in per capita consumption expenditure by 0.026%, indicatively increases poverty. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 5.1.10 with the estimated results system-GMM (robustness analysis) in table 5.1.11, the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore; the results indicate that remittance inflow, official development assistance and GDP growth rate corruption are positively helpful in poverty reduction in lower-middle-income countries. The coefficients are positive and statistical significance across

all the entire models. Similarly, financial development appears to have negative coefficient across all the model and statistically significant; however the impact of political, economic and social governance appeared to be insignificant in lower middle income countries.

TABLE 43. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION, POVERTY)

MIDDLE INCOME COUNTRIES WITH SEAPORTS					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.163 (0.024)***	0.159 (0.025)***	0.160 (0.022)***	0.162 (0.022)***	0.159 (0.023)***
LNREM	0.108 (0.047)**	0.083 (0.044)*	0.099 (0.055)*	0.104 (0.048)**	0.084 (0.056)**
LNODA	0.006 (0.045)	0.003 (0.047)	0.016 (0.047)	0.008 (0.050)	0.014 (0.052)
LNGDPGR	0.364 (0.062)***	0.347 (0.065)***	0.362 (0.062)***	0.365 (0.063)***	0.346 (0.065)***
LNT	0.389 (0.258)**	0.476 (0.229)*	0.377 (0.025)*	0.405 (0.257)*	0.444 (0.240)*
LNFD	-0.157 (0.053)**	-0.209 (0.071)**	-0.196 (0.067)***	-0.181 (0.072)**	-0.222 (0.080)**
LNINF	-0.093 (0.053)*	-0.083 (0.054)*	-0.086 (0.053)**	-0.083 (0.053)**	-0.078 (0.054)**
PSI-PG	-	0.222 (0.095)**	-	-	0.172 (0.105)**
VAI-PG	-	0.168 (0.222)	-	-	0.098 (0.287)
GEI-EG	-	-	0.108 (0.212)	-	0.017 (0.319)
RQI-EG	-	-	0.040 (0.142)**	-	0.315 (0.159)**
COC-IG	-	-	-	-0.225 (0.148)**	-0.464 (0.154)**
ROL-IG	-	-	-	0.282 (0.200)	0.045 (0.285)
Constant	-0.579 (1.211)	-0.598 (1.158)	-0.268 (1.268)	-0.317 (1.311)	-0.327 (1.243)
R.Sq	0.412	0.422	0.328	0.368	0.428
Observations	670				
Groups	46				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 43, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the Fixed effect Driscoll-Kraay Estimation for middle-income countries which consist sea ports .Column (1) shows the among seven exogenous variables FDI inflow, remittance

inflow, GDP growth rated and trade appear to have positive impact on poverty reduction. However; financial development and inflation tends to increase in poverty incidence in the sample countries of middle-income countries which consist sea ports. 1 unit increase in FDI inflow and remittance inflow causes 0.163% and 0.108% of poverty reduction. Similarly, 1 unit increase in GDP growth rate and trade also tends to decrease poverty by 0.364% and 0.389%respectively. On the other hand, 1% unit increase in financial development via domestic credit to private sector and inflation exacerbates poverty by 0.157% and 0.093%. Similarly , in Column (2) by incorporating political governance along with other seven exogenous variables , the estimated results indicate consistent signs of FDI inflow ,remittance inflow , GDP growth rate , trade, financial development and inflation ; however the magnitude of coefficients are slightly different. Similarly, political stability index appear to be significant contributor in poverty reduction for middle-income countries which consist of sea ports.1 unit increase in political stability index, tends to reduce poverty by 0.222%. By incorporating economic governance in estimation, as mentioned in Column (3) the results also indicate consistent signs of FDI inflow, remittance inflow , GDP growth rate , trade, financial development and inflation ; however regulatory quality index indication positive association with poverty reduction. According to the results, 1 unit increase in regulatory quality index tends to decrease poverty by 0.040%. Furthermore, by incorporating institutional governance in estimation, as mentioned in Column (4) the results also indicate consistent signs of FDI inflow, remittance inflow, GDP growth rate , trade , financial development and inflation ; however institutional governance appear to insignificant. Column (5) presents, joint impact of all seven exogenous variables along with governance index on poverty reduction. According to the results as mentioned in Column (5) 1 unit increase in FDI and remittance inflow reduces poverty by 0.159% and 0.084%. Furthermore, GDP growth rate and trade also appear to be helpful in poverty reduction; thus 1 unit increase in GDP growth rate and trade tends to decrease poverty by 0.346% and 0.444%. Similarly the estimated results also reveal that, financial development and inflation cause increase in poverty. Indicatively, 1 unit increases in financial development and inflation leads to a decrease in per capita consumption expenditure by 0.222% and 0.078% thus increases poverty. Likewise, the estimated results also reveal that, 1 unit increase in political stability and regulatory quality index tends to decrease poverty by 0.172% and 0.315.

TABLE 44. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION, POVERTY)

MIDDLE INCOME COUNTRIES WITH SEAPORTS					
VARIABLES	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNPCECR	0.406 (0.174)**	0.216 (0.880)**	0.192 (0.110)**	0.197 (0.113)*	0.201 (0.110)**
LNFDI	0.166 (0.095)*	0.026 (0.133)**	0.097 (0.057)*	0.096 (0.051)*	0.099 (0.057)**
LNREM	0.026 (0.078)**	0.023 (0.081)**	0.037 (0.033)**	0.038 (0.030)**	0.026 (0.034)**
LNODA	0.066 (0.073)	0.047 (0.099)	0.034 (0.040)	0.038 (0.036)	0.043 (0.038)
LNGDPGR	0.540 (0.247)**	0.365 (0.148)***	0.302 (0.113)***	0.290 (0.114)**	0.292 (0.115)**
LNT	0.450 (0.289)***	0.128 (0.559)**	0.221 (0.341)**	0.288 (0.106)***	0.250 (0.138)*
LNFD	-0.010 (0.131)*	-0.251 (0.229)**	-0.365 (0.396)*	-0.078 (0.065)**	-0.090 (0.066)*
LNINF	-0.030 (0.088)*	-0.088 (0.141)*	-0.015 (0.044)*	-0.018 (0.042)*	-0.015 (0.043)*
PSI-PG	-	0.175 (0.108)*	-	-	0.086 (0.081)*
VAI-PG	-	0.134 (0.156)*	-	-	0.035 (0.159)*
GEI-EG	-	-	0.011 (0.204)	-	0.061 (0.217)*
RQI-EG	-	-	0.070 (0.176)**	-	0.104 (0.214)**
COC-IG	-	-	-	-0.203 (0.159)*	0.253 (0.186)
ROL-IG	-	-	-	0.282 (0.152)	0.253 (0.191)
Constant	-1.417 (1.086)	-0.095 (1.011)	-0.605 (0.510)	-0.577 (0.438)	-0.369 (0.613)
AR(2)	0.144	0.163	0.113	0.107	0.117
Hansen	0.104	0.189	0.282	0.385	0.423
Group	46	46	46	46	46
Observation	567	567	567	567	567
Instruments	16	18	18	18	22

Table 44, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the system-GMM estimation for middle-income countries which consist sea ports. The results indicate that the lagged dependent variable coefficient lag.LNPCE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the poverty, which means that LNPCE has had a positive and significant impact on the current value of PCE growth rate in the past few years.Column

(1) shows the among seven exogenous variables FDI inflow, remittance inflow, GDP growth rated and trade appear to have positive impact on poverty reduction. However; financial development and inflation tends to increase in poverty incidence in the sample countries of middle-income countries which consist sea ports. 1 unit increase in FDI inflow and remittance inflow causes 0.099% and 0.026% of poverty reduction. Similarly, 1 unit increase in GDP growth rate and trade also tends to decrease poverty by causes 0.292% and 0.250% respectively. On the other hand, 1 unit increase in financial development via domestic credit to private sector and inflation exacerbates poverty by 0.090% and 0.015%. Similarly , in Column (2) by incorporating political governance along with other seven exogenous variables , the estimated results indicate consistent signs of FDI inflow ,remittance inflow , GDP growth rate , trade, financial development and inflation ; however the magnitude of coefficients are slightly different. Similarly, political stability and voice and accountability index appear to be significant contributor in poverty reduction for middle-income countries which consist of sea ports.1 unit increase in political stability and voice and accountability index, tends to reduce poverty by 0.175% and 0.134%. By incorporating economic governance in estimation, as mentioned in Column (3) the results also indicate consistent signs of FDI inflow, remittance inflow , GDP growth rate , trade, financial development and inflation ; however regulatory quality index indication positive association with poverty reduction. Likewise, 1 unit increase in regulatory quality index tends to decrease poverty by 0.070%. Furthermore, by incorporating institutional governance in estimation, as mentioned in Column (4) the results also indicate consistent signs of FDI inflow, remittance inflow, GDP growth rate , trade , financial development and inflation ; however institutional governance appear to insignificant. Column (5) presents, joint impact of all seven exogenous variables along with governance index on poverty reduction. According to the results as mentioned in Column (5) 1 unit increase in FDI and remittance inflow reduces poverty by 0.099% and 0.026%. Furthermore, GDP growth rate and trade also appear to be helpful in poverty reduction; thus 1 unit increase in GDP growth rate and trade tends to decrease poverty by 0.292% and 0.250%. Similarly the estimated results also reveal that, financial development and inflation cause increase in poverty. Indicatively, 1 unit increases in financial development and inflation leads to a decrease in per capita consumption expenditure by 0.090% and 0.015%, thus increases poverty. Likewise, the estimated results also reveal that, 1 unit increase in political stability, voice and accountability and regulatory quality index

tends to decrease poverty by 0.086%, 0.035% and 0.104%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 43 with the estimated results system-GMM (robustness analysis) in table 44 the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore; the results indicate that FDI inflow, remittances inflow, GDP growth rate and trade are positively helpful in poverty reduction in middle-income countries which consider of sea ports. The coefficients are positive and statistical significance across all the entire models. Similarly, financial development and inflation appears to have negative coefficient across all the model and statistically significant; however among the impact of political, economic and social governance indicators , only political stability , voice and accountability and regulatory quality index appear to helpful for poverty reduction in middle-income countries which consist of sea ports.

TABLE 45. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, STATIC MODEL ESTIMATION, POVERTY)

HIGH INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.024 (0.077)	0.028 (0.073)	0.037 (0.073)	0.033 (0.089)	0.041 (0.082)
LNREM	0.105 (0.054)*	0.104 (0.055)*	0.096 (0.056)	0.109 (0.059)	0.098 (0.072)
LNODA	0.007 (0.026)	0.007 (0.026)	0.009 (0.025)	0.007 (0.026)	0.007 (0.025)
LNGDPGR	0.526 (0.121)***	0.528 (0.126)***	0.537 (0.123)***	0.539 (0.101)***	0.547 (0.108)***
LNT	0.565 (0.258)**	0.565 (0.232)**	0.630 (0.294)**	0.598 (0.268)**	0.632 (0.026)**
LNFD	-0.126 (0.251)	-0.127 (0.251)	-0.052 (0.220)	-0.098 (0.243)	-0.051 (0.019)
LNINF	-0.090 (0.088)***	-0.081 (0.090)***	-0.089 (0.089)***	-0.086 (0.083)***	0.086 (0.084)***
PSI-PG	-	-0.081 (0.250)	-	-	-0.132 (0.259)
VAI-PG	-	0.231 (0.033)	-	-	0.126 (0.480)
GEI-EG	-	-	0.065 (0.385)	-	0.094 (0.276)
RQI-EG	-	-	-0.317 (0.550)	-	-0.313 (0.695)
COC-IG	-	-	-	0.267 (0.436)	0.260 (0.537)
ROL-IG	-	-	-	0.142 (0.212)	0.275 (0.293)
Constant	3.354 (1.940)*	3.398 (1.665)*	3.585 (1.969)*	3.449 (2.086)	3.506 (1.740)*
R.Sq	50.56	0.5125	0.536	0.526	0.563
Observations	268				
Groups	21				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 45, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the Fixed effect Driscoll-Kraay Estimation for high-income countries indicatively graduated countries .Column (1) shows the among seven exogenous variables only economic growth along with trade appear to have positive impact on poverty reduction in high-income countries. However; inflation increases in poverty in the given sample of high-income countries. 1 unit increase in GDP growth rate and trade causes 0.526 % and 0.565 % of poverty reduction. On the other hand, 1% unit increase inflation exacerbates

poverty by 0.090%. Similarly, in Column (2), (3) and (4) by incorporating political, economic and institutional governance along with other seven exogenous variables separately, the estimated results indicate consistent signs of GDP growth rate, trade and inflation with statistical significance; however the magnitude of coefficients are slightly different. Political, economic and institutional index appeared to be insignificant across all the estimations. Column (5) presents, impact of seven exogenous variables along with all governance index on poverty reduction for high-income countries. The estimated results are consistent with previous estimations as mentioned in column (1) to (5). According to the as mentioned in Column (5), 1 unit increase in GDP growth rate and trade causes 0.547% and 0.632% of poverty reduction respectively. Similarly; 1 unit increase in GDP growth rate causes 0.375% decrease in poverty. Furthermore, 1 unit increases in inflation leads to a decrease in per capita consumption expenditure by 0.087%, indicatively increases poverty while; political, economic and institutional index appeared to be insignificant.

TABLE 46. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, DYNAMIC MODEL ESTIMATION, POVERTY)

HIGH INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNPPCE	0.307 (0.086)***	0.328 (0.375)***	0.305 (0.835)***	0.301 (0.084)***	0.326 (0.070)***
LNFDI	0.038 (0.062)*	0.029 (0.059)	0.042 (0.064)	0.049 (0.062)	0.038 (0.058)
LNREM	0.002 (0.028)	0.001 (0.033)	0.003 (0.028)	0.029 (0.024)	0.002 (0.031)
LNODA	-0.005 (0.024)	-0.003 (0.027)	-0.029) (0.023)	-0.007 (0.023)	-0.003 (0.027)
LNGDPGR	0.505 (0.101)***	0.511 (0.106)***	0.500 (0.103)***	0.505 (0.102)***	0.511 (0.112)***
LNT	0.022 (0.141)*	0.009 (0.173)*	0.032 (0.141)*	0.050 (0.146)*	0.020 (0.177)*
LNFD	-0.004 (0.049)	-0.022 (0.080)	-0.401 (0.101)	-0.003 (0.079)	0.045 (0.096)
LNINF	-0.015 (0.047)**	-0.015 (0.048)**	-0.015 (0.048)*	-0.023 (0.047)*	-0.017 (0.050)**
PSI-PG		0.015 (0.104)**		-	0.014 (0.012)**
VAI-PG		0.066 (0.114)		-	0.130 (0.120)
GEI-EG		-	0.190 (0.160)	-	0.222 (0.212)
RQI-EG		-	0.103 (0.198)	-	0.007 (0.261)
COC-IG		-	-	0.160 (0.096)	0.106 (0.080)
ROL-IG		-	-	0.125 (0.166)	0.147 (0.270)
Constant	0.079 (0.055)	-0.058 (0.617)*	0.012 (0.570)	0.172 (0.568)	-0.315 (0.703)
AR(2)	0.711	0.655	0.701	0.755	0.685
Hansen	0.407	0.285	0.532	0.508	0.388
Group	21	21	21	21	21
Observation	230	230	230	230	230
Instruments	10	12	12	12	16

Table 46, reports the impact of impact of economic growth and other exogenous variable under the shadow of governance indicator on poverty according to the system-GMM estimation which is robust estimation for high-income countries. The results indicate that the lagged dependent variable coefficient lag.LNPCE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the poverty, which means that LNPCE has had a positive and significant impact on the current value of PCE growth rate in the past few years.

Column (1) shows that among seven exogenous variables GDP growth rate and trade appear to have positive impact on poverty reduction in given sample of high-income countries. However; inflation cause increase in poverty in the sample countries. According to the system-GMM estimation, 1 unit increase in, GDP growth rate, FDI inflow and trade causes 0.038%, 0.505% and 0.022% of poverty reduction at 1% and 10% level of significance. Furthermore, 1% unit increase in inflation exacerbates poverty by 0.015%. Similarly , in Column (2) , (3) and (4) by incorporating political , economic and institutional governance index along with other seven exogenous variables , the estimated results indicate consistent signs for GDP growth and trade which are significant at 1% and 10% respectively ; however the magnitude of coefficients are slightly different. Furthermore, the negative sign is consist for inflation and appear to be statistical significant as well. Column (5) presents, impact of seven exogenous variables along with governance index on poverty reduction for high-income countries. The estimated results reveals that GDP growth rate and trade are positively reduces poverty; whereas inflation exacerbates poverty in high-income countries. According to the, results in (5), 1 unit increase in GDP growth rate and trade in high-income countries causes 0.511 % and 0.020% of poverty reduction. Similarly the estimated results also reveal that, inflation appear to increase the incidence of poverty; thus 1 unit increases in inflation leads to a decrease in per capita consumption expenditure by 0.017%, indicatively increases poverty. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Comparing to the results of fixed effect Driscoll-Kraay Estimation (main analysis) which are mentioned in table 45 with the estimated results system-GMM (robustness analysis) in table 46, the results interpretation will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore; the results indicate that GDP growth rate and trade are positively helpful in poverty reduction in high-income sample countries. The coefficients are positive and statistical significance across all the entire models. Similarly, inflation appears to have negative coefficient across all the model and statistically significant; however the impact of political, economic and social governance appeared to be insignificant in high-income countries.

5.1.5 DISCUSSION

This research work questions the growth-finance-poverty trilemma by presenting empirical evidence from middle-income-countries and high-income-countries, which fill the lacuna in the literature. Likewise, this empirical work highlighted the essence of governance to achieve social sustainability by reducing poverty in sample countries.

The estimated results reveal that the positive and significant relations depict that cumulative effect in FDI inflow improved per capita consumption expenditure, thus reducing poverty in middle-income countries and middle-income countries with sea post. The relationship between FDI inflow and per capita expenditure is because of ongoing economic development in middle-income countries and, more specifically, the heavy inflow of FDI in middle-income countries with seaports. FDI inflow increases the amount of exiting capital in the host country, leading to a rise in the marginal physical product of labor and will increase wages, directly impacting the individual consumption expenditure. On the other hand, FDI inflow is higher in countries with seaport rather than land lock countries; therefore, FDI inflow and trade openness create more jobs and increase individual wages, thus increasing their purchasing power ability and consumption expenditure. These findings align with previous studies which also found a similar relationship between FDI inflow and per capita consumption expenditure[541] [542]. Likewise, several other studies also indicate that FDI inflow positively reduces poverty in different regions which reinforces the findings of the study[543] [544] [545]. Among other international financevariables, remittance inflow positively increases per capita consumption expenditure in lower-middle-income and middle-income countries with seaports. It is because remittance inflow from overseas increases the purchasing power of a family member of immigrants improved purchasing power ability; thus, per capita consumption expenditure increases, and poverty reduces. Several studies also found a

[541]M.Z. Chishti, A. Rehman, and M.Murshed. "An estimation of the macroeconomic determinants of income poverty in Pakistan? Evidence from a non-linear ARDL approach." *Journal of Public Affairs* 22.4,2022.p.e2719.

[542] D.Wangdi, and P.Wangdi. "A study on impact of foreign direct investment (FDI) on poverty reduction in Bhutan." *Sherub Doenme: The Research Journal of Sherubtse College* 14.1,2021.

[543] B.Sharma and A.Gani. "The effects of foreign direct investment on human development." *Global economy journal* 4.2,2004.p.1850025.

[544] C.C.Calvo, and M.A.Hernandez. "Foreign direct investment and poverty in Latin America." *Prepared to be Delivered at the Globalisation and Economic Policy Fifth Annual Postgraduate Conference Leverhulme Centre for Research on Globalisation and Economic Policy University of Nottingham*. 2006.

[545]B.Fowowe,and M.Shuaibu. "Impact of international remittance inflows on poverty in Nigeria." *The Journal of Developing Areas* 55.1,2021.

similar positive relationship between remittance inflow and per capita consumption expenditure, which affirms the finding of this study[546] [547] [548].

On the other hand, estimated results reveal that foreign aid increases per capita consumption expenditure in upper-middle-income and lower-middle-income countries. Foreign aid might increase well-fare by reducing gender inequality in upper-middle-income and lower-middle-income countries, thus increasing women's involvement in the employment sector and positively increasing household consumption expenditure[549]. A similar positive relationship between foreign aid and poverty reduction was also found by other authors in different regions and countries, reinforcing this study's findings[550] [551]. FDI inflow positively increases trade[552] [553]. The other finding of this study illustrates that trade reduces poverty in middle-income countries and their sub-income groups, such as upper-middle-income countries and middle-income countries with seaports except in lower-middle-income countries. The findings also reveal that trade reduces poverty by increasing per capita consumption expenditure in high-income countries. It is because middle-income countries and their sub-income group possess comparative advantages due to high human and natural resources, which induce economic growth.

Similarly, due to the comparative advantage of the factor of production in terms of human capital and land resources, international trade provides augmenting incomes to the economy, further increasing individual incomes, improving consumption expenditure ability, and reducing poverty. Trade opening probably adds to aggregate welfare and thus might be helpful for poverty reduction[554]. International trade could

[546]A.Ang, S.Jha, and G.Sugiyarto. "Remittances and household behavior in the Philippines." *Asian Development Bank Economics Working Paper* 188,2009.
[547]J.Devkota,. "Impact of migrants' remittances on poverty and inequality in Nepal." *Forum of International Development Studies*. Vol. 44. 2014.
[548]Z.Aloui, . "The impact of Foreign Direct Investment and the institutional quality on Welfare in Latin America and Sub-saharan Africa." 2019.
[549] Jun, Wen, et al. "Working women and per capita household consumption expenditures; an untouched reality." *Zbornik Radova Ekonomski Fakultet u Rijeka* 38.1 (2020): 285-319.
[550]E.Alvi, and A.Senbeta. "Does foreign aid reduce poverty?." *Journal of International Development* 24.8,2012.p.955-976.
[551]C. Arndt, S.Jones, and F.Tarp. "Assessing foreign aid's long-run contribution to growth and development." *World Development* 69,2015.p.6-18.
[552]T. Büthe, and H.V. Milner. "The politics of foreign direct investment into developing countries: increasing FDI through international trade agreements?." *American journal of political science* 52.4,2008.p.741-762.
[553]I.Ghosh,. "The Relation between Trade and FDI in Developing Countries--A Panel Data Approach." *Global Economy Journal* 7.3,2007.
[554] R.Vos,. "What we do and don't know about trade liberalization and poverty reduction." 2007.

contribute to economic growth and thus can help many poor people escape poverty[555].Other authors also found that international trade decreases poverty in different regions which affirms the finding of this study[556] [557] [558]. This research also suggests that economic growth increases per capita consumption expenditure, thus reducing poverty in middle-income countries, its sub-group, and high-income countries. The results explain that economic growth will enhance the consumption capacity of an individual to meet his needs, reducing poverty. Previous studies affirm the outcome of this finding for different regions and countries[559] [560] [561].

In terms of financial development, middle-income countries and their sub-group and middle-income countries with port indicate a negative association between financial development and per capita consumption expenditure; thus, financial development does not reduce poverty. The outcomes of this research are contradictory to previous studies, which indicate that domestic credit to private reduces poverty as it encourages businesses to expand, employs more people, and enables them to escape poverty[562]. However, in this research, the negative relationship between domestic credits to the private sector and per capita consumption expenditure is due to the lack of channels that increase financial inclusion in most middle-income countries. The absence of socio-economic development and lack of financial inclusion in developing countries, financial development might increase the incidence of poverty[563].

The rise in inflation usually decreases the purchasing capacity of an individual. The findings of this research reveal a negative association between inflation and per capita consumption expenditure for middle-income countries and its sub-group and middle-income countries with seaports. Inflation reduces the purchasing power

[555]D. Mitra,. "Trade, poverty, and inequality." *The World Trade System: Trends and Challenges*,2016,p.55-90.
[556]A.L. Winters,. *Trade liberalisation and poverty*. No. 07. Poverty Research Unit at Sussex, University of Sussex, 2000.
[557]G.Le, Maëlan, and R.Jan Singh. "Does trade reduce poverty? A view from Africa." *Journal of African Trade* 1.1,2014,p. 5-14.
[558]S.K. Gnangnon,. "Effect of poverty on financial development: Does trade openness matter?." *The Quarterly Review of Economics and Finance* 82,2021.p. 97-112.
[559]A.K. Fosu,. "Growth, inequality, and poverty reduction in developing countries: Recent global evidence." *Research in Economics* 71.2,2017.p.306-336.
[560]J.Garza-Rodriguez,. "Poverty and economic growth in Mexico." *Social Sciences* 7.10,2018,p. 183.
[561]B.Adeleye,[et al.], "Comparative investigation of the growth-poverty-inequality trilemma in Sub-Saharan Africa and Latin American and Caribbean Countries." *Heliyon* 6.12,2020.
[562]A.Y. Nsiah, [et al.], "The effect of financial inclusion on poverty reduction in Sub-Sahara Africa: Does threshold matter?." *Cogent Social Sciences* 7.1,2021,p.1903138.
[563]J.Rewilak, "The role of financial development in poverty reduction." *Review of development finance* 7.2,2017.p.169-176.

capacity, directly reducing its per capita consumption expenditure, thus increasing poverty. Other studies also found that inflation decreases consumption expenditure per capita in a different region, which reinforces this study's findings[564].

In terms of governance, the findings suggest that the political stability index and voice & accountability index indicate a positive association with growth in per capita expenditure in middle-income countries with seaports and upper-middle-income countries. It is because political stability and voice & accountability increase economic activities, which further affect the income basket of the individuals and increase their spending capabilities; therefore, it reduces poverty. Several previous studies also found a positive association between political stability, voice & accountability, and poverty reduction for different regions and countries, which confirms the findings of this study[565] [566] [567]. Likewise, in middle-income countries with seaports, regulatory quality indicates a positive association with per capita consumption expenditure growth. Considering that middle-income countries with seaports hold a comparative geographical advantage due to the seaports, business activities are usually conducted via public-private partnership under the supervision of government policies and regulations, which further positive impact economic growth and increases individual income, thus reducing poverty. Similar results also found by other author that a positive association between regulatory quality and poverty reduction[568]. Lastly, the findings suggest that strong anti-corruption policies reduce poverty in middle-income countries, full sample, and upper-middle-income countries. Strong corruption control policies increase confidence in investors and the business community, which fosters economic growth and positively increases individual income. Other author also highlighted in their research that control of corruption causes poverty reduction[569].

[564] Jun, Wen, et al. "Working women and per capita household consumption expenditures; an untouched reality." *Zbornik Radova Ekonomski Fakultet u Rijeka* 38.1 (2020): 285-319.
[565]R. Birner,. "Improving governance to eradicate hunger and poverty." *Twenty twenty (2020) focus brief on the world's poor and hungry people/International Food Policy Research Institute (IFPRI)*,2007.
[566]E.Tebaldi, and R.Mohan. "Institutions and poverty." *The journal of development studies* 46.6,2010.p.1047-1066.
[567]P.V.Sittha, Pornpen Vora. "Governance and poverty reduction in Thailand." *Modern Economy* 3.05,2012,p.487.
[568]R.Haq, and U.Zia. *Does governance contribute to pro-poor growth? Evidence from Pakistan*. No. 2009: 52. Pakistan Institute of Development Economics, 2009.
[569]M.Shabbir,[et al.], "Poverty Reduction Strategies. Exploring the link between Poverty and Corruption from less developed countries." *Dilemas Contemporáneos: Educación, Política y Valore* 6.2,2019.

5.1.6 SUMMARY OF RESEARCH FINDINGS-POVERTY

In this section I explored the research objective by empirically investigating the impact of economic growth, macro-economic variable and governance indicators on growth in per capita consumption expenditure used as proxy for poverty middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. The findings reveal that economic growth is crucial for increasing the growth in per capita consumption expenditure in all the sample panels. Based on the magnitude, economic growth indicates a high magnitude for lower-income countries (0.682), followed by high-income countries (0.547). Therefore it is true to argue that in lower-middle-income countries economic growth improves the purchasing power capability of individual that further reduces the poverty incidences.

In middle-income countries full sample, along with economic growth foreign direct investment and trade positively increases the growth in per capita consumption expenditure when there is strong control of corruption. In upper-middle-income countries, economic growth positively reduces poverty by increases growth in per capita consumption expenditure along with trade and official development assistance under the condition of strong control of corruption and voice and accountability. Likewise, in lower-middle-income countries, economic growth increases per capita consumption expenditure by adding up remittance inflow and official development assistance.

However, in middle-income countries with seaports, poverty incidences reduced by economic growth, foreign direct investment, remittance inflow, and trade. Similarly, these factors also require a strong political and regulatory quality. Lastly, in high-income countries, besides economic growth only trade appears to be significant contributor in poverty reductions. Empirical results reveal that official development does not increases per capita consumption expenditure in all sample panels; except high-income countries.

5.2.1 INFANT MORTALITY RATE

International trade and finance can have both direct and indirect impacts on infant mortality rates. These effects are complex and can vary by country and region. International trade and foreign investment can contribute to economic growth. A growing economy can lead to increased government revenue, which, if invested in

healthcare infrastructure and services, can help reduce infant mortality rates[570]. Enhanced economic activity and foreign investment can improve access to healthcare facilities, increase the availability of medical resources, and support the training of healthcare professionals. This can result in better healthcare services for mothers and infants[571]. International trade and finance can facilitate the transfer of medical technology, knowledge, and best practices in healthcare. This can lead to improved healthcare outcomes and better maternal and infant health.

In 2020, 2.51 million Childs died in the first month of life. Furthermore, 87% of all maternal deaths occur in middle-income and low-income countries. Likewise, children in the sub-Saharan African countries are more than 17 times more likely to die before the age of 5 than children in advanced economies[572]. The infant mortality rate appears to be a significant indicator of socioeconomic development[573]. My research questions the growth–finance-infant mortality trilemma by presenting the empirical discoveries which fill a lacuna in the literature. This research also highlights the role of governance and economic prosperity in discovering its impact on the infant mortality rate. Similarly, this research work adds a new perspective and highlights whether international financereduces the infant mortality rate and dims its impact. The conclusion reveals, inter alia, that economic growth exerts health-improving tendencies and yields satisfactory outcomes along with remittances, health infrastructure, and health expenditure with voice and accountability in middle-income and high-income countries. In essence, economic prosperity is a crucial determinant of the infant mortality rate. This research also highlights that foreign direct investment, official development assistance, and trade impact on infant mortality rates vary according to middle-income countries' sub-income groups. Likewise, the conclusion suggests that upper-middle-income countries should emphasize efficient and practical use of foreign direct investment and official development in the health sector via government effectiveness by increasing health regulatory standards for reducing the infant mortality

[570]S.Gupta, M.Verhoeven, and Erwin R. Tiongson. "The effectiveness of government spending on education and health care in developing and transition economies." *European Journal of Political Economy* 18.4,2002.p.717-737.
[571]R. Edeme Kojo, C.Emecheta, and M.Ogechi Omeje. "Public health expenditure and health outcomes in Nigeria." *American Journal of Biomedical and Life Sciences* 5.5,2017.p.96-102.
[572]Eltayib, Rawaa Abubakr Abuelgassim, Mohammed Al-Azri, and Moon Fai Chan. "The Impact of Sociodemographic, Macroeconomic, and Health Status and Resources on Infant Mortality Rates in Oman: Evidence from 1980 to 2022." *European Journal of Investigation in Health, Psychology and Education* 13.6,2023.p.986-999.
[573] A.Dhrifi, "Health-care expenditures, economic growth and infant mortality: evidence from developed and developing countries." *CEPAL Rev. No. 125, August 2018* 69 2019.

rate. Effective health policies, regulations, and more spending on the health sector could allow upper-middle-income countries to escape the middle-income trap. These are a significant contribution to the growth-international finance–health outcome literature, which justifies engaging in this research work, especially from a perspective of middle-income trapped countries.

Economic prosperity is a crucial determinant of the infant mortality rate. Furthermore, economic growth is positively enhanced by international finance[574]. Considering that the infant mortality rate is a critical issue in middle-income and low-income countries, my study justifies engaging in this empirical research work-especially from an income-group perspective. Several researchers empirically analyzed the nexus between economic growth and infant mortality rate[575] [576].However; it has been argued that promise of economic prosperity for improving well-being is not valid for third world countries as it damages resources massively[577]. Similarly, numerous middle-income countries are still unable to reduce the infant mortality rate despite achieving sustained economic growth[578] [579]. External financial resources appeared to be critical determinants of economic growth, such as FDI[580] [581], remittances[582] [583] [584] and official development aid[585]. From the beginning of the 21st century, numerous middle-income countries have achieved economic growth through international trade and

[574] Ibid,15.
[575]R. Barro, and J-W Lee. "Losers and winners in economic growth." *The World Bank Economic Review* 7.suppl_1,1993.p.267-298.
[576]F. Baum, "Social capital: is it good for your health? Issues for a public health agenda." *Journal of Epidemiology and Community Health* 53.4,1999.195.
[577]W. Dunaway, and I.Wallerstein. "Crisis, transition, and resistance movements: A conversation with Immanuel Wallerstein." *Appalachian Journal*,1999.p.284-305.
[578]A. Dhrifi, "Health-care expenditures, economic growth and infant mortality: evidence from developed and developing countries." *CEPAL Rev. No. 125, August 2018* 69,2019).
[579]J.Ward, and R.Viner. "The impact of income inequality and national wealth on child and adolescent mortality in low and middle-income countries." *BMC public health* 17.2017.p.1-8.
[580]A. Hayat, "FDI and economic growth: the role of natural resources?." *Journal of Economic Studies* 45.2,2018.p.283-295.
[581]A.Hunjra,[et al.], "Role of financial development for sustainable economic development in low middle income countries." *Finance Research Letters* 47,2022.p.102793.
[582]Z. Lacheheb, and N.Wana Ismail. "The impact of remittance on economic growth in low and middle income countries." *International Journal of Academic Research in Economics and Management* 9.2 2020.p.61-70.
[583]N.Yoshino, F.Taghizadeh-Hesary, and M.Otsuka. "Determinants of international remittance inflow in Asia-Pacific middle-income countries." *Economic Analysis and Policy* 68 ,2020.p.29-43.
[584]S. Pal,[et al.], "The impact of remittance inflows on economic growth, unemployment and income inequality: An international evidence." *International Journal of Economic Policy Studies*,2022.p.1-25.
[585]M. Hailemariam,[et al.], "Developing a mental health care plan in a low resource setting: the theory of change approach." *BMC health services research* 15,2015.p.1-11.

globalization[586]. Similarly, external financial resources and international trade cause financial development, which leads to economic prosperity[587]. In this regard, developing countries, especially middle-income countries, face stagnant economic growth for a long time, directly impacting socioeconomic development, social sustainability, and health outcomes[588]. Therefore, against this background, it becomes essential to investigate the economic growth, external finance, and infant mortality rate trilemma.

The study is a comparative analysis of economic growth and infant mortality rate from the growth-health paradigm for different middle-income countries, their sub-income groups and high-income countries. It incorporates other macroeconomic factors such as external finance, trade, and financial development for middle-income and high-income countries. The study also comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of socioeconomic development as health out, which might highlight a significant factor in the graduation process. Similarly, the timely transition toward socioeconomic development is crucial for graduation from one income group to another[589 590].

Economic growth reduces the infant mortality rate[591 592]. At the macro-level economic growth appeared to increase government spending on infrastructure and budget allocation for health[593 594]. Adequate infrastructure is considered a driving factor for developing countries to achieve their sustainable development targets by the end of

[586]P.Samimi, and H.Salarzadeh Jenatabadi. "Globalization and economic growth: Empirical evidence on the role of complementarities." *PloS one* 9.4,2014.p.e87824.
[587]N.Samargandi, and A.M. Kutan. "Private credit spillovers and economic growth: Evidence from BRICS countries." *Journal of International Financial Markets, Institutions and Money* 44,2016.p.56-84.
[588]Md. Mondal,N.Islam, and M.Shitan. "Relative importance of demographic, socioeconomic and health factors on life expectancy in low-and lower-middle-income countries." *Journal of epidemiology* 24.2,2014.p.117-124.
[589]G. Firebaugh, and F.D. Beck. "Does economic growth benefit the masses? Growth, dependence, and welfare in the third world." *American Sociological Review*,1994.p.631-653.
[590]M.Dahan and D.Tsiddon. "Demographic transition, income distribution, and economic growth." *Journal of Economic growth* 3.1,1998.p.29-52.
[591]G.Ranis, F.Stewart, and A.Ramirez. "Economic growth and human development." *World development* 28.2,2000.p.197-219.
[592]B. Friedman,. "The moral consequences of economic growth." *Markets, morals, and religion*. Routledge, 2017.p.29-42.
[593]C. Hulten,R. "Infrastructure capital and economic growth: How well you use it may be more important than how much you have." 1996.
[594]S.Devarajan,V.Swaroop, and H-fu Zou. "The composition of public expenditure and economic growth." *Journal of monetary economics* 37.2,1996.p.313-344.

2030[595]. Therefore, this empirical analysis appeared to be a timely study as most middle-income countries strives toward achieving sustainable development goals, especially SDG 3.

A panel for 56 middle-income countries and 21 high-income-countries is used to probe the discourse over the period 2000 to 2019. Furthermore, the middle-income countries are further divided based on income and geography, indicatively upper-middle-income countries as income group and middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of economic growth and external finance, trade, financial development, and health variables on the infant mortality rate. Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on infant mortality rates in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the upper-middle-income countries for their graduation process, from the middle-income group to the high-income group.

To achieve the objective of this thesis, this is to investigate whether economic growth enhances social sustainability by improving health outcomes as SDG 3 or dims its impact. Therefore, this section provides an empirical investigation of whether economic growth reduces the infant mortality rate in external finance, trade and financial development, and governance. A multidimensional approach is adopted, which estimated the nexus between infant mortality rate, economic growth, and other macro-economic variables performed on a total sample of middle-income countries than respective income and geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 5.3.1 presents a literature review, 5.3.2 highlights the research framework based on hypothesis, 5.3.3 indicates data along with model specification and empirical estimation

[595] Z.van, J.Anton, and R.van Tulder. "Towards nexus-based governance: defining interactions between economic activities and Sustainable Development Goals (SDGs)." *International Journal of Sustainable Development & World Ecology* 28.3,2021.p.210-226.

followed by results interpretation, 5.3.4 mentions discussion of results, and section 5.3.5 consist conclusion.

5.2.2 LITERATURE REVIEW

In recent time, child mortality rate appeared to be crucial demographic phenomenon around the world. In developing and low income countries child mortality rate and its determinants has attracted the attention of various stakeholder including researchers and policymakers. To combat with high infant mortality rate numerous countries adopt various health remediation policies and strategies. Furthermore, in recent time due to pandemic crises numerous developed and under developed countries reshaped and enhanced their health policies and tightened their other economic expenditure[596]. The function of health economics is becoming increasingly important in recent period Because of the expanding international awareness of the strong relationship between economic development and health. Furthermore, because childhood health is one of the most important indicators of later life health and productivity, child mortality is an essential indication of socioeconomic growth and development. As a result, several researchers and scholars have identified a number of factors that directly or indirectly influence different health outcomes. Economic growth increase life expectancy[597] [598]. On the other hand, another author endorses that economic growth along with education enhancement decreases HIV/AID cases in Africa[599]. Likewise, it has been argued that economic prosperity increase child and maternal health of woman[600]. In terms of infant mortality at birth, there are several intermediate determinants which are directly or indirectly influencing on it such as, food, safe water, sanitation, and electricity, health of the mother, individual income and health services[601]

[596]Z.Yu,[et al.], "Re-examining the nexuses of communicable diseases, environmental performance, and dynamics of sustainable Development in OECD countries." *Environmental Science and Pollution Research* 29.43,2022.p.65771-65786.
[597]D.Bloom, D.Canning, and P.N. Malaney. "Population dynamics and economic growth in Asia." *Population and development review* 26,2000.p.257-290.
[598]R. Sharma, "Health and economic growth: Evidence from dynamic panel data of 143 years." *PloS one* 13.10,2018.p. e0204940.
[599]C-H. Huang, Kai-Fang Teng, and Pan-Long Tsai. "Inward and outward foreign direct investment and poverty: East Asia vs. Latin America." *Review of World Economics* 146,2010.p.763-779.
[600]A. Amiri, and Ulf-G. Gerdtham. "Impact of maternal and child health on economic growth: New evidence based granger causality and DEA analysis." *Newborn and child health, study commissioned by the partnership for maternal, Lund University, Sweden* 2013.
[601]A.Kotsadam,[et al], "Development aid and infant mortality. Micro-level evidence from Nigeria." *World Development* 105,2018.p.59-69.

ECONOMIC GROWTH AND INFANT MORTALITY RATE

Economic growth, as measured by increases in national output per capita and allows individuals for higher living standards and poverty reduction whereas; sustainable development, which is commonly defined as meeting the requirements of current generations without harming the resources for future generation[602]. In a long-run sustained economic growth increases socioeconomic development[603]. In terms of low-income and middle-income-countries a researcher by using 1990 to 2009 data finds that, health expenditure percentage of GDP and economic growth in the presence of quality of bureaucracy reduces infant mortality rate. They used 2nd stage least square estimation long with dynamic system-GMM estimation[604]. Another author empirically analyse the impact of economic growth on health outcomes. They reveal that, increase in economic growth reduces infant mortality rate in long run[605]. It has been mentioned that economic growth reduces infant mortality rate 48 African countries over the period 2000 to 2015[606]. Similar results also mentioned by other author [607] [608] that Increases in schooling and consumption are associated with a decrease in mortality[609]. Another author examined the impact of remittances on health care in Nepal. They mentioned in their research work that Increased spending on higher-priced medical care and a higher chance of seeing a doctor are both linked to remittance income[610]. Another author revealed that there is positive correlation exit between economic growth and health outcomes[611]. One of the most important contributing variables to the health is individual

[602]P. Hess,. *Economic growth and sustainable development*. Routledge, 2016.
[603]J. Brown,[et al.], "Energetic limits to economic growth." *BioScience* 61.1,2011.p.19-26.
[604]F.Haile, and M.Niño-Zarazúa. "Does social spending improve welfare in low-income and middle-income countries?." *Journal of International Development* 30.3,2018.p. 367-398.
[605]K.H. Zhang,. "How does foreign direct investment affect economic growth in China?." *Economics of transition* 9.3,2001.p.679-693.
[606]J.Somé, S.Pasali, and M.Kaboine. "Exploring the impact of healthcare on economic growth in Africa." *Applied Economics and Finance* 6.3,2019.p.45-57.
[607]G.Niu, and B.Melenberg. "Trends in mortality decrease and economic growth." *Demography* 51.5,2014.p.1755-1773.
[608]A.E.Akinlo, and A.O. Sulola. "Health care expenditure and infant mortality in sub-Saharan Africa." *Journal of Policy Modeling* 41.1,2019.p.168-178.
[609]S.Kalemli-Ozcan,. "Does the mortality decline promote economic growth?." *Journal of Economic Growth* 7,2002.p.411-439.
[610]B.Chezum, C.Bansak, and A.Giri. "Are remittances good for your health? Remittances and Nepal's national healthcare policy." *Eastern Economic Journal* 44,2018.p.594-615.
[611]D.Bloom, D.Canning, and P.N. Malaney. "Population dynamics and economic growth in Asia." *Population and development review* 26,2000.p.257-290.

income. Income has an impact on individual's health since it determines the ability to meet basic needs, nutrient intake, and access to basic health care services[612].

INTERNATIONAL FINANCE AND INFANT MORTALITY RATE

Foreign direct investment positively impacts human well-being[613] [614]. Numerous studies highlight the positive association between FDI inflow and the human development index[615] [616]. However, foreign direct investment impacts economic growth and development in multiple ways. Foreign direct investment causes the transfer of technology in the host countries, further enhancing welfare[617]. Similarly, the inflow of foreign direct investment positively increases local labor effectiveness and health[618]. Another author empirically analyzed the impact of FDI inflow on the well-being of Latin American and Sub-Saharan countries over the period 1996 to 2014[619]. Their findings reveal that FDI inflow increases human well-being in both regions by applying panel regression. Furthermore, institutional variables play a crucial role in enhancing the effectiveness of FDI inflow on human well-being. Another researcher used panel data from 85 middle-income countries from 1974 to 2012. By applying panel OLS and fixed effect estimation techniques, their findings suggest that FDI inflow positively increase health outcome and thus life expectancy. However, they also found a more substantial beneficial effect of FDI on adult mortality, yet no association of FDI with either infant or under-five child mortality[620]. In another empirical investigation the author empirically investigated the impact of FDI inflow on health outcomes in 43 African countries from 1980 to 2018. In his empirical estimation, he used fixed and

[612]L.Cingolani,K.Thomsson, and D.De Crombrugghe. "Minding Weber more than ever? The impacts of state capacity and bureaucratic autonomy on development goals." *World Development* 72,2015.p.191-207.
[613]S.Idrees, and Abu Bakar. "Foreign direct investment and social sectors development: a review." *Pakistan Journal of Humanities and Social Sciences* 7.1,2019.p.93-105.
[614]J.R. Winitzky-Stephens, *Foreign direct investment and well-being, 1985-2010: A structural approach*. The University of Utah, 2016.
[615]S.Srivastava, and S.Talwar. "Decrypting the dependency relationship between the triad of foreign direct investment, economic growth and human development." *The Journal of Developing Areas* 54.2,2020.
[616]O.De Schutter, JSwinnen, and J.Wouters, eds. *Foreign direct investment and human development: the law and economics of international investment agreements*. Routledge, 2012.
[617]G.Blalock, and P.J. Gertler. "Welfare gains from foreign direct investment through technology transfer to local suppliers." *Journal of international Economics* 74.2,2008.p.402-421.
[618]N-H, Le, L.Vinh Quoc Duy, and B.Hoang Ngoc. "Effects of foreign direct investment and human capital on labour productivity: Evidence from Vietnam." *The Journal of Asian Finance, Economics and Business* 6.3,2019.p.123-130.
[619]Z.Aloui,. "The impact of Foreign Direct Investment and the institutional quality on Welfare in Latin America and Sub-saharan Africa." 2019.
[620]D. Burns, Darren[et al.], "Is foreign direct investment good for health in low and middle income countries? An instrumental variable approach." *Social Science & Medicine* 181,2017.p.74-82.

random effect estimation. His concluded remarks highlighted that FDI inflow improves health outcomes in African countries[621]. A similar study conducted by other author, which investigated the impact of FDI inflow on population health for 179 countries from 1980 to 2011. Their main finding concluded that FDI positively affects health at low-income levels. However, the effect decreases with increasing income, then changes signs and becomes increasingly negative at higher income levels[622]. Numerous studies highlight that FDI inflow reduces infant mortality rate in recipient country[623] [624] [625]. Similarly, Remittance inflows reduce infant mortality rates, positively impact school enrolment and improve the health of children in remittance-receiving households in most countries[626].Another authors highlighted in their research work that Inflows of remittances, health aid, and government spending are all critical factors of access to health care in the recipient countries[627]. Furthermore, remittances and international health aid are complimentary access to health care services in low-income countries. A research work conducted other researcher used a sample of 23,607 infants from the survey of ENADID (Encuesta Nacional de la Dinámica Demográfica) Mexico, revealing that remittances sent by migrants positively enhance perinatal health outcomes[628]. A similar study was conducted by other author based on survery. He used a hospital-based postpartum survey (HPS 2001) from two states of Mexico and revealed that remittances inflow has a position impact on the reduction of child mortality rate[629]. Similar study also conducted by other author used household surveys for Mexico and

[621]M. Immurana, "How does FDI influence health outcomes in Africa?." *African Journal of Science, Technology, Innovation and Development* 13.5,2021.p.583-593.
[622]K. Nagel, D.Herzer, and Peter Nunnenkamp. "How does FDI affect health?." *International Economic Journal* 29.4,2015.p.655-679.
[623]S. Idrees,and N.Abu Bakar. "Accounting for the contribution of foreign direct investment in population health: a case study of Pakistan." *International Journal of Research in Social Sciences* 9.5,2019.p.14-35.
[624]A.Jorgenson, "Foreign direct investment and the environment, the mitigating influence of institutional and civil society factors, and relationships between industrial pollution and human health: A panel study of less-developed countries." *Organization & Environment* 22.2 2009.p.135-157.
[625] Y.Chuang,[et al.], "A longitudinal ecological study of the influences of political, economic, and health services characteristics on under-five mortality in less-developed countries." *Health & place* 23,2013.p.111-121.
[626]J. Córdova, Ernesto López. *Globalization, migration and development: the role of Mexican migrant remittances (Working Paper ITD= Documento de Trabajo ITD; n. 20)*. Vol. 20. BID-INTAL, 2006.
[627]A.Drabo, and C.Hubert Ebeke. "Remittances, public health spending and foreign aid in the access to health care services in developing countries." 2011.
[628]R.Frank, and R.A. Hummer. "The other side of the paradox: The risk of low birth weight among infants of migrant and nonmigrant households within Mexico." *International Migration Review* 36.3 2002.p.746-765.
[629]R.Frank, "International migration and infant health in Mexico." *Journal of immigrant health* 7 2005.p.11-22.

reveal that a positive linkage between remittances inflow and health expenditure[630].In the case of South Africa[631], a author highlighted in his work that poor households were able to spend more on healthcare and food and improved access to better medical facilities because of remittances[632]. Another author empirically analyzed the impact of remittance inflow on household welfare for Bangladesh and concluded that international remittance inflow has a positive and significant on health[633]. It has been argued that remittance inflow improves socio-economic development by enhancing health outcomes in the long run[634]. Another author investigated the nexus between child mortality, remittances, and public health expenditure for 138 developing countries from 1995 to 2009. He concluded in his empirical work that remittances reduce mortality through improved living standards[635]. In another research work the author used panel data from 69 low and middle-income countries and applied 2sls estimation. Their findings revealed that remittances have a more significant impact on increasing life expectancy and reducing infant mortality[636]. In a similar kind of study the author used panel data from 46 Sub-Saharan African (SSA) countries from 1975 to 2014 and used panel GMM estimation to investigate the impact of remittance inflow on health and education. The results indicate that remittance inflow positively increases health outcomes in Sub-Saharan African countries[637]. In another study based on panel data from 5 Asian countries for 26 years, from 1990 to 2015, the author concluded that remittances play an important role in improving health outcomes, such as increasing life expectancy and lowering infant mortality and fertility rates[638]. Furthermore, in case of primary data from five Nigerian Demographic and Health Surveys to investigate the

[630]C.Amuedo-Dorantes, and S.Pozo. "Remittances and income smoothing." *American Economic Review* 101.3,2011.p.582-587.
[631]C.Amuedo-Dorantes, and S.Pozo. "Remittances and income smoothing." *American Economic Review* 101.3,2011.p.582-587.
[632]S. Nagarajan *Migration, remittances, and household health: Evidence from South Africa*. Diss. The George Washington University, 2009.
[633]B.Kumar,. "Remittances, poverty and welfare: Evidence from Cumilla, Bangladesh." *American Journal of Data Mining and Knowledge Discovery* 4.1,2019.p.46-52.
[634]I.Mara,[et al.], "Analysis of literature on the effects of remittances on education and health of family members left behind." *Regional Research Promotion programme/western Balkans* 2012.
[635]S.C Terrelonge, "For health, strength, and daily food: the dual impact of remittances and public health expenditure on household health spending and child health outcomes." *The Journal of Development Studies* 50.10,2014.p.1397-1410.
[636]M. Zhunio, Sharmila Vishwasrao, and Eric P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." *Applied Economics* 44.35 ,2012.p.4605-4616.
[637]K.Amega,"Remittances, education and health in Sub-Saharan Africa." *Cogent Economics & Finance* 6.1,2018.p.1516488.
[638]S.Ullah,M.Tariq Majeed, and Adiqa Kausar Kiani. "The Influence of Remittances on Education and Health Outcomes: an Analy-sis for South Asian Countries." *Jinnah Business Review* 2019.

impact of bilateral and multilateral aid on health outcomes the author's findings suggest that aid more effectively reduces infant mortality in less privileged groups like children of Muslim women and children living in rural and Muslim-dominated areas. The relevance and effective usage of aid also depend on geographical factors[639]. Another author empirically analyses the impact of aid for 60 low-income countries. The outcomes reveal that the infant mortality rate is highly correlated with electricity consumption, individual income, and female education in urban areas. In rural areas, the infant mortality rate is also impacted by saving water access and vaccination coverage[640].

FINANCIAL DEVELOPMENT AND INFANT MORTALITY RATE

Financial development is positively associated with human development and social well-being. A stable financial sector improves human welfare and enhances human capital[641]. Another author mentioned in their empirical work that financial development improves human capital via increasing access to credit, saving facilities, financial inclusion, and low transaction costs[642].Financial operation under the shadow of financial development increases health services[643]. Financial development improves health outcomes via increased credit facility, which is further helpful in income generation, and risk management and indirectly improves the literacy rate[644] [645]. Financial development also increases credit facilities for the private and public sectors. Thus, it leads to higher expenditure on health care services, thus improving health quality. Furthermore, financial development allows investment more in medical personnel which further helpful in reducing diseases[646]. It has been argued that financial development does not improve life expectancy. In their empirical research, the author

[639]A.Kotsadam,[et al.] "Development aid and infant mortality. Micro-level evidence from Nigeria." *World Development* 105,2018.p.59-69.
[640] L.Wang, "Determinants of child mortality in LDCs: empirical findings from demographic and health surveys." *Health policy* 65.3,2003.p.277-299.
[641]T. Beck, A.Demirgüç-Kunt, and R.Levine. "Finance, inequality and the poor." *Journal of economic growth* 12,2007.p.27-49.
[642]A. Giovannini, M.Iacopetta 1, and R.Minetti. "Financial markets, banks, and growth: disentangling the links." *Revue de l'OFCE* 5,2013.p.105-147.
[643]H.Liu, W. Wu, and P. Yao. "Assessing the financial efficiency of healthcare services and its influencing factors of financial development: fresh evidences from three-stage DEA model based on Chinese provincial level data." *Environmental Science and Pollution Research*,2022.p.1-13.
[644]J.Chireshe, and M.K. Ocran. "Financial development and health outcomes in sub-Saharan African countries." *The Journal of Developing Areas* 54.3,2020.
[645]M.Hakeem, and O.Oluitan. "Financial development and human capital in South Africa: a time-series approach." *Research in Applied Economics* 4.3,2012.p.18.
[646]U.Reinhardt,"Reorganizing the financial flows in American health care." *Health Affairs* 12.suppl 1,1993.p.172-193.

used panel ARDL for ASEAN countries from 1988 to 2018[647]. Another study conducted by another author, identified a positive association between financial development and life expectancy for ten selected Asian countries[648].Another study used times series data from Pakistan from 1965 to 2019 to investigate the nexus between health outcomes, energy consumption, environmental degradation, and financial development. Their findings suggest that financial development decreases the infant mortality rate, whereas financial development appears to be insignificant in the long run[649].

TRADE AND INFANT MORTALITY RATE

Trade has always been the primary driving force of economic change, human health, and social sustainability[650]. Trade increases health outcomes in multiple ways, such as increasing the inflow of medical supplies, equipment, and drugs in developing countries. Furthermore, more broadly, it directly impacts the institutions by featuring them to create a healthy environment policy that directly enhances health outcomes[651]. In another research work,the author argued that trade increases globalization, which further enhances the country's income and allows it to spend more on the health sector. More health expenditure positively enhances health outcomes, especially the infant mortality rate[652]. Another author empirically analyzed the nexus between trade openness, economic growth, and health outcome for the panel for 209 countries from 1960 to 1995[653]. Their finding reveals that the economy increases life expectancy in the sample countries and tends to decrease the infant mortality rate. Similar results were found for trade openness and health outcomes. Similar findings were also revealed for selected African countries[654]. Another empirical research work finds that export tends to

[647]E.Hendrawaty,[et al.], "Economic growth, financial development, energy consumption and life expectancy: fresh evidence from ASEAN countries." *Economic Growth, Financial Development, Energy Consumption and Life Expectancy: Fresh Evidence from ASEAN Countries* 12.2,2022.p.444-448.
[648]M.Sehrawat, and A.K.Giri. "The impact of financial development, economic growth, income inequality on poverty: evidence from India." *Empirical Economics* 55,2018.p.1585-1602.
[649] M. Arafat, W. M. [et al.], "The causal nexus among energy consumption, environmental degradation, financial development and health outcome: Empirical study for Pakistan." *Energies* 15.5,2022.p.1859.
[650]Z.Yu,[et al.], "Re-examining the nexuses of communicable diseases, environmental performance, and dynamics of sustainable Development in OECD countries." *Environmental Science and Pollution Research* 29.43,2022.p.65771-65786.
[651]D.Rodrik, A.Subramanian, and F.Trebbi. "Institutions rule: the primacy of institutions over geography and integration in economic development." *Journal of economic growth* 9,2004.p.131-165.
[652]M. Moore. *Saving globalization: Why globalization and democracy offer the best hope for progress, peace and development*. John Wiley & Sons, 2009.
[653]A.L. Owen, and S.Wu. "Is trade good for your health?." *Review of International Economics* 15.4,2007.p.660-682.
[654]P. Panda,. "Does trade reduce infant mortality? Evidence from sub-Saharan Africa." *World Development* 128,2020.p.104851.

increase industrialization, which further causes environmental degradation. Therefore, export increases infant mortality related to cardio-respiratory in the long run[655]. It has been highlighted in another research that trade affects child health more minor than the economic growth in long-run[656] [657]

INFLATION AND INFANT MORTALITY RATE

Besides economic growth and expenditure, numerous factors also impact on infant mortality rate, such as infrastructure and technical efficiency[658]; wages[659]; woman literacy rate[660], and water sanitation[661]. Likewise, it has been highlighted that structural adjustment in the shape of inflation and the availability of drugs also significantly impacts the infant mortality rate[662]. Another empirical research used panel data from 95 developing countries from 2001 to 2011 to investigate the nexus between food prices, infant mortality, and child mortality rate. Their findings suggest that an increase intends to increase the infant mortality rate in sample countries[663]. Another empirical study was also analyzed the impact of house prices, inflation, and health expenditure on infant mortality rates for nine advanced countries over the period 1996 to 2019. Their findings suggest that high inflation and house princes increase the infant mortality rate, whereas; economic growth and health expenditure tend to decrease it[664]. Similarly, the relationship between inflation and the infant mortality rate is also confirmed[665] [666] [667].

[655]M. Bombardini, and B.Li. "Trade, pollution and mortality in China." *Journal of International Economics* 125,2020.p.103321.
[656]A.K. Jorgenson, and T.J. Burns. "Globalization, the environment, and infant mortality: a cross national study." *Humboldt Journal of Social Relations*,2004.p.7-52.
[657]D. Levine, and D.Rothman. "Does trade affect child health?." *Journal of health Economics* 25.3,2006.p.538-554.
[658]V.Suriyakala,[et al.], "Factors affecting infant mortality rate in India: an analysis of Indian states." *Intelligent Systems Technologies and Applications 2016*. Springer International Publishing, 2016.
[659]C.Wood,. "The political economy of infant mortality in Sao Paulo, Brazil." *International Journal of Health Services* 12.2,1982.p.215-229.
[660]S.H.Salarilak, [et al.], "Association between the socio-economic indicators and infant mortality rate (IMR) in Iran." *Iranian Journal of Public Health* 38.4,2009.p.21-28.
[661]E. Hertz, J.R. Hebert, and J.Landon. "Social and environmental factors and life expectancy, infant mortality, and maternal mortality rates: results of a cross-national comparison." *Social science & medicine* 39.1,1994.p.105-114.
[662]D.Hojman. "Economic and other determinants of infant and child mortality in small developing countries: the case of Central America and the Caribbean." *Applied economics* 28.3,1996.p. 281-290.
[663]H-H, Lee,[et al], "Effects of food price inflation on infant and child mortality in developing countries." *The European journal of health economics* 17,2016.p.535-551.
[664]W.Bao,[et al.], "Real estate prices, inflation, and health outcomes: Evidence from developed economies." *Frontiers in public health* 10,2022.p.851388.
[665]H-H,Lee,[et al.], "Effects of food price inflation on infant and child mortality in developing countries." *The European journal of health economics* 17,2016.p.535-551.
[666]W.Jiang, and X-Y, Liu. "Infant mortality and inflation in China: based on the mixed frequency VAR analyses." *Frontiers in Public Health* 10,2022.p.851714.

HEALTH EXPENDITURE AND OTHER CONTROL VARIABLES

The linkage between infant mortality rate and economic prosperity appears to be mediated by several factors. At the macro level, these factors include the structure of the economic mix[668] and the allocation of government resources for the health sector[669].It has been argued that health expenditure and infrastructure reduce the infant mortality rate; however, high GDP per capita is not solely responsible for reducing the infant mortality rate[670]. Similar relations are also revealed by other author; however, they also highlight that infrastructure. Thus the availability of hospital beds and physicians is only successful for health outcomes under the shadow of family health programs and the availability of relevant drugs[671]. Numerous studies indicate a negative association between health expenditure and hospital beds with infant mortality rate [672] [673] [674].

GOVERNANCE AND INFANT MORTALITY RATE

Lack of appropriate governance appeared to be a key hurdle for developing countries to achieve sustainable development goals[675] [676]. In another empirical analysis, the author highlighted that foreign aid does not impact government spending effectively due to a lack of proper governance[677]. In developing countries lack of public institutions

[667]A. Akinlo, and I.A. Odusanya. "Effects of food prices on under-five and infant mortality rates in Sub-Saharan Africa." *African Journal of Economic Review* 4.1,2016.p.101-112.
[668]J.Kentor,. *Capital and coercion: The economic and military processes that have shaped the world economy, 1800-1990*. Routledge, 2014.
[669]M.Paulden, and K.Claxton. "Budget allocation and the revealed social rate of time preference for health." *Health economics* 21.5,2012.p.612-618.
[670]L.Asandului, C.Popescu, and I.Puiu Fătulescu. "Identifying and explaining the efficiency of the public health systems in European countries." *Analele stiintifice ale Universitatii "Al. I. Cuza" din Iasi. Stiinte economice/Scientific Annals of the" Al. I. Cuza"* (2015).
[671]J.Macinko[et al.], "Private health insurance, healthcare spending and utilization among older adults: Results from the Brazilian Longitudinal Study of Aging." *The Journal of the Economics of Ageing* 23,2022.p.100397.
[672]I.DO, [et al.], "Descriptive and Analytical Statistics of Particular Predictors of Infant Mortality." *International Journal of Pharmaceutical Research (09752366)* 11.1,2019.
[673]H-J,Rhee,. "Effects of health care expenditure on the infant mortality rate and life expectancy at birth in Korea." *International Journal of Contents* 8.3,2012.p.52-56.
[674]R.Zanini,Ruviaro [et al.], "Infant mortality trends in the State of Rio Grande do Sul, Brazil, 1994-2004: a multilevel analysis of individual and community risk factors." *Cadernos de Saúde Pública* 25,2009.p.1035-1045.
[675]R.Kemp, S.Parto, and R.B.Gibson. "Governance for sustainable development: moving from theory to practice." *International journal of sustainable development* 8.1-2,2005.p.12-30.
[676]J.Meadowcroft, and R.Steurer. "Assessment practices in the policy and politics cycles: a contribution to reflexive governance for sustainable development?." *Journal of Environmental Policy & Planning* 20.6,2018.p.734-751.
[677]I.Kaya, and O.Kaya. "Foreign aid, institutional quality and government fiscal behavior in emerging economies: An empirical investigation." *The Quarterly Review of Economics and Finance* 76,2020.p.59-67.

and a high level of corruption slower down the economic growth[678] [679]. Furthermore, in developing countries, a high level of corruption negatively impacts health outcomes[680] [681]. Moreover, in development, the primary reason behind weak institutions is a lack of political stability; thus unstable political environment does not create an appropriate atmosphere for effective governance mechanisms for public institutions.It has been argued that appropriate health outcomes are only possible once local bodies and institutions work correctly[682]. Another author used time series data for turkey over the period 1960 to 2010 empirically investigate the impact of economic growth and, trade and corruption. Their findings suggest that corruption increases the infant mortality rate in turkey[683]. Another researcher investigated the impact of governance and political system on health outcomes proxied by infant mortality rate for 69 countries from 1984 to 2012. He used the governance index variable from the International Country Risk Guide, which represents the average value of 3 indicators: corruption, law and order, and quality of bureaucracy rage from 0 to 1. His findings suggest that good governance is a critical factor in infant mortality rate reduction. Furthermore, he also highlighted that a democratic political system directly impacts health outcomes[684].

5.2.3 RESEARCH FRAMEWORK - INFANT MORTALITY RATE

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for upper-middle-income countries to leave the middle-income trap. Furthermore, this research work also provides a comparative analysis regarding the impact of economic growth, external finance, trade, and financial development along with the governance of sub-income groups (upper-middle-lower and lower-middle-income countries) for a full sample of middle-income countries. Similarly, this work also highlights the impact of

[678]P. Mo, Hung. "Corruption and economic growth." *Journal of comparative economics* 29.1,2001.p.66-79.
[679]A.De Vaal, and W.Ebben. "Institutions and the relation between corruption and economic growth." *Review of Development Economics* 15.1,2011.p.108-123.
[680]O. Azfar, and T.Gurgur. "Does corruption affect health outcomes in the Philippines?." *Economics of Governance* 9,2008.p.197-244.
[681]M.Achim Violeta, V.Ligia Văidean, and S.Nicolae Borlea. "Corruption and health outcomes within an economic and cultural framework." *The European journal of health economics* 21.2,2020.p.195-207.
[682]P. Wise, and G.L. Darmstadt. "Strategic governance: addressing neonatal mortality in situations of political instability and weak governance." *Seminars in Perinatology*. Vol. 39. No. 5. WB Saunders, 2015.
[683]O.Dincer, and O.Teoman. "Does corruption kill? Evidence from half a century infant mortality data." *Social Science & Medicine* 232,2019.p.332-339.
[684]D. Rosenberg, . "Political economy of infant mortality rate: role of democracy versus good governance." *International Journal of Health Services* 48.3,2018.p.435-460.

economic growth on the infant mortality rate in the panel of middle-income countries which possess seaports. Based on the research goals below, relevant research framework is mentioned in figure 6.

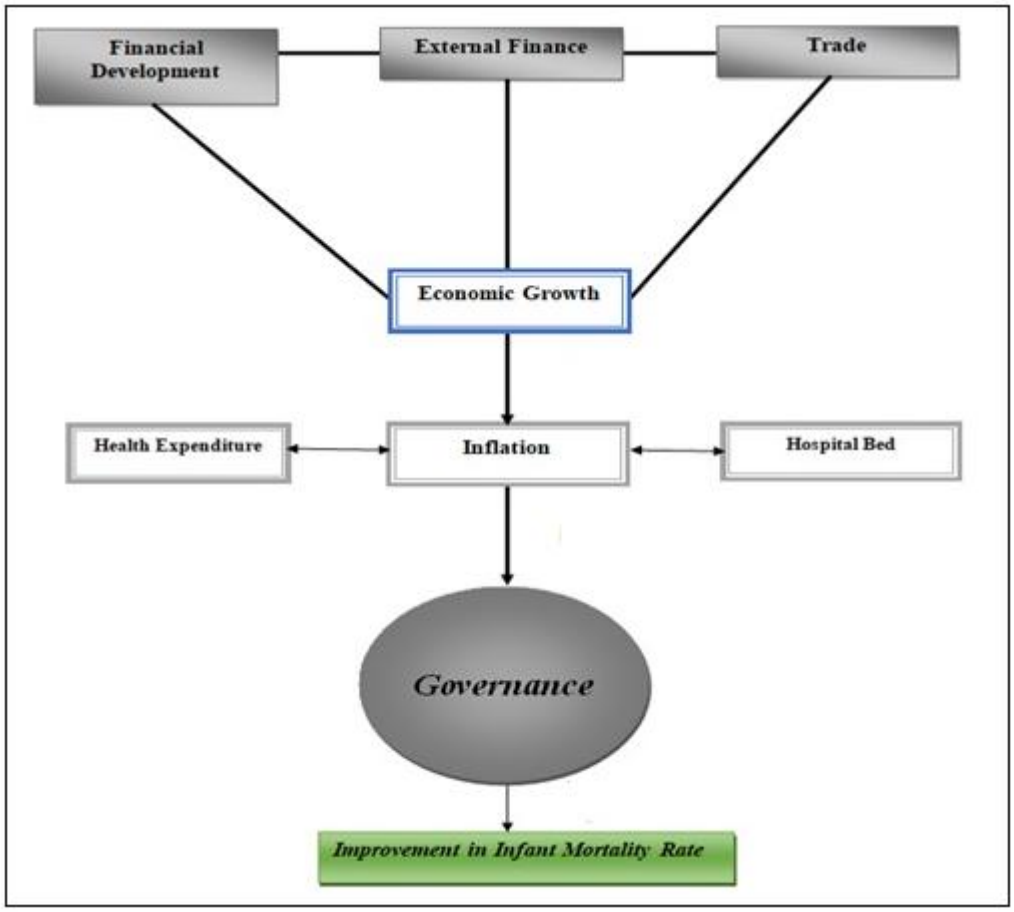


FIGURE 6. RESEARCH FRAMEWORK FOR THE MODEL OF INFANT MORTALITY RATE

5.2.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique.

5.2.4.1 DATA

The present study investigates growth–finance-infant mortality trilemma for middle-income and high-income countries for the period covering from 2001 to 2021. For evaluating the impact of economic growth on social dimension more specifically on health outcomes, the infant Mortality rate (per 1,000 live births) is used as endogenous

variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 5.3.1. The other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP and INF is the inflation thus consumer price index. HR refers to Hospital beds (per 1,000 people) and CH indicates Current health expenditure percentage of GDP. Likewise, GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 47 contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

TABLE 47. DATA SOURCES, ABBREVIATION AND DESCRIPTION (INFANT MORTALITY RATE)

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
IMR	Infant Mortality rate (per 1,000 live births)	World Bank Development Indicator	Endogenous
GDPPC	GDP per Capita (Constant USD 2015) –Economic growth	World Bank Development Indicator	Exogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
CH	Health Expenditure (% of GDP)	World Bank Development Indicator	Exogenous
HB	Hospital beds (per 1,000 people)	World Bank Development Indicator	Exogenous
INF	Inflation	World Bank Development Indicator	Exogenous
PS-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VA-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GE-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQ-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
CC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

5.2.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS

By limiting the discussion to the variable of interest, economic growth, international financeand infant mortality rate (per 1,000 live births), the comparative statistics of variables are shown in table 48 for middle-income-countries and table 49 indicate correlation analysis among the variables. Likewise table 50 indicate

comparative statistics of variables for high-income-countries and table 51 correlation analyses among the variables respectively.

TABLE 48. SUMMARY STATISTICS (MIC-FS, INFANT MORTALITY RATE)

VARIABLE	MIDDLE-INCOME-COUNTRIES, FULL SAMPLE				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
MRI	1176	31.923	22.532	2.4	121.2
FDI	1176	3.984	4.921	-11.624	55.075
REM	1176	5.691	6.419	0.000183	34.499
ODA	1176	2.780	3.137	-0.616	21.436
GDPPC	1176	3539.173	2377.155	485.861	12654.690
T	1176	78.316	32.851	20.723	220.407
INF	1176	6.187	6.239	-18.100	48.700
HB	1176	2.327	2.252	0.100	12.610
CH	1176	5.410	2.067	1.694	11.395
PSI	1176	-0.460	0.742	-2.810	1.280
VAI	1176	-0.369	0.598	-1.820	1.150
GEI	1176	-0.366	0.506	-1.780	1.270
RQI	1176	-0.28989	0.511	-1.8	1.13
COC	1176	-0.51681	0.534	-1.52	1.65
ROL	1176	-0.49743	0.489	-1.66	0.73

As per middle-income-countries the average real GDP per capita income is 3539.17 (USD Constant, 2015), with Cambodia having the lowest at 485.86 (USD Constant, 2015) in 2000 and Costa Rice showing the highest in 2019 with 12654.69 (USD Constant, 2015). The standard deviation appeared as 2377.1. The average foreign direct investment inflow percentage of GDP is 3.983%, with Mauritania having the lowest at -11.624% in 2019 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.921. Similarly, the average remittance inflow percentage of GDP is 5.691%, with Angola having the lowest at 0.00013% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.418. Furthermore, the average official development assistance inflow percentage of GDP is 2.779%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic showed the highest in 2005 with 21.43%, with a standard deviation of 3.163. In terms of MRI, the average infant Mortality rate (per 1,000 live births) is 31.923, with Angola having the lowest at 121.2 in 2000 and Belarus showing the highest in 2019 with 2.4 and the standard deviation is 22.53.

Furthermore according to the table 49 indicate correlation analysis among the endogenous and exogenous variables, which does not suggest the presence of multicollinearity according to results all the correlation coefficients of variables are

below0.800.

TABLE 49. CORRELATION ANALYSIS (MIC-FS, INFANT MORTALITY RATE)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE															
VARIABLE	**MRI**	**FDI**	**REM**	**ODA**	**GDPPC**	**T**	**INF**	**HB**	**CH**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
MRI	1														
FDI	-0.112	1													
REM	-0.310	0.069	1												
ODA	0.325	0.060	0.159	1											
GDPPC	-0.469	0.060	-0.168	-0.499	1										
T	-0.344	0.342	0.035	-0.031	0.188	1									
INF	0.084	0.029	-0.057	0.062	-0.100	0.104	1								
HB	-0.428	0.238	0.054	-0.154	0.270	0.341	0.229	1							
CH	-0.411	0.081	0.446	0.078	0.209	0.132	-0.114	0.206	1						
PSI	-0.228	0.124	-0.147	0.098	0.282	0.396	-0.097	0.211	0.171	1					
VAI	-0.243	-0.019	0.070	-0.074	0.194	-0.119	-0.092	-0.132	0.272	0.243	1				
GEI	-0.455	0.044	-0.129	-0.195	0.423	0.302	-0.190	0.013	0.131	0.396	0.430	1			
RQI	-0.464	0.156	0.069	-0.191	0.410	0.199	-0.237	-0.003	0.255	0.293	0.591	0.775	1		
COC	-0.344	-0.053	-0.062	-0.004	0.288	0.180	-0.165	-0.008	0.251	0.497	0.492	0.761	0.568	1	
ROL	-0.395	0.040	-0.039	-0.072	0.328	0.254	-0.176	-0.007	0.144	0.482	0.497	0.807	0.703	0.799	1

TABLE 50. SUMMARY STATISTICS (HIC, INFANT MORTALITY RATE)

VARIABLE	HIGH INCOME GRADUATED COUNTRIES				
	OBSERVATIONS	MEAN	STD. DEV.	MIN	MAX
MR	420	9.432	16.830	1.8	107.1
FDI	420	10.145	27.541	-40.081	280.131
REM	420	0.790	1.146	2.89E-05	6.876
ODA	420	0.555	1.134	-0.249	8.305
GDPPC	420	23062.75	14308.82	4454.038	75112.81
T	420	112.258	71.641	19.559	442.62
INF	420	2.979	3.612	-4.9	37
HB	420	4.819	2.859	1.1	14.69
CH	420	6.465	2.196	1.263	10.749
PSI	420	0.583	0.552	-1.63	1.59
VAI	420	0.587	0.781	-2	1.62
GEI	420	0.785	0.684	-1.7	1.91
RQI	420	0.787	0.726	-1.68	2.23
COC	420	0.662	0.728	-1.82	1.96
ROL	420	0.759	0.645	-1.52	1.8

As per high-income countries the average real GDP per capita income is 23062.75 (USD Constant, 2015), with Equatorial Guinea having the lowest at 4454.03 (USD Constant, 2015) in 2000 and Ireland showing the highest in 2019 with 75112.81 (USD Constant, 2015). The standard deviation appeared as 14308.82. The average foreign direct investment inflow percentage of GDP is 10.145%, with Hungary having the lowest at -40.0811% in 2018 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 27.54. Similarly, the average remittance inflow percentage of GDP is 0.790%, with Uruguay having the lowest at 0.0000288917% in 2001 and Croatia showing the highest in 2019 with 6.876%, with a standard deviation of 1.146. Furthermore, the average official development assistance inflow percentage of GDP is 0.555%. Mauritius had the lowest at -0.2496% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134. In terms of MRI, the average infant Mortality rate (per 1,000 live births) is 9.432, with Equatorial Guinea having the lowest at 107.1 in 2000 and Japan showing the highest in 2019 with 1.8 and the standard deviation is 16.83.

Furthermore according to the table 51 indicate correlation analysis among the endogenous and exogenous variable, which does not suggest the presence of multicollinearity as all the correlation coefficient are below 0.800.

TABLE 51. CORRELATION ANALYSIS (HIC, INFANT MORTALITY RATE)

HIGH INCOME COUNTRIES GRADUATED COUNTRIES															
VARIABLE	**MR**	**FDI**	**REM**	**ODA**	**GDPPC**	**T**	**INF**	**HB**	**CH**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
MR	1														
FDI	-0.015	1													
REM	-0.138	0.137	1												
ODA	-0.005	-0.048	-0.060	1											
GDPPC	-0.236	0.070	-0.323	-0.014	1										
T	0.007	0.250	0.048	-0.068	0.191	1									
INF	0.183	-0.047	-0.087	-0.019	-0.196	0.022	1								
HB	-0.263	-0.092	0.145	0.060	-0.059	-0.049	-0.181	1							
CH	-0.522	0.011	0.058	-0.031	-0.092	-0.154	-0.204	0.328	1						
PSI	-0.207	0.034	0.107	-0.382	0.042	0.253	0.074	0.249	0.083	1					
VAI	-0.709	0.068	0.090	0.018	-0.156	-0.098	-0.093	0.319	0.773	0.227	1				
GEI	-0.792	0.142	-0.073	0.070	0.366	0.157	-0.231	0.311	0.573	0.213	0.738	1			
RQI	-0.735	0.130	-0.063	-0.041	0.306	0.203	-0.243	0.264	0.564	0.204	0.743	0.792	1		
COC	-0.702	0.129	-0.234	-0.013	0.432	0.143	-0.106	0.109	0.498	0.282	0.630	0.801	0.805	1	
ROL	-0.777	0.102	-0.204	-0.014	0.395	0.127	-0.184	0.240	0.536	0.274	0.733	0.800	0.793	0.799	1

5.2.4.3 MODEL SPECIFICATION

The hypotheses will be tested by estimating a series of panel data models. The models will explain the variables that measure the elements that characterize particular sustainability pillars. For evaluating the impact of economic dimension on social dimension more specifically on health outcomes, the Mortality rate, infant (per 1,000 live births) is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 5. Based on research hypothesis as mentioned in Figure 5 initially below model will be formed,

$$MRI_{it} = \alpha_o + \alpha_1 FDI_{it} + \alpha_2 REM_{it+} \alpha_3 ODA_{it+} \alpha_4 GDPPC_{it+} \alpha_5 T_{it+} \alpha_6 FD_{it+} \alpha_7 INF_{it+} \alpha_8 HB_{it} + \alpha_9 CH_{it} + e_{it} \quad \textit{(Equation 1)}$$

Where MRI is the growth Mortality rate, infant (per 1,000 live births) refer to health outcomes, FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP and INF is the inflation thus consumer price index. HR refers to Hospital beds (per 1,000 people) and CH indicates Current health expenditure percentage of GDP. GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in Table 5.3.1. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore above equation above 1 will be ,

$$LNMRI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it+} \alpha_3 LNODA_{it+} \alpha_4 LNGDPPC_{it+} \alpha_5 LNT_{it+} \alpha_6 LNFD_{it+} \alpha_7 LNINF_{it+} \alpha_8 LNHB_{it} + \alpha_9 LNCH_{it} + e_{it} \quad \textit{(Equation 2)}$$

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the impact of external finance, economic properity and governance indicators on sustainability. Therefore, below model will be estimated which incorporate the impact of political governance along with economic sustainability

and international financeon infant mortality rate. By incorporating political governance index in equation 2 , given below model will estimated.

$$LNMRI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it+} \alpha_3 LNODA_{it+} \alpha_4 LNGDPPC_{it+} \alpha_5 LNT_{it+} \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_8 LNHB_{it} + \alpha_9 LNCH_{it} + \alpha_{10} PSI\text{-}PG + \alpha_{11} VAI\text{-}PG + e_{it}$$ *(Equation 3)*

In above equation 3, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm.

However, by incorporating economic and institutional governance in equation 2, the estimated equations will be written as,

$$LNMRI_{it}=\alpha_o+\alpha_1 LNFDI_{it}+\alpha_2 LNREM_{it}+\alpha_3 LNODA_{it}+\alpha_4 LNGDPGR_{it}+\alpha_5 LNT_{it}+\alpha_6 LNFD_{it}+ \alpha_7 LNINF_{it}+\alpha_8 LNHB_{it} + \alpha_9 LNCH_{it} + \alpha_{10} GEI\text{-}EG+ \alpha_{11} RQI\text{-}EG + e_{it}$$ *(Equation 4)*

And,

$$LNMRI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it+} \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_8 LNHB_{it} + \alpha_9 LNCH_{it} + \alpha_{10} COC\text{-}IG+ \alpha_{11} ROL\text{-}IG + e_{it}$$ *(Equation 5)*

In above equation 4, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 5, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$$LNMRI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it+} \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_8 LNHB_{it} + \alpha_9 LNCH_{it} + \alpha_{10} PSI\text{-}PG_{it} + \alpha_{11} VAI\text{-}PG_{it} + \alpha_{12} GEI\text{-}EG_{it} + \alpha_{13} RQI\text{-}EG_{it} + \alpha_{14} COC\text{-}IG_{it} + \alpha_{15} ROL\text{-}IG_{it} + e_{it}$$ *(Equation 6)*

5.2.4.4 EMPIRICAL ESTIMATIONS

The estimation begins with fixed effect Driscoll-Kraay (main) of middle-income-countries for analysing the impact of economic growth and other exogenous variable on infant mortality rate. Similarly System-GMM is used as robust estimation.[685]

TABLE 52. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, STATIC MODEL ESTIMATION, INFANT MORTALITY RATE)

FULL SAME					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.014 (0.013)	-0.012 (0.015)	-0.006 (0.013)	-0.026 (0.018)	-0.016 (0.013)
LNREM	-0.015 (0.012)***	-0.019 (0.016)***	-0.016 (0.011)***	-0.017 (0.012)***	-0.018 (0.013)***
LNODA	0.154 (0.018)***	0.153 (0.018)***	0.142 (0.018)***	0.160 (0.020)***	0.145 (0.019)***
LNGDPPC	-0.125 (0.033)***	-0.101 (0.035)***	-0.110 (0.037)***	-0.093 (0.037)**	-0.097 (0.040)**
LNT	-0.355 (0.037)***	-0.356 (0.053)***	-0.319 (0.037)***	-0.318 (0.037)***	-0.331 (0.055)***
LNFD	-0.091 (0.021)***	-0.092 (0.021)***	-0.048 (0.026)*	-0.069 (0.025)**	-0.064 (0.027)**
LNINF	-0.012 (0.024)	-0.013 (0.024)	-0.023 (0.026)	-0.016 (0.026)	-0.018 (0.026)
LNHB	-0.281 (0.026)***	-0.295 (0.027)***	-0.287 (0.028)***	-0.289 (0.026)***	-0.330 (0.030)***
LNCH	-0.280 (0.027)***	-0.232 (0.019)***	-0.269 (0.028)***	-0.238 (0.027)***	-0.215 (0.025)***
PSI-PG	-	-0.020 (0.021)	-	-	-0.012 (0.030)
VAI-PG	-	-0.108 (0.023)***	-	-	-0.045 (0.023)**
GEI-EG	-	-	-0.180 (0.033)***	-	-0.127 (0.050)**
RQI-EG	-	-	-0.038 (0.032)	-	-0.032 (0.058)
COC-IG	-	-	-	-0.172 (0.028)***	-0.141 (0.049)**
ROL-IG	-	-	-	-0.009 (0.036)	-0.106 (0.064)
Constant	6.755 (0.169)***	6.441 (0.213)***	6.256 (0.253)***	6.134 (0.245)***	6.167 (0.282)***
R.Sq	0.701	0.709	0.715	0.715	0.718
Observations	1002				
Groups	56				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

[685] **The methodology of estimation is mentioned in Chapter 3 section 3.4.4 in detailed form.**

Table 52 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rates, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among nine exogenous variables, besides LNFDI, LNODA, and LNINF, all other variable contributes to reducing LNMRI in a full sample of middle-income countries. Among the external financial inflows, LNREM indicates a negative association with LNMRI. Thus a 1 unit increase in LNREM tends to decrease the infant mortality rate by 0.152%. However, LNODA causes an increase in LNMRI in the sample countries. A 1 unit increase in LNODA tends to increase LNMRI by 0.015%. Similarly, a 1 unit increase in LNGDPPC, LNT, and LNFD causes 0.125 %, 0.355%, and 0.091% of LNMRI, respectively. Regarding a more specific health variable, a 1% unit increase in LNHB and LNCH tends to decrease LNMRI by 0.281% and 0.280%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNGDPPC, LNFD, LNT, LNHC, and LNCH; however, the magnitude of coefficients is slightly different. Similarly, the VAI-PG appears to be a positive contributor to reducing MRI in middle-income countries. 1 unit increase in the VAI-PG index tends to increase MRI by 0.108%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, the GEI-EG index indicates a positive contributor to reducing the infant mortality rate. 1 unit increase in the GEI-EG index reduces LNMR by 0.180%. By incorporating the institutional governance indicator in Column (4), 1 unit increase in COC-IG reduces by 0.172%.Similarly, Column (5) presents the impact of nine exogenous variables and governance index on health outcomes proxied by infant mortality rate. The estimated results reveal that LNREM, LNGDPPC, LNT, LNFD, LNHB, and LNCH positively reduce the infant mortality rate in the presence of VAI-PG GEI-EG and COC-IG. However, LNODA does not contribute to reducing the infant mortality rate. According to the results, 1 unit increase in LNREM in a full sample of middle-income countries causes 0.018% in the reduction of LNMRI. However, LNFD tends to increase LNMRI by 0.145%. Similarly, a 1 unit increase in LNGDPPC and LNT also tends to reduce LNMRI by 0.097% and 0.331%, respectively. On the other hand, LNFD, LNHB, and LNCH also reduce the infant mortality rate by 0.064%, 0.330%, and 0.215%. Likewise,

the estimated results also reveal that a 1 unit increase in VAI-PG, GEI-EG, and COC-IG decreases infant mortality by 0.045%, 0.127%, and 0.141%.

TABLE 53. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, DYNAMIC MODEL ESTIMATION, INFANT MORTALITY RATE)

FULL SAMPLE					
	SYSTEM - GMM				
VARIABLE	**1**	**2**	**3**	**4**	**5**
Lag.LNMRI	1.016 (0.014)***	1.031 (0.015)***	1.024 (0.016)***	1.026 (0.016)***	1.029 (0.013)***
LNFDI	-0.018 (0.017)	-0.019 (0.019)*	-0.018 (0.020)	-0.019 (0.018)*	-0.017 (0.017)
LNREM	-0.012 (0.027)***	-0.028 (0.033)**	-0.030 (0.031)**	-0.031 (0.030)***	-0.028 (0.032)***
LNODA	0.026 (0.025)*	0.038 (0.028)*	0.024 (0.029)	0.032 (0.028)*	0.032 (0.026)*
LNGDPPC	-0.037 (0.091)***	-0.068 (0.091)**	-0.079 (0.096)*	-0.080 (0.077)**	-0.094 (0.082)***
LNT	-0.045 (0.093)*	-0.011 (0.099)**	-0.062 (0.010)*	-0.068 (0.095)*	-0.011 (0.085)**
LNFD	-0.029 (0.036)	-0.047 (0.045)	-0.020 (0.035)	-0.011 (0.031)	-0.024 (0.034)
LNINF	-0.077 (0.011)	-0.097 (0.013)	-0.034 (0.012)	-0.032 (0.012)	-0.090 (0.011)
LNHB	-0.022 (0.050)***	-0.046 (0.059)**	-0.023 (0.056)**	-0.013 (0.097)**	-0.027 (0.057)***
LNCH	-0.092 (0.083)**	-0.010 (0.085)**	-0.011 (0.098)***	-0.013 (0.097)**	-0.013 (0.084)**
PSI-PG	-	-0.022 (0.039)	-	-	-0.046 (0.039)
VAI-PG	-	-0.091 (0.056)**	-	-	-0.073 (0.054)**
GEI-EG	-	-	-0.050 (0.068)*	-	-0.058 (0.077)*
RQI-EG	-	-	0.010 (0.079)	-	-0.066 (0.080)
COC-IG	-	-	-	-0.040 (0.060)**	-0.039 (0.074)**
ROL-IG	-	-	-	-0.013 (0.074)**	-0.021 (0.087)**
Constant	-0.161 (0.140)*	-0.274 (0.142)*	-0.228 (0.147)	-0.235 (0.135)*	-0.283 (0.125)**
AR(2)	0.739	0.728	0.726	0.722	0.723
Hansen	0.202	0.214	0277	0.268	0.332
Group	56	56	56	56	56
Observation	956	956	956	956	956
Instruments	30	32	32	32	36
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 53 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on

infant mortality rate. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNMRI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the infant mortality rate, which means that LNMRI has had a positive and significant impact on the current value of infant mortality rate in the past few years. Column (1) shows that among nine exogenous variables, LNREM, LNGDPPC, LNT, LNHB, and LNCH appear to positively impact infant mortality rate in a full sample of middle-income countries. On the other hand, LNODA tends to increase the infant mortality rate in sample countries. According to the results, a 1 unit increase in LNREM, LNGDPPC, and LNT reduces the infant mortality rate by 0.012%, 0.037%, and 0.045%, respectively. Similarly, a 1 unit increase in LNODA increases the infant mortality rate by 0.026%. Furthermore, a 1 unit increase in LNHB and LNCH decreases LNMRI by 0.022% and 0.092%. Similarly, in Column (2), the estimated results indicate consistent signs of LNREM, LNODA, LNGDPPC, LNT, LNHB, and other nine exogenous variables by incorporating political governance LNCH; however, the magnitude of coefficients are slightly different. Furthermore, LNFDI appears to positively impact the reduction of infant mortality rate in a sample of middle-income countries; thus 1% increase in LNFDI inflow tends to decrease LNMRI by 0.019%. The VAI-PG index appears to contribute to infant mortality rate reduction in middle-income countries significantly. According to results, 1 unit increase in VAI-PG decreases LNMRI by 0.091%. By incorporating the economic governance index in estimation, as mentioned in Column (3) and the results also indicate consistent signs of LNREM, LNODA, LNGDPPC, LNT, LNHB, and LNCH. However, the GEI-EG index indicates a negative association with infant mortality rate; thus, a 1 unit increase in the GEI-EG index decreases 0.050% of infant mortality rate. Furthermore, the nexus between institutional indicators and infant mortality rate along with nine other exogenous are mentioned in Column (4). According to outcomes, COC-IG and ROL-IG are favorable in reducing the infant mortality rate. 1 unit increase in COC-IG and ROL-IG decreases infant mortality rate by 0.040% and 0.013%. Furthermore, LNREM, LNGDPPC, LNT, LNHB, and LNCH indicate a negative association with infant mortality rate, whereas; LNODA indicates a positive association. Column (5) presents the impact of nine exogenous variables and governance index on the infant mortality rate. The estimated results reveal that LNREM, LNGDPPC, and LNT are negatively associated with

LNMRI. 1 unit increase in LNREM, LNGDPPC, and LNT reduces the infant mortality rate by 0.028%, 0.094%, and 0.011%. Furthermore, the relationship between LNODA and LNMRI is consistent with previous estimations. 1 unit increase in LNODA increases 0.032% of infant mortality rate. Similarly, LNHB and LNCH also indicate a negative association between infant mortality rates. By 1 unit increase in LNHB and LNCH reduces infant mortality rates by 0.027% and 0.013%, respectively. Among the governance indicators, VAI-PG, COC-IG, and ROL-IG decreased infant mortality rates by 0.073%, 0.039%, and 0.021%, respectively. Similarly, a 1 unit increase in the GEI-EG index decreases the infant mortality rate by 0.058%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 52, with the estimated results system-GMM (robustness analysis) in table 53, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDPPC, LNT, LNHB and LNCH, and VAI-PG, GEI-EG, and COC-IG favor infant mortality rates reduction in a full sample of middle-income countries. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNODA appears to have a positive coefficient across the entire model and is statistically significant, thus not helpful in the reduction of infant mortality rate.

TABLE 54. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, STATIC MODEL ESTIMATION, INFANT MORTALITY RATE)

UPPER MIDDLE INCOME COUNTRIES (MIT)					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.015 (0.028)	0.030 (0.026)	0.022 (0.022)	0.027 (0.023)	0.030 (0.025)
LNREM	-0.242 (0.021)***	-0.241 (0.032)***	-0.253 (0.021)***	-0.286 (0.024)***	-0.279 (0.031)***
LNODA	0.023 (0.020)***	0.233 (0.021)***	0.226 (0.021)***	0.223 (0.023)***	0.228 (0.026)***
LNGDPPC	-0.116 (0.056)*	-0.150 (0.053)**	-0.137 (0.057)**	-0.163 (0.051)***	-0.192 (0.044)***
LNT	-0.229 (0.075)***	-0.297 (0.115)**	-0.192 (0.073)**	-0.165 (0.095)*	-0.220 (0.098)**
LNFD	-0.082 (0.033)**	-0.060 (0.034)*	-0.055 (0.039)*	-0.100 (0.032)***	-0.091 (0.032)**
LNINF	0.012 (0.047)	0.009 (0.046)	0.008 (0.047)	0.027 (0.049)	0.032 (0.048)
LNHB	-0.337 (0.034)***	-0.378 (0.036)***	-0.344 (0.041)***	-0.390 (0.050)***	-0.423 (0.056)***
LNCH	-0.321 (0.092)**	-0.253 (0.102)**	-0.285 (0.093)*	-0.071 (0.079)**	-0.042 (0.084)**
PSI-PG	-	0.065 (0.048)	-	-	0.107 (0.054)
VAI-PG	-	-0.121 (0.026)***	-	-	-0.084 (0.024)***
GEI-EG	-	-	-0.139 (0.068)*	-	0.084 (0.104)
RQI-EG	-	-	0.058 (0.082)	-	0.069 (0.076)
COC-IG	-	-	-	-0.491 (0.043)	-0.517 (0.065)
ROL-IG	-	-	-	-0.336 (0.030)***	-0.230 (0.083)**
Constant	6.193 (0.276)***	6.598 (0.554)***	6.036 (0.301)***	5.931 (0.508)***	6.354 (0.601)***
R.Sq	0.519	0.527	0.523	0.559	0.566
Observations	443				
Groups	25				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 54, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rates, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among nine exogenous variables, besides LNFDI, LNODA, and LNINF inflation, all other

variable contributes to reducing LNMRI in upper-middle-income countries. Among the external financial inflows, LNREM indicates a negative association with infant mortality rate; thus, a 1 unit increase in LNREM tends to decrease the infant mortality rate by 0.242%. However, LNODA causes an increase in LNMRI in the sample countries. A 1 unit increase in LNODA tends to increase the mortality rate by 0.023%. Similarly, a 1 unit increase in LNGDPPC, LNT, and LNFD causes 0.116 %, 0.229%, and 0.082% reduction in LNMRI rate, respectively. As per results, 1 unit increase in LNHB and LNCH decreases infant mortality by 0.337% and 0.321%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNGDPPC, LNFD, LNHB, and LNCH; however, the magnitude of coefficients is slightly different. Similarly, the VAI-PG index positively contributes to reducing LNMRI in middle-income countries. A 1 unit increase in VAI-PG reduces the mortality rate by 0.121%. Furthermore, LNODA indicates a positive association with LNMRI. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, GEI-EG and RQI-EG appeared to be insignificant. By incorporating the institutional governance indicator in Column (4), 1 unit increase in ROL-IG reduces by 0.336%. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on health outcomes proxied by infant mortality rate. The estimated results reveal that LNREM, LNGDPPC, LNT, LNFD, LNHB, and LNCH positively reduce LNMRI in the presence of VAI-PG and ROL-IG. However, LNODA does not contribute to reducing the infant mortality rate. According to the results, a 1 unit increase in LNREM in upper-middle-income countries causes 0.279% reduction in infant mortality rate. However, LNODA tends to increase infant mortality by 0.228%. Similarly, a 1 unit increase in LNGDPPC and LNT reduces the infant mortality rate by 0.192% and 0.220%, respectively. On the other hand, LNFD, LNHB, and LNCH also reduce the infant mortality rate by 0.091%, 0.423%, and 0.042%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG and the ROL-IG decreases infant mortality rate by 0.084% and 0.230%.

TABLE 55. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION, INFANT MORTALITY RATE)

UPPER MIDDLE INCOME COUNTRIES MIT					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNMRI	0.956 (0.030)***	0.969 (0.018)***	0.966 (0.027)***	0.967 (0.020)***	0.969 (0.016)***
LNFDI	-0.007 (0.047)	-0.021 (0.037)	-0.012 (0.039)	-0.019 (0.033)	-0.017 (0.034)
LNREM	-0.097 (0.089)**	-0.054 (0.067)***	-0.078 (0.077)***	-0.071 (0.074)***	-0.055 (0.061)***
LNODA	0.081 (0.072)	0.063 (0.060)	0.081 (0.066)*	0.061 (0.059)	0.049 (0.055)
LNGDPPC	-0.028 (0.013)***	-0.066 (0.010)***	-0.053 (0.012)**	-0.038 (0.012)**	-0.095 (0.011)***
LNT	-0.019 (0.024)***	-0.011 (0.018)**	-0.015 (0.022)**	-0.094 (0.022)**	-0.068 (0.017)**
LNFD	-0.016 (0.016)**	-0.010 (0.010)	-0.015 (0.011)*	-0.018 (0.097)*	-0.016 (0.081)**
LNINF	-0.020 (0.043)	-0.077 (0.029)	0.041 (0.027)	0.012 (0.024)	-0.096 (0.021)
LNHB	-0.030 (0.015)**	-0.026 (0.013)**	-0.026 (0.014)**	-0.027 (0.013)**	-0.025 (0.012)**
LNCH	0.046 (0.026)	0.033 (0.025)	0.036 (0.023)	0.012 (0.023)	0.077 (0.020)
PSI-PG	-	0.063 (0.070)	-	-	0.030 (0.068)
VAI-PG	-	-0.041 (0.013)*	-	-	-0.032 (0.086)*
GEI-EG	-	-	0.036 (0.018)	-	-0.080 (0.016)
RQI-EG	-	-	0.070 (0.015)	-	-0.035 (0.086)
COC-IG	-	-	-	-0.027 (0.014)**	-0.026 (0.013)**
ROL-IG	-	-	-	-0.038 (0.016)**	-0.038 (0.020)**
Constant	0.057 (0.174)	0.064 (0.138)	0.026 (0.149)	0.059 (0.158)	0.084 (0.141)
AR(2)	0.346	0.359	0.344	0.376	0.377
Hansen	0.211	0.225	0.248	0.299	0.323
Group	25	25	25	25	25
Observation	422	422	422	422	422
Instruments	14	16	16	16	20
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 55, reports dynamic system-GMM results regarding the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rate. System-GMM estimation is used as a robust model

compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the lagged dependent variable coefficient lag.LNMRI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNMRI has had a positive and significant impact on the current value of the infant mortality rate in the past few years. Column (1) shows that among nine exogenous variables, LNREM, LNGDPPC, LNT, LFD, and LNHB appear to positively reduce the infant mortality rate in upper-middle-income countries. According to the results, a 1 unit increase in LNREM, LNGDPPC, and LNT reduces the infant mortality rate by 0.055%, 0.095%, and 0.068%, respectively. Furthermore, a 1 unit increase in LNFD and LNHB decreases infant mortality rates by 0.016% and 0.030%. Similarly, in Column (2), by incorporating political governance along with other nine exogenous variables, the estimated results indicate consistent signs of LNREM, LNGDPPC, LNT, LNFD, and LNHB; however, the magnitude of coefficients are slightly different. Similarly, the VAI-PG index appears to contribute to infant mortality rate reduction in upper-middle-income countries significantly. As 1 unit increase in VAI-PG decreases infant mortality rate by 0.041%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results also indicate consistent coefficient signs for LNREM, LNGDPPC, LNT, LNFD, and LNHB, but the different magnitude of coefficients; however, both economic governance indexes are appeared to be insignificant. Furthermore, Column (4) present the nexus between institutional indicators and infant mortality rate and nine other exogenous. According to outcomes, COC-IG and ROL-IG are favourable in reducing the infant mortality rate. 1 unit increase in COC-IG and ROL-IG decreases infant mortality rate by 0.027% and 0.038%. Furthermore, LNREM, LNGDPPC, LNT, LNFD, and LNHB are negatively associated with infant mortality rates. Column (5) presents the impact of nine exogenous variables and governance index on the infant mortality rate. The estimated result reveals that LNREM, LNGDPPC, LNT, and LNFD are negatively associated with infant mortality rates. 1 unit increase in LNREM, LNGDPPC, and LNT reduces LNMRI by 0.055%, 0.095%, and 0.068% respectively. Similarly, LNFD and LNHB also indicate a negative association between infant mortality rates. By 1 unit increase in LNFD and LNHB reduces 0.016% and 0.025% LNMRI. Among the governance indicators, VAI-PG, COC-IG, and ROL-IG decrease LNMRI by 0.032%, 0.026%, and 0.038%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and

similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 54, with the estimated results system-GMM (robustness analysis) in table 55, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDPPC, LNT, LNFD, LNHB, VAI-PG, and ROL-IG favour infant mortality reduction in upper-middle-income countries. The coefficients are negative and have statistical significance across all the entire models.

TABLE 56. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, STATIC MODEL ESTIMATION, INFANT MORTALITY RATE)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
FDI	-0.095 (0.011)	-0.070 (0.013)	-0.009 (0.012)	-0.016 (0.015)	-0.012 (0.014)
REM	-0.120 (0.074)***	-0.105 (0.010)***	-0.115 (0.007)***	-0.108 (0.008)***	-0.103 (0.011)***
ODA	0.101 (0.019)***	0.112 (0.018)***	0.098 (0.013)***	0.120 (0.014)***	0.110 (0.015)***
YPC	-0.025 (0.022)**	-0.015 (0.025)**	-0.010 (0.026)**	-0.099 (0.018)**	-0.008 (0.020)**
T	-0.368 (0.034)***	-0.327 (0.039)***	-0.285 (0.035)***	-0.327 (0.040)***	-0.314 (0.055)***
FD	-0.154 (0.033)	-0.166 (0.034)	-0.107 (0.030)	-0.119 (0.028)	-0.123 (0.028)
INF	0.022 (0.013)*	0.031 (0.018)*	0.040 (0.013)*	0.033 (0.012)**	0.033 (0.018)**
HB	-0.287 (0.014)***	-0.280 (0.010)***	-0.285 (0.018)***	-0.245 (0.012)***	-0.263 (0.013)***
CH	-0.166 (0.034)***	-0.195 (0.032)***	-0.238 (0.035)***	-0.297 (0.027)***	-0.286 (0.016)***
PSI-PG	-	-0.057 (0.018)	-	-	-0.061 (0.028)
VAI-PG	-	-0.148 (0.013)***	-	-	-0.070 (0.027)***
GEI-EG	-	-	-0.242 (0.029)***	-	-0.095 (0.069)***
RQI-EG	-	-	-0.127 (0.032)	-	-0.040 (0.057)
COC-IG	-	-	-	0.013 (0.043)	0.025 (0.045)
ROL-IG	-	-	-	-0.334 (0.075)***	-0.227 (0.097)**
Constant	6.150 (0.174)***	5.862 (0.214)***	5.482 (0.250)***	5.733 (0.156)***	5.643 (0.213)***
R.Sq	0.715	0.737	0.757	0.761	0.767
Observations	559				
Groups	31				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 56 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rates for lower-middle-income countries, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among nine exogenous variables, besides LNFDI and LNFD, all

other variables reduce LNMRI in lower-middle-income countries. Among the external financial inflows, LNREM indicates a negative association with infant mortality rate; thus, a 1 unit increase in LNREM tends to decrease LNMRI by 0.120%. However, LNODA causes an increase in LNMRI in the sample countries. A 1 unit increase in LNODA tends to increase LNMRI by 0.101%. Similarly, a 1 unit increase in LNGDPPC and LNT causes 0.025 % and 0.368% of infant mortality rate, respectively. Furthermore, in the case of lower-middle-income countries, LNINF exacerbates the infant mortality rate by 0.022%. Regarding health variables, a 1 unit increase in LNHB and LNCH tends to decrease infant mortality rate by 0.287% and 0.166%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNGDPPC, LNT, LNINF, LNHB, and LNCH; however, the magnitude of coefficients is slightly different. Similarly, the VAI-PG index appears to reduce the infant mortality rate in upper-middle-income countries positively. A 1 unit increase in the VAI-PG index reduces the mortality rate by 0.148%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2). However, the government effectiveness index appeared to be significant; thus, 1 unit raise in GEI-EG decreases LNMRI by 0.242%. By incorporating the institutional governance indicator in Column (4), a 1 unit increase in ROL-IG was reduced by 0.334%. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on health outcomes proxied by infant mortality rate. The estimated results reveal that LNREM, LNGDPPC, LNT, LNHB, and LNCH positively reduce LNMRI in the presence of VAI-PG, GEI-EG, and ROL-IG. However, LNODA and LNINF increase the infant mortality rate. According to the results, a 1 unit increase in LNREM inflow in lowe-middle-income countries causes 0.103% reduction of LNMR. However, LNODA tends to increase the infant mortality rate by 0.110%. Similarly, a 1 unit increase in LNGDPPC and LNT also reduces the infant mortality rate by 0.008% and 0.314%, respectively. On the other hand, LNHB and LNCH also reduce the infant mortality rate by 0.283% and 0.166%, respectively. Regarding inflation, the estimated results reveal that a 1 unit increase in LNINF decreases the infant mortality rate by 0.033%. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG, GEI-EG, and ROL-IG decreases infant mortality rate by 0.070%, 0.095%, and 0.227%.

TABLE 57. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION, INFANT MORTALITY RATE)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNMRI	1.043 (0.023)***	1.047 (0.024)***	1.041 (0.022)***	1.046 (0.020)***	1.049 (0.023)***
LNFDI	0.046 (0.012)	0.049 (0.012)	0.027 (0.011)	0.086 (0.012)	0.011 (0.012)
LNREM	-0.046 (0.030)***	-0.051 (0.024)***	-0.045 (0.020)**	-0.048 (0.018)**	-0.049 (0.017)***
LNODA	0.075 (0.021)*	0.065 (0.043)*	0.071 (0.022)*	0.080 (0.021)*	0.059 (0.034)*
LNGDPPC	-0.020 (0.013)**	-0.061 (0.013)**	-0.038 (0.011)**	-0.021 (0.087)**	-0.017 (0.090)**
LNT	-0.013 (0.084)**	-0.014 (0.010)**	-0.089 (0.088)**	-0.010 (0.067)**	-0.011 (0.082)***
LNFD	-0.067 (0.075)	-0.071 (0.077)	-0.044 (0.064)*	-0.065 (0.063)	-0.069 (0.069)
LNINF	0.014 (0.023)*	0.010 (0.023)*	0.011 (0.021)*	0.075 (0.021)*	0.088 (0.022)*
LNHB	-0.010 (0.067)**	-0.012 (0.079)**	-0.010 (0.068)**	-0.011 (0.051)**	-0.012 (0.068)**
LNCH	-0.096 (0.069)***	-0.010 (0.010)***	-0.012 (0.087)***	-0.012 (0.010)***	-0.013 (0.011)***
PSI-PG	-	-0.027 (0.047)	-	-	-0.046 (0.046)
VAI-PG	-	-0.066 (0.061)	-	-	-0.040 (0.046)
GEI-EG	-	-	0.099 (0.010)**	-	0.030 (0.010)**
RQI-EG	-	-	0.013 (0.071)	-	0.020 (0.012)
COC-IG	-	-	-	0.023 (0.088)	0.029 (0.081)
ROL-IG	-	-	-	0.010 (0.012)	0.011 (0.017)
Constant	-0.268 (0.195)**	-0.307 (0.174)*	-0.217 (0.160)*	-0.263 (0.143)*	-0.306 (0.151)**
AR(2)	0.309	0.308	0.304	0.308	0.310
Hansen	0.178	0.146	0.181	0.242	0.122
Group	31	31	31	31	31
Observation	534	534	534	534	534
Instruments	22	24	24	24	28
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 57 reports dynamic system-GMM results regarding the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rate. System-GMM estimation is used as a robust model

compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the lagged dependent variable coefficient lag.LNMRI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNMRI has had a positive and significant impact on the current value of the infant mortality rate in the past few years. Column (1) shows that among nine exogenous variables, LNREM, LNGDPPC, LNT, LNFD, LNHB, and LNCH positively reduce LNMRI in lower-middle-income countries. According to the results, a 1 unit increase in LNREM, LN, and LNGDPPC reduces the infant mortality rate by 0.049%, 0.017%, and 0.011%, respectively. Furthermore, a 1 unit increase in LNHB and LNCH decreases LNMRI by 0.012% and 0.012%. Similarly, on the other hand, LNODA and LNINF increase infant mortality rates by 0.059% and 0.088%. Similarly, in Column (2), by incorporating political governance and other nine exogenous variables, the estimated results indicate consistent signs of LNREM, LNODA, LNGDPPC, LNT, LNINF,LNHB, and LNCH; however, the magnitude of coefficients are slightly different. Furthermore, both political governance indexes are insignificant. By incorporating the economic governance index in estimation, as mentioned in Column (3) and the results also indicate consistent signs variable as per Columns (1) and (2); however, GEI-EG is appeared to be significant. Thus 1 unit increase in GEI-EG decreases LNMRI by 0.099%. Column (4) presents the nexus between institutional indicators, infant mortality rate and nine other exogenous variables. According to outcomes, all variables hold consistent signs and significance; however, institutional governance indicators appear to be insignificant.

Column (5) presents the impact of nine exogenous variables and the governance index on the infant mortality rate. The estimated result reveals that LNREM, LNGDPPC, LNT, LNHB, and LNCH are negatively associated with infant mortality. 1 unit increase in LNREM, LNT, and LNGDPPC reduces the infant mortality rate by 0.049%, 0.011%, and 0.017% respectively. Similarly, LNHB and LNCH also indicate a negative association with LNMRI. By 1 unit increase in LNFD and LNHB reduces 0.012% and 0.013% infant mortality rates, respectively. Furthermore, LNINF and LNODA increased infant mortality rates by 0.059% and 0.088%, respectively. Among the governance indicators, GEI-EG tends to decrease the infant mortality rate by 0.030%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and

similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 56 with the estimated results system-GMM (robustness analysis) in table 57, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDPPC, LNT, LNFD, LNHB, and LNCH with GEI-EG are favourable for infant mortality rate reduction in lower-middle-income countries. The coefficients are negative and have statistical significance across all the entire models. However, LNINF and LNODA indicate a positive association with infant mortality as per static and dynamic model estimation.

TABLE 58. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION, INFANT MORTALITY RATE)

MIDDLE-INCOME COUNTRIES WITH SEA PORTS					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.052 (0.016)***	-0.048 (0.015)***	-0.023 (0.012)*	-0.025 (0.012)*	-0.030 (0.011)***
LNREM	-0.163 (0.009)***	-0.158 (0.012)***	-0.163 (0.006)***	-0.161 (0.003)***	-0.158 (0.010)***
LNODA	0.162 (0.014)***	0.152 (0.013)***	0.130 (0.012)***	0.139 (0.014)***	0.134 (0.012)***
LNGDPPC	-0.114 (0.035)***	-0.102 (0.035)***	-0.105 (0.035)***	-0.093 (0.037)**	-0.101 (0.034)***
LNT	-0.318 (0.042)***	-0.337 (0.065)***	-0.272 (0.050)***	-0.284 (0.052)***	-0.304 (0.067)***
LNFD	-0.104 (0.021)***	-0.114 (0.025)**	-0.049 (0.028)*	-0.064 (0.022)**	-0.063 (0.028)**
LNINF	0.016 (0.016)	0.022 (0.020)	0.024 (0.021)	0.012 (0.020)	0.011 (0.022)
LNHB	-0.232 (0.021)***	-0.246 (0.025)***	-0.238 (0.026)***	-0.241 (0.024)***	-0.242 (0.023)***
LNCH	-0.245 (0.045)***	-0.161 (0.025)***	-0.205 (0.035)***	-0.171 (0.037)***	-0.184 (0.039)***
PSI-PG		0.086 (0.026)	-	-	0.033 (0.029)
VAI-PG		-0.210 (0.026)***	-	-	-0.084 (0.032)***
GEI-EG			-0.131 (0.055)**	-	-0.053 (0.055)
RQI-EG			-0.233 (0.035)***	-	-0.162 (0.058)***
COC-IG			-	-0.111 (0.050)**	-0.030 (0.062)
ROL-IG			-	-0.192 (0.051)**	-0.077 (0.062)
Constant	6.503 (0.207)***	6.313 (0.234)***	5.877 (0.291)***	5.870 (0.238)***	5.969 (0.273)***
R sq.	0.681	0.707	0.719	0.711	0.723
Group	46	46	46	46	46
Observation	816				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 58 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rates for middle-income countries with seaports, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among nine exogenous variables, besides inflation,

all other variables contribute to reducing infant mortality rates in middle-income countries with seaports. Among the external financial inflows, LNFDI and LNREM inflow indicate a negative association with infant mortality rate; thus, a 1 unit increase in LNFDI and LNREM inflow tends to decrease LNMRI by 0.052% and 0.163%. Similarly, a 1 unit increase in LNGDPPC, LNT, and LNFD decreases 0.114%, 0.318%, and 0.104% infant mortality rate, respectively. On the other hand, regarding health variables, a 1 unit increase in LNHB and LNCH decreases the infant mortality rate by 0.232% and 0.245%. However, in external LNODA, a 1 unit increase in LNODA tends to decrease the infant mortality rate by 0.162%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of all variables except LNINF; however, the magnitude of coefficients is slightly different. Similarly, the VAI-PG index appears to positively reduce the infant mortality rate in middle-income countries with seaports. 1 unit increase in the VAI-PG index tends to reduce the mortality rate by 0.210%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, economic governance indicators appear to be significant. A 1 unit increase in GEI-EG and RQI-EG index decreases infant mortality rate by 0.131% and 0.233%. By incorporating institutional governance indicator in Column (4), 1 unit increase in ROL-IG and COC-IG reduced the infant mortality rate by 0.111% and 0.192%. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on health outcomes proxied by infant mortality rate. The estimated results reveal that LNFDI, LNREM, LNGDPPC, LNT, LNFD, LNHB, LNCH, VAI-PG, and RQI-EG positively reduce the infant mortality rate. According to the results, a 1 unit increase in LNFDI and LNREM in middle-income countries with seaports causes a 0.030% and 0.158% reduction in infant mortality rate. However, a 1 unit increase in LNODA will increase the infant mortality rate by 0.134%. Similarly, a 1 unit increase in LNGDPPC, LNT, and LNFD also reduces the infant mortality rate by 0.101%, 0.304%, and 0.063%, respectively. On the other hand, LNHB and LNCH also reduce the infant mortality rate by 0.242% and 0.184%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG and RQI-EG index decreases infant mortality by 0.084% and 0.162%.

TABLE 59. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION, INFANT MORTALITY RATE)

MIDDLE-INCOME COUNTRIES WITH SEA PORTS					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNMRI	1.338 (0.357)***	0.841 (0.074)***	0.648 (0.075)***	0.785 (0.088)***	0.411 (0.074)***
LNFDI	-0.081 (0.012)**	-0.078 (0.058)**	-0.085 (0.045)**	-0.089 (0.056)**	-0.074 (0.045)**
LNREM	-0.035 (0.041)***	-0.047 (0.044)***	-0.069 (0.088)**	-0.074 (0.093)***	-0.077 (0.060)***
LNODA	-0.007 (0.001)	-0.082 (0.060)	-0.062 (0.063)	-0.047 (0.041)	-0.021 (0.066)
LNGDPPC	-0.289 (0.165)***	-0.065 (0.085)*	-0.024 (0.033)**	-0.062 (0.041)**	-0.052 (0.031)***
LNT	-0.057 (0.014)*	-0.048 (0.018)*	-0.037 (0.011)**	-0.049 (0.085)*	-0.037 (0.085)**
LNFD	-0.017 (0.091)	-0.029 (0.027)	-0.019 (0.037)	-0.067 (0.035)	-0.055 (0.043)
LNINF	0.026 (0.014)	0.032 (0.049)	0.052 (0.063)	0.053 (0.066)	0.091 (0.061)
LNHB	-0.147 (0.118)**	-0.033 (0.047)**	-0.046 (0.052)**	-0.052 (0.058)**	-0.062 (0.026)**
LNCH	-0.285 (0.255)***	-0.049 (0.023)***	-0.069 (0.020)**	-0.065 (0.018)***	-0.055 (0.014)**
PSI-PG	-	0.061 (0.079)	-	-	-0.071 (0.028)
VAI-PG	-	-0.033 (0.021)**	-	-	-0.037 (0.025)**
GEI-EG	-	-	0.0136 (0.011)	-	0.047 (0.627)
RQI-EG	-	-	-0.045 (0.065)**	-	-0.063 (0.064)**
COC-IG	-	-	-	0.021 (0.061)	0.085 (0.234)
ROL-IG	-	-	-	-0.038 (0.073)	-0.092 (0.072)
Constant	-4.845 (3.244)	1.588 (0.874)	1.485 (0.031)	1.374 (0.476)	0.974 (0.238)
AR(2)	0.358	0.458	0.425	0.478	0.523
Hansen	0.268	0.274	0.266	0.385	0.582
Group	46	46	46	46	46
Observation	778	327	327	327	327
Instruments	22	24	24	24	28
Note: ***p<0.01 ,**p<0.05,*p<0.10					

Table 59 reports dynamic system-GMM results regarding the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rate. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the lagged

dependent variable coefficient lag.LNMRI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNMRI has had a positive and significant impact on the current value of the infant mortality rate in the past few years. Column (1) shows that among nine exogenous variables, LNFDI LNREM, LNGDPPC, LNT, LFD, LNHB and LNCH appear to positively reduce the infant mortality rate in middle-income countries with seaports. According to the results, a 1 unit increase in LNFDI and LNREM reduces the infant mortality rate by 0.081% and 0.035%, respectively. Similarly, a 1 unit increase in LNGDPPC and LNT reduces the infant mortality rate by 0.289% and 0.057%, respectively. Furthermore, a 1 unit increase in LNHB and LNCH decreases infant mortality rates by 0.147% and 0.285%. Similarly, in Column (2), by incorporating political governance along with other nine exogenous variables, the estimated results indicate consistent signs of LNFDI, LNREM, LNGDPPC, LNT, LNHB and LNCH; however, the magnitude of coefficients are slightly different. Similarly, the VAI-PG index appears to contribute to infant mortality rate reduction in middle-income countries with seaports significantly. As 1 unit increase in VAI-PG decreases infant mortality rate by 0.033%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results also indicate consistent coefficient signs for LNFDI, LNREM, LNGDPPC, LNT, LNHB, and LNCH, but the different magnitude of coefficients; however, 1 unit increase in RQI-EG index reduces 0.045% infant mortality. Furthermore, Column (4) present the nexus between institutional indicators, infant mortality rate and nine other exogenous. According to outcomes, COC-IG and ROL-IG appeared to be insignificance level. Furthermore, LNFDI, LNREM, LNGDPPC, LNT, LNHB, and LNCH are negatively associated with infant mortality rates. Column (5) presents the impact of nine exogenous variables and governance index on the infant mortality rate. The estimated result reveals that LNFDI, LNREM, LNGDPPC, LNT, LNHB and LNCH are negatively associated with infant mortality rates. According to the results, a 1 unit increase in LNFDI and LNREM reduces the infant mortality rate by 0.074% and 0.077%, respectively. Similarly, a 1 unit increase in LNGDPPC and LNT reduces the infant mortality rate by 0.052% and 0.037%, respectively. Furthermore, a 1 unit increase in LNHB and LNCH decreases infant mortality rates by 0.062% and 0.055%. Among the governance indicators, VAI-PG, and RQI-EG decrease LNMRI by 0.037% and 0.063%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are

insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 58, with the estimated results system-GMM (robustness analysis) in table 59, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNREM, LNGDPPC, LNT, LNHB, LNCH, VAI-PG, and ROL-IG favour infant mortality reduction in upper-middle-income countries. The coefficients are negative and have statistical significance across all the entire models.

TABLE 60. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, INFANT MORTALITY RATE)

HIGH INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.016 (0.013)*	-0.028 (0.010)**	-.032 (0.010)***	-0.022 (0.011)*	-0.028 (0.011)**
LNREM	-0.046 (0.007)***	-0.048 (0.007)***	-0.054 (0.006)***	-0.067 (0.010)***	-0.059 (0.008)***
LNODA	-0.011 (0.008)	-0.033 (0.007)	-0.008 (0.006)	-0.005 (0.008)	-0.002 (0.007)
LNGDPPC	-0.492 (0.083)***	-0.549 (0.080)***	-0.404 (0.068)***	-0.415 (0.060)***	-0.462 (0.095)***
LNT	-0.033 (0.027)	-0.069 (0.030)**	0.007 (0.022)	0.008 (0.026)	-0.032 (0.041)
LNFD	-0.350 (0.042)***	-0.253 (0.042)***	-0.191 (0.050)***	-0.187 (0.053)***	-0.179 (0.038)***
LNINF	0.036 (0.031)	0.060 (0.026)	0.048 (0.028)	0.049 (0.029)	0.053 (0.027)
LNHB	-0.315 (0.068)***	-0.272 (0.046)***	-0.265 (0.045)***	-0.269 (0.058)***	-0.255 (0.049)***
LNCH	-0.705 (0.133)***	-0.327 (0.049)***	-0.496 (0.102)***	-0.524 (0.104)***	-0.389 (0.049)***
PSI-PG	-	0.019 (0.020)	-	-	0.038 (0.021)
VAI-PG	-	-0.333 (0.061)***	-	-	-0.169 (0.096)***
GEI-EG	-	-	-0.193 (0.057)	-	-0.044 (0.108)
RQI-EG	-	-	-0.160 (0.057)	-	-0.033 (0.054)
COC-IG	-	-	-	-0.079 (0.047)	-0.069 (0.042)
ROL-IG	-	-	-	-0.451 (0.075)***	-0.257 (0.080)***
Constant	9.785 (0.990)***	9.537 (0.804)***	7.887 (0.761)**	8.025 (0.668)***	8.402 (1.017)***
R sq.	0.862	0.886	0.883	0.887	0.891
Group	21	21	21	21	21
Observation	345				

Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.

Table 60 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rates for lower-middle-income countries, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among nine exogenous variables, besides LNODA, LNT, and LNINF, all other variable contributes to reducing LNMRI in high-income countries. Among the external financial inflows, LNFDI and LNREM inflow indicate a negative

association with infant mortality rate; thus, a 1 unit increase in LNFDI and LNREM inflow tends to decrease infant mortality rate by 0.016% and 0.046%. Similarly, a 1 unit increase in LNGDPPC and LNFD causes 0.492 % and 0.350% of infant mortality rate, respectively. On the other hand, regarding health variables, a 1 unit increase in LNHB and LNCH decreases the infant mortality rate by 0.315% and 0.705%.

Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDPPC, LNFD, LNHB, and LNCH; however, the magnitude of coefficients is slightly different. Similarly, the VAI-PG appears to reduce the infant mortality rate in high-income countries positively. A 1 unit increase in VAI-PG reduces the mortality rate by 0.333%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, economic governance indicators appear to be insignificant. By incorporating the institutional governance indicator in Column (4), 1 unit increase in ROL-IG reduces by 0.451%. Similarly, Column (5) presents the impact of nine exogenous variables and governance index on health outcomes proxied by infant mortality rate. The estimated results reveal that LNFDI, LNREM, LNGDPPC, LNFD, LNHB, and LNCH positively reduce LNMRI in the presence of VAI-PG and ROL-IG. According to the results, a 1 unit increase in LNFDI and LNREM in high-income countries causes a 0.028% and 0.059% reduction in infant mortality rate respectively. Similarly, a 1 unit increase in LNGDPPC and LNFD also reduces the infant mortality rate by 0.492% and 0.350%, respectively. On the other hand, LNHB and LNCH also reduce the infant mortality rate by 0.315% and 0.705%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG and ROL-IG decreases infant mortality rates by 0.333% and 0.257%.

TABLE 61. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, STATIC MODEL ESTIMATION, INFANT MORTALITY RATE)

HIGH INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNMRI	1.458 (0.357)***	0.891 (0.074)***	0.931 (0.075)***	0.943 (0.088)***	0.916 (0.074)***
LNFDI	-0.070 (0.040)**	-0.010 (0.003)**	-0.017 (0.020)**	-0.002 (0.022)**	-0.022 (0.029)**
LNREM	-0.010 (0.012)***	-0.017 (0.061)***	-0.061 (0.078)**	-0.067 (0.093)***	-0.070 (0.060)***
LNODA	-0.007 (0.003)	-0.001 (0.004)	-0.004 (0.001)	-0.097 (0.015)	-0.014 (0.014)*
LNGDPPC	-0.213 (0.166)***	-0.063 (0.036)*	-0.033 (0.024)**	-0.027 (0.028)**	-0.050 (0.034)***
LNT	-0.044 (0.022)	-0.020 (0.014)	-0.026 (0.007)	-0.023 (0.011)	-0.026 (0.090)
LNFD	-0.013 (0.099)	-0.026 (0.029)	-0.010 (0.024)	-0.057 (0.025)	-0.015 (0.023)
LNINF	0.026 (0.024)	0.030 (0.059)	0.051 (0.059)	0.011 (0.056)	0.090 (0.051)
LNHB	-0.134 (0.108)**	-0.032 (0.020)**	-0.025 (0.013)**	-0.024 (0.017)**	-0.026 (0.016)**
LNCH	-0.297 (0.225)***	-0.029 (0.023)***	-0.016 (0.028)**	-0.015 (0.037)***	-0.075 (0.028)**
PSI-PG	-	0.060 (0.069)	-	-	-0.071 (0.028)
VAI-PG	-	-0.053 (0.031)**	-	-	-0.033 (0.025)**
GEI-EG	-	-	0.011 (0.016)	-	0.054 (0.017)
RQI-EG	-	-	-0.034 (0.022)**	-	-0.023 (0.013)**
COC-IG	-	-	-	0.031 (0.021)	0.087 (0.024)
ROL-IG	-	-	-	-0.032 (0.053)	-0.022 (0.032)
Constant	-4.416 (3.272)	1.589 (0.682)	1.426 (0.051)	1.339 (0.616)	0.968 (0.618)
AR(2)	0.204	0.320	0.381	0.182	0.300
Hansen	0.250	0.208	0.288	0.317	0.407
Group	21	21	21	21	21
Observation	327	327	327	327	327
Instruments	12	15	15	15	19
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 61 reports dynamic system-GMM results regarding economic growth and other exogenous variables under the shadow of governance indicators on infant mortality rate for high-income countries. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the

lagged dependent variable coefficient lag.LNMRI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNMRI has had a positive and significant impact on the current value of the infant mortality rate in the past few years. Column (1) shows that among nine exogenous variables, LNFDI, LNREM, LNGDPPC, LNHB, and LNCH appear to reduce the infant mortality rate in high-income countries. According to the results, a 1 unit increase in LNFDI, LNREM, and LNGDPPC reduces the infant mortality rate by 0.070%, 0.010%, and 0.213%, respectively. Furthermore, a 1 unit increase in LNHB and LNCH decreases the infant mortality rate by 0.134% and 0.297%, respectively. Similarly, in Column (2), by incorporating political governance and other nine exogenous variables, the estimated results indicate consistent signs of LNFDI, LNREM, LNGDPPC, LNHB, and LNCH; however, the magnitude of coefficients are slightly different. Furthermore, a 1 unit increase in VAI-PG tends to reduce infant mortality by 0.053%. By incorporating the economic governance index in estimation, as mentioned in Column (3) and the results also indicate consistent signs variable as per Columns (1) and (2); however, RQI-EG is appeared to be significant. Thus 1 unit increase in GEI-EG decreases infant mortality by 0.034%. Furthermore, the nexus between institutional indicators, infant mortality rate, and nine other exogenous factors are mentioned in Column (4). According to outcomes, all variables hold consistent signs and significance; however, institutional governance indicators appear to be insignificant.

Column (5) presents the impact of nine exogenous variables and governance index on the infant mortality rate. The estimated result reveals that LNFDI, LNREM, LNGDPPC, LNHB, and LNCH are negatively associated with infant mortality. 1 unit increase in LNFDI, LNREM, and LNGDPPC reduces the infant mortality rate by 0.022%, 0.070%, and 0.050% respectively. Similarly, LNHB and LNCH also indicate a negative association between infant mortality rates. By 1 unit increase in LNHB and LNCH reduces 0.026% and 0.075% infant mortality rates, respectively. Among the governance indicators, VAI-PG and RQI-EG indexes tend to decrease the infant mortality rate by 0.033% and 0.023%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main

analysis), which are mentioned in table 60, with the estimated results system-GMM (robustness analysis) in table 61, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNREM, LNGDPPC, LNHB, LNCH, and VAI-PG and RQI-EG index reduces infant mortality rates in high-income countries. The coefficients are negative and have statistical significance across all the entire models.

5.2.5 DISCUSSION

This research work questions the growth-finance-infant mortality rate trilemma by presenting empirical evidences from middle-income-countries and high-income-countries which fill the lacuna in the literature. The estimated results reveal that the negative and significant relations depict that incremental economic growth decreases the infant mortality rate in middle-income, high-income, upper-middle-income, lower-middle-income countries, and middle-income countries with the sea. The high impact of growth-infant mortality rate has been observed in high-income countries due to the high per capita income and the availability of appropriate technical, health, and social services. Compared to the effect of economic growth on infant mortality rate in high-income and middle-income countries, the remittance effect in high-income appeared to be 4.76% more than in middle-income countries. On the other hand, compared to the coefficient of upper-middle-income countries and lower-middle-income countries, the effect of economic growth is 24% more than in lower-middle-income countries in the upper-middle-income countries. The results indicate that the high-income countries group achieves human well-being faster than the low-income-countries group[686]. The outcome indicates that the negative association between economic growth and the infant mortality rate is also indicated by previous studies[687] [688]. The outcome supports the argument that GDP per capita significantly influences the infant mortality rate, thus reducing the infant mortality rate and increasing human well-being[689].

[686]Y.Bilan,[et al.], "Impact of income distribution on social and economic well-being of the state." *Sustainability* 12.1,2020.p.429.
[687]F.Haile, and M.Niño-Zarazúa. "Does social spending improve welfare in low-income and middle-income countries?." *Journal of International Development* 30.3,2018.p.367-398.
[688]E. Nwude,Chuke[et al.], "Official development assistance, income per capita and health outcomes in developing countries: Is Africa different?." *Cogent Economics & Finance* 8.1,2020.p.1774970.
[689]E.Giovannini, J.Hall, and M.Mira d'Ercole. "Measuring well-being and societal progress." *Conference Beyond GDP-Measuring progress, true wealth, and the well-being of nations, European Parliament, Brussels*. 2007.

Results indicate that international financeimpacts infant mortality rates differently in various income groups.The negative and significant relations depict that remittance inflow decreases the infant mortality rate.These findings are consistent for the entire sample for middle-income countries, high-income countries, and middle-income countries with the sea.Similar results were also observed in lower-middle-income countries and upper-middle-income countries.Compared to the effect of remittance inflow on infant mortality rate in high-income and middle-income countries, the remittance effect in high-income appeared to be 3.27% more than in middle-income countries.

On the other hand, compared to the coefficient of upper-middle-income countries and lower-middle-income countries, in the lower-income countries, the effect of remittance is 1.87% more than in upper-middle-income countries.Likewise, the highest impact of remittance inflow on infant mortality is discovered in middle-income countries with the sea.The findings reveal that remittance inflow increases the purchasing power of individuals, thus improving budget constraints and it provides an opportunity for them to access healthcare services.This relationship aligns with the hypothesized relationship as per the outcome hypothesis.Similar results were obtained by other authors indicating that remittance inflow reduces infant mortality rates in different regions and various income groups of countries, reinforcing the findings of this study[690] [691] [692].

Similarly, FDI inflow also reduces the infant mortality rate in middle-income countries with sea and high-income countries.It is also because FDI inflow appeared to be a significant source of international financewhich further positively increases human-well being and health outcomes.The effectiveness of FDI inflow is usually higher in countries with seaports than in landlocked[693].Therefore, middle-income countries with sea and high-income countries possess more significant potential to absorb FDI due to their infrastructure and governmental policies, improving health outcomes. Other studies also found a negative association between FDI inflow and infant mortality rate

[690]K.Amega,. "Remittances, education and health in Sub-Saharan Africa." *Cogent Economics & Finance* 6.1,2018.p.1516488.
[691]M.Shafiq Nouman, and S.Gillani. "Health Outcomes of Remittances in Developing Economies: An Empirical Analysis." *Pakistan Journal of Economic Studies (PJES)* 1.1,2018,1-20.
[692]S.Azizi,. "The impacts of workers' remittances on human capital and labor supply in developing countries." *Economic Modelling* 75,2018.p.377-396.
[693]UN- ESCAP, *Asia's landlocked developing countries: structural transformation, poverty reduction and financing for development*. United Nations, 2019.

in different regions and various income groups that reinforce the findings of this study[694] [695]. ODA and infant mortality rate indicate a positive association; thus, ODA does not contribute to the reduction of infant mortality date in middle-income countries and its sub-group in lower-middle-income countries. ODA in middle-income countries is not entirely injected into the health sector. Therefore ODA inflow does not contribute significantly to reducing the infant mortality rate. Another author hypothesized that the effectiveness of AID in the health sector depends on how and where to allocate aid precisely[696].It has been concluded that official development assistance does not contribute positively to improving health outcomes in developing countries[697].

Trade is also helpful in reducing the infant mortality rate in the middle-income, sub-income groups and upper-middle-income countries with a seaport. The revealed results indicate a negative association between trade and infant mortality rate.A good government provides effective policies conducive to both trade and better health outcomes. Furthermore, domestic policies facilitate trade which directly impacts better health outcomes.Another author also found similar results, which indicate that trade encourages health outcomes in developing countries, reinforcing this study's findings[698].

Financial development appeared to reduce the infant mortality rate in upper-middle-income countries. The results reveal a negative association between domestic credit to the private sector and the infant mortality rate. Financial development improves human capital via increasing access to credit, saving facilities, financial inclusion, and low transaction costs, which impact better health outcomes. In upper-middle-income countries, financial development plays a vital role in social development and human well-being. Another author also found a negative association between domestic credit to the private sector and infant mortality rate, affirming this study's outcomes[699].

---

[694]M.Magombeyi, and N.M. Odhiambo. "Dynamic impact of FDI inflows on poverty reduction: Empirical evidence from South Africa." *Sustainable Cities and Society* 39,2018.p.519-526.
[695]S.Idrees, and N.Abu Bakar. "Accounting for the contribution of foreign direct investment in population health: a case study of Pakistan." *International Journal of Research in Social Sciences* 9.5,2019.p.14-35.
[696]A.Kotsadam,[et al.], "Development aid and infant mortality. Micro-level evidence from Nigeria." *World Development* 105,2018.p.59-69.
[697]E. Nwude,Chuke[et al.] "Official development assistance, income per capita and health outcomes in developing countries: Is Africa different?." *Cogent Economics & Finance* 8.1,2020.p.1774970.
[698]A.L.Owen, and S.Wu. "Is trade good for your health?." *Review of International Economics* 15.4,2007.660-682.
[699]S. Abosedra,M.Shahbaz, and K.Nawaz. "Modeling causality between financial deepening and poverty reduction in Egypt." *Social Indicators Research* 126,2016,p.955-969.

In developing countries, inflation usually negatively impacts social outcomes. The estimated results reveal that inflation positively increases the infant mortality rate in lower-middle-income countries. The consumer price index decreases the purchasing power ability of individuals, which also reduces their spending ability on health; therefore, it increases the infant mortality rate. Due to less purchasing power, individuals do not afford better health facilities, increasing the infant mortality rate. Other research also found an increase in inflation also infant mortality rate, which affirms the outcomes of this study[700]. Government spending on the health sector positively increases health outcomes. The estimated results reveal that the availability of hospital beds and more spending from GDP on the health sector reduces the infant mortality rate in middle-income countries and their sub-income group, middle-income countries with seaports, and high-income countries. More the government health expenditure on health and care; higher will be health outcomes. Numerous studies also found that health expenditure improves health outcomes[701] [702]. Likewise, the availability of hospital beds reduces the infant mortality rate, which affirms the findings of this research[703].

Quality of governance improves health outcomes[704]. Similarly, in another research work it has been highlighted that excellent governance allows governments to spend aid and other expenditure such as health and education, which further improves the health and educational outcomes[705].Among the political governance indicator, voice and accountability are helpful in the reduction of infant mortality rate in middle-income countries and their sub-income group, middle-income countries with seaports, and high-income countries. In democratic countries, participation in the selection of government, freedom of expression, and free media improve social outcomes and human-well being. Therefore usually, people select that government that improves their well-being. Compared to the effect of voice and accountability on infant mortality rate in high-

[700]H-H,Lee,[et al.], "Effects of food price inflation on infant and child mortality in developing countries." *The European journal of health economics* 17,2016.p.535-551.
[701]A. Dhrifi, "Health-care expenditures, economic growth and infant mortality: evidence from developed and developing countries." *CEPAL Rev. No. 125, August 2018* 69,2019.
[702]F.Haile, and M.Niño-Zarazúa. "Does social spending improve welfare in low-income and middle-income countries?." *Journal of International Development* 30.3,2018.p.367-398.
[703]L. Asandului, M.Roman, and P.Fatulescu. "The efficiency of healthcare systems in Europe: A data envelopment analysis approach." *Procedia Economics and Finance* 10,2014.p.261-268.
[704] M.Rosenberg,. "An outcomes-based approach across the medical education continuum." *Transactions of the American Clinical and Climatological Association* 1292018.p. 325.
[705]G.Kaya, A. Kaya, and J-H.Saurat. "Clinical and histopathological features and potential pathological mechanisms of skin lesions in COVID-19: review of the literature." *Dermatopathology* 7.1,2020.p.3-16.

income and middle-income countries, the voice and accountability effect in high-income appeared to be 3.75% more than in middle-income countries. On the other hand, government effectiveness also reduces the infant mortality rate in middle-income countries and lower-middle-income countries. Civil services play a significant role in improving health outcomes without absorbing any political pressures for formulating and implementing adequate health policies that reduce the infant mortality rate. A similar negative relationship between government effectiveness and the infant mortality rate was also highlighted by other researchers, which affirms the finding of this study[706]. The regulatory quality index decreases the infant mortality rate in middle-income countries with sea regarding other economic governance indexes. It might be because the government is formulating and implementing sound policies and regulations that permit and promote private health sector development, which further reduces the infant mortality rate. Furthermore, the estimated results also reveal that in middle-income countries, FID inflows also reduce infant mortality rate, which might be due to the government promoting private health sector development and indicatively FDI injected in the private health sector. Control of the corruption index is also helpful in reducing the infant mortality rate in middle-income countries. Due to anti-corruption government policies, the health sector's budget is significantly utilized in the health and care sector, which further improves the health come. Similarly, on the other hand, the rule of law also indicates a negative association with the infant mortality rate in upper-middle-income countries. The estimated results reveal that in upper-middle-income countries, the quality of contract enforcement, property rights, and the judiciary plays a significant role in maintaining the effectiveness of the health sector, which further improves health outcomes.

5.2.6 SUMMARY OF RESEARCH FINDINGS (INFANT MORTALITY RATE)

This empirical part explores the research objective by investigating the impact of economic growth, macro-economic variable and governance indicators on infant mortality rate for middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. The findings reveal that economic growth is crucial to reducing the infant mortality rate in all the sample panels. Based on

[706]H-H,Lee[et al.] "Effects of food price inflation on infant and child mortality in developing countries." *The European journal of health economics* 17,2016.p.535-551.

the magnitude, economic growth indicates a high magnitude for high-income countries (0.462), followed by upper-middle-income countries (0.192).

In middle-income countries, full sample, along with economic growth, remittance inflow, and trade, reduces infant mortality rate, where there is voice & accountability, government effectiveness, and strong anti-corruption policies exist. In upper-middle-income countries, economic growth positively reduces the infant mortality rate with remittance inflow, trade, and developed financial sector; however, it requires the condition of voice, accountability, and the rule of law. Likewise, in lower-middle-income countries, economic growth reduces the infant mortality rate with only remittance inflow and trade. However, in middle-income countries with seaports, infant mortality rates are reduced by economic growth, foreign direct investment, remittance inflow, and trade. Similarly, these factors also require a strong voice & accountability and regulatory quality. Lastly, in high-income countries, besides economic growth, foreign direct investment inflow, remittance inflow, and voice and accountability are key determent for reducing the infant mortality rate. Empirical results reveal that official development does not contribute to reducing the infant mortality rate.

5.3.1 EDUCATION

Over the past decade, significant progress has been made to increase access to education and school enrolment rates. Nevertheless, about 1.6 billion children and youth were out of school in April 2020 (United Nations: 2020)[707]. Moreover, low primary and secondary education enrollment is a significant concern in developing countries especially in the least developing countries and the Sub-Saharan African region [708] [709] [710]. Education accelerates progress to escape from the poverty trap and upgrade the standard of living[711]. Similarly, low-income people can better seek economic opportunities once they have a good education and improved health. Those with a higher level of education and work experience earn more money than those with a lower level of education and work experience. In most developing countries, investment in

[707] UNICEF. (2020). Policy brief: the impact of COVID-19 on children. New York: United Nations Children's Fund.
[708] D. Adamchak., and P.Gabo Ntseane. "Gender, education, and fertility: A cross-national analysis of sub-Saharan African nations." *Sociological spectrum* 12.2,1992.p.167-182.
[709] K. Hyde, *Sub-Saharan Africa*. Baltimore, Maryland: Johns Hopkins University Press, 1993.
[710] J.Roby,L.Erickson, and C.Nagaishi. "Education for children in sub-Saharan Africa: Predictors impacting school attendance." *Children and Youth Services Review* 64,2016.p.110-116.
[711] Md.Hossain, Sarwar,[et al.], "Recent trends of human wellbeing in the Bangladesh delta." *Environmental Development* 17,2016.p.21-32.

primary and secondary education yields higher net marginal social returns than university education[712].

My research questions the growth–finance-secondary schooling trilemma by presenting the empirical discoveries which fill a hiatus in the literature. This research also highlights the role of governance and economic prosperity in discovering its impact on the educational outcomes and thus on secondary school enrolment. Similarly, this research work adds a new perspective and highlights whether international financeimproves secondary school enrolment or worsens it. The conclusion reveals that economic growth improves education outcomes by increasing secondary school enrolment (gross) in middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. However, FDI indicates a positive impact on secondary school enrolment in upper-middle-income and high-income countries. Similarly, remittance inflow improves secondary schooling in all sample panels except upper-middle income countries. Furthermore, official development assistance appears to be negatively associated with secondary school enrolment in middle-income countries full sample, upper-middle-income countries, and middle-income countries with seaports.

Educational outcomes can be increased by proper infrastructure and spending more on the education budget. Furthermore, secondary school enrolment is usually determined by tertiary education availability; thus, people enroll more in secondary education once they have further education[713]. Similarly, another author mentioned that educational outcomes in families depend on the overall income basket; thus, the availability of finance for household consumption expenditure[714]. Numerous studies highlight that educational indicators are critical determinants of economic growth[715] [716] [717] [718] [719]. Likewise, it has been highlight that education is widely accepted as a leading

[712]A.Weiss, "Human capital vs. signalling explanations of wages." *Journal of Economic perspectives* 9.4,1995.p.133-154.
[713] M.Hazans, and I.Trapeznikova. "Access to secondary education in Albania: incentives, obstacles, and policy spillovers." *Obstacles, and Policy Spillovers (September 28, 2006*.
[714]O.GÜRLER, KİREN, and S.DEMİROGLARI. "Determinants of household education expenditures by education level: The case of Turkey." *International Journal of Contemporary Economics and Administrative Sciences* 10.1,2020.p.235-258.
[715]K.Gyimah-Brempong, O.Paddison, and W.Mitiku. "Higher education and economic growth in Africa." *The Journal of Development Studies* 42.3,2006.p.509-529.
[716]R. Barro, and S.M.Xavier. "Economic growth second edition." (2004).
[717]P.Pegkas, and C.Tsamadias. "Does higher education affect economic growth? The case of Greece." *International Economic Journal* 28.3,2014,p.425-444.

instrument for promoting economic growth; thus, it brings technological advancement to the country. In the long run, it helps alleviate poverty[720].

The impact of education on economic growth also depends on the country's economic structure[721]. Furthermore, long-term economic growth is derived from educational outcomes[722]. Another author mentioned that international trade allows workers to learn more technical skills to become competitive in employment and earn more wages than unskilled labor[723]. Another author highlighted in their research work that increased education leads to a faster embrace of technology[724]. Furthermore, Education levels have been shown to boost business creativity and increase a company's profitability, thus directly impacting economic growth[725]. However, education alone will not revolutionize an economy and enhance economic growth. Therefore, other key drivers and factors of economic performance, such as quantity and quality of domestic and foreign investment, usage of technology, and the general policy environment, are essential for development[726].

The major problem of the middle-income countries achieving a high-income level is the middle-income trap. Due to stagnant growth, the developing countries face the middle-income trap and aim for economic development to improve their human capital to escape from the trap. Human capital means the aptitudes such as the knowledge and the skill to be obtained by the workforce. It further increases individual's social development and economic prosperity[727]. Therefore, against this background, it becomes essential to investigate the economic growth, external finance, and secondary schooling trilemma. The study is a comparative analysis of economic growth and educational outcome from the growth-educational-outcome paradigm. It

[718]S.K.Kotásková, [et al.], "The Impact of Education on Economic Growth: The Case of India." *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis* 66.1,2018.
[719] R.Barro, "Education as a determinant of economic growth." 2002.p.9-24.
[720]D. Bloom, [et al.], "Higher education and economic growth in Africa." *International Journal of African Higher Education* 1.1,2014.p.22-57.
[721]A.Cuesta, P.Glewwe, and B.Krause. "School infrastructure and educational outcomes: a literature review, with special reference to Latin America." *Economia* 17.1,2016.p.95-130.
[722]E. Hanushek, and L.Woessmann. "The economic impacts of learning losses." 2020.
[723]H.Bhorat. "The impact of trade and structural changes on sectoral employment in South Africa." *Development Southern Africa* 17.3,2000.p.437-466.
[724]A. Foster, and M.R. Rosenzweig. "Learning by doing and learning from others: Human capital and technical change in agriculture." *Journal of political Economy* 103.6,1995.p.1176-1209.
[725] S.U.Deraniyagala, "Prehistory and the indigenous peoples of Sri Lanka." 1994.
[726]G.Ranis, *The evolution of development thinking: theory and policy*. Washington^ eD. CDC: World Bank, 2004.
[727]R.Atalay,. "The education and the human capital to get rid of the middle-income trap and to provide the economic development." *Procedia-Social and Behavioral Sciences* 174 (2015): 969-976.

incorporates other macroeconomic factors such as external finance, trade, and financial development for middle-income and high-income countries. The study comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of socioeconomic development and educational progress, highlighting a significant factor in the graduation process and other macroeconomic indicators. Similarly, education progress enhances human capital, allowing countries to move from one income group to another by achieving socioeconomic targets [728] [729]. Moreover, another author argued in his work that whether it is a millennium development goal or sustainable development goals, the fundamental attributes of sustainable prosperity can be achieved by reducing inequality in terms of gender and income[730]. Furthermore, it increases the youth's learning possibilities by providing accessible and quality education. Therefore, this empirical analysis appeared to be a timely study as most middle-income countries strives toward achieving sustainable development goals, especially SDG 4. The scope of SDG 4 is comprehensive, as it not only covers the initial schooling and covers the vocational training programs that enable individuals to earn a better life and prosperity without harming the environment. Furthermore, SDG 4 goes beyond access by emphasizing diversity in educational opportunities. Also, it is transitioning from a single focus on access to quality educational services towards lifelong learning, thus from early childhood to adulthood. Similarly, most SDG4 targets include references to learning outside of formal education (for example, early development and care, vocational training, and adult literacy). In the contemporary world and period, non-school contexts are essential for lifelong learning, covering home learning environments, remedial education, and vocational training settings[731].

A panel for 54 middle-income countries and 21 high-income-countries is used to probe the discourse from 2000 to 2019. Furthermore, the middle-income countries are

[728]D.Ruck, A.Bentley, and D.J. Lawson. "Cultural prerequisites of socioeconomic development." *Royal Society open science* 7.2,2020.p.190725.
[729]V.McBride,[et al.], "The potential of astronomy for socioeconomic development in Africa." *Nature Astronomy* 2.7,2018.p. 511-514.
[730]J.Sachs,."From millennium development goals to sustainable development goals." *The lancet* 379.9832,2012.p.2206-2211.
[731]A. Wuermli, A.Von Suchodoletz, and A.Abubakar. "Advancing the sustainable development goal for education through developmentally informed approaches to measurement." *Developmental science and sustainable development goals for children and youth* .2018.p.297-312.

further divided based on income and geography, indicatively upper-middle-income countries as income group and middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of economic growth, external finance, trade, and financial development on secondary education. Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on educational outcomes as secondary school enrolment in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the upper-middle-income countries for their graduation process, from the middle-income group to the high-income group. To achieve the objective of this thesis, which is to investigate whether economic growth enhances social sustainability by increasing secondary school enrolment as SDG goal 04 or dims its impact? Therefore, this section provides an empirical investigation of whether economic growth increases secondary school enrolment in the presence of external finance, trade, financial development, and governance. A multidimensional approach is adopted, which estimates the nexus between secondary school enrolment, economic growth, and other macroeconomic variables.

Initially, an empirical analysis was performed on a total sample of middle-income countries with respective incomes and a geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 5.3.2 presents a literature review, 5.3.3 highlights the research framework based on hypothesis, 5.3.4 indicates data along with the model specification and empirical estimation followed by results interpretation, 5.4.5 mentions discussion of results, and section 5.4.6 consist summary of the research findings.

5.3.2 LITERATURE REVIEW

Education levels have been shown to boost business creativity and increase a company's profitability, thus directly impacting economic growth[732].However, education alone will not revolutionize an economy and enhance economic growth.

[732] D.Ahlstrom, "Innovation and growth: How business contributes to society." *Academy of management perspectives* 24.3,2010.p.11-24.

Therefore, other key drivers and factors of economic performance, such as quantity and quality of domestic and foreign investment, usage of technology, and the general policy environment, are essential for development[733]. Likewise, numerous factors along with foreign direct investment impact economic growth, such as human capital. Human capital is generally expressed as educational outcomes for any country; therefore, I have discussed the factors which directly impact educational outcomes proxied by secondary school enrolment ratio.

ECONOMIC GROWTH AND EDUCATION

Economic growth positively impacts human well-being; once individual income increases, it usually brings prosperity to an individual's life[734]. Another author highlighted in their research that sustainable economic growth reduces income inequalities and promotes human well-being[735]. Economic growth is positively associated with educational and health outcomes[736]. In the long-run economic growth process, educational outcomes, and health improve human capital availability[737]. Another author argued that spending on the educational sector improves educational outcomes. Furthermore, he argues that spending more on secondary education also promotes the tertiary education sector[738]. It has been mentioned that economic growth promotes educational outcomes. However, besides its economic growth, the quantity and quality of educational outcomes depend on school quality and available infrastructure[739]. Furthermore, they also argue that only school outcomes do not promote economic growth; however, skill and technical knowledge marginal affect more in the economic growth process. Likewise, another author used panel data from the SAARC region from 1960 to 2013 and found that tertiary education accelerated economic growth. The higher the educational attainment, the higher will be economic

[733]M.Ghouchani, [et al], "Developing a perspective on the use of renewable energy in Iran." *Technological Forecasting and Social Change* 172,2021.p.121049.
[734]H. Moore, and N.Mintchev. "What is prosperity." *London, UK. doi* 10.000,2021.
[735]F.Sarracino, "When does economic growth improve well-being?." *The economics of happiness: How the Easterlin Paradox transformed our understanding of well-being and progress,*2019.p.355-370.
[736] R. Barro, and J-Wha Lee. "Sources of economic growth." *Carnegie-Rochester conference series on public policy*. Vol. 40. North-Holland, 1994.
[737]R. Barro, and J-Wha Lee. "Sources of economic growth." *Carnegie-Rochester conference series on public policy*. Vol. 40. North-Holland, 1994.
[738]K. Keller, RI. "Investment in primary, secondary, and higher education and the effects on economic growth." *Contemporary Economic Policy* 24.1,2006.p.18-34.
[739]E. Hanushek, and L.Wößmann. "The role of education quality for economic growth." *World Bank policy research working paper* 4122 2007.

growth[740]. Numerours authors found a positive association between economic growth and school enrolments. Higher individual income positively increases education and literacy[741] [742].

INTERNATIONAL FINANCE AND EDUCATION

Economic growth is significantly increased by FDI inflow and human capital. Furthermore, an inflow of FDI positively impacts human capital[743]. In empirical research work the author used panel data from 38 developing countries from 1975 to 2000. He suggests that FDI inflow positively increases human capital. In his research, human capital is proxied by the level of schooling[744]. Similarly, it has been argued that in developing countries, FDI increases human development by increasing their income basket and positively impacts their health and educational outcomes[745]. Likewise, in another empirical research work, the author analyzed the impact of FDI inflow on higher education in developing countries from 1998-to 2008. Their findings reveal a short-term negative effect of the FDI on tertiary education measured by school enrolment. Furthermore, the negative effect of FDI is confirmed for both secondary and tertiary education when measured as the adult population having acquired the level[746]. Furthemore another author conducted an empirical analysis of 80 developing countries from 1980 to 2014. Their findings reveal that FDI inflow enhances primary school enrollment and completion rates for boys and girls[747]. However, it does not impact male secondary and tertiary enrollment but significantly negatively affects female secondary and tertiary enrollment. They also reveal that FDI from OECD countries promotes secondary and tertiary enrolment rates while non-OECD FDI does not, resulting from the more significant spillovers of OECD FDI due to higher R&D content. Another author mentioned that FDI inflow and outflow in China positively impact school

[740]N. Hanif, and N.Arshed. "Relationship between school education and economic growth: SAARC countries." *International Journal of Economics and Financial Issues* 6.1,2016.p.294-300.
[741]E.Jimenez, and Y.Sawada. "Public for private: The relationship between public and private school enrollment in the Philippines." *Economics of Education Review* 20.4,2001.p.389-399.
[742]S.Gumus, and S.Kayhan. "The Relationship between Economic Growth and School Enrollment Rates: Time Series Evidence from Turkey." *Educational Policy Analysis and Strategic Research* 7.1,2012.p.24-38.
[743]F. Noorbakhsh, A.Paloni, and A.Youssef. "Human capital and FDI inflows to developing countries: New empirical evidence." *World development* 29.9,2001,p.1593-1610.
[744] P.Nunnenkamp,. "To what extent can foreign direct investment help achieve international development goals?." *World Economy* 27.5,2004.p.657-677.
[745]P. Subbarao,. "FDI and human capital development." 2008.
[746]M.Mughal, and N.Vechiu. "The role of Foreign Direct Investment in higher education in the developing countries (Does FDI promote education?)." 2011.
[747]M.Wang, and H.Zhuang. "FDI and educational outcomes in developing countries." *Empirical Economics*,2021.p.1-35.

education and trade liberalization policies due to globalization[748]. In terms of Syria, Jordan, and Lebanon, the author empirically analyzes the impact of remittance inflow on educational outcomes. They concluded that a positive relationship exists between remittance inflow in sample countries and children's attendance at school[749]. Similarly, another author found a positive association between remittances inflow and schooling for El-Salvador[750]. For El-Salvador, another study revealed similar research; thus, remittance inflow directly benefits students[751]. Another author highlighted in their research work that remittance inflow enhances educational outcomes in Nepal; however, young girls benefit relatively less from remittances in terms of education[752]. Another study using the Egypt Labor Market Survey of 2006 reveals that remittance inflow sent by migrants positively increases child schooling and university attendance[753].

On the other hand, in another study empirically analyzed the impact of remittance inflow on household welfare for Bangladesh and concluded that international remittance inflow has a negative and statistically significant effect on education[754]. Similarly, another mentioned in their research that remittance inflow improves socio-economic development by enhancing education outcomes in the long run[755]. It has been argued theoretically and empirically by other researcher that that remittance inflow sent by migrants positively increases education[756]. Another researcher empirically analyzed a panel of 143 countries for the period 1870 to 2013 and concluded that schooling outcomes positively impact economic growth in the presence of foreign direct

[748]L.Li, [et al.], "Does outward FDI generate higher productivity for emerging economy MNEs?–Micro-level evidence from Chinese manufacturing firms." *International Business Review* 26.5,2017.p.839-854.
[749]J.Chaaban and W.Mansour. "The Social-Economic Situation of Middle East Youth on the Eve of the Arab Spring." 2012.
[750]A.C. Edwards, , and M.Ureta. "International migration, remittances, and schooling: evidence from El Salvador." *Journal of development economics* 72.2,2003.p.429-461.
[751]K. Ambler, D.Aycinena, and D.Yang. "Channeling remittances to education: A field experiment among migrants from El Salvador." *American Economic Journal: Applied Economics* 7.2,2015.p.207-232.
[752]C. Bansak, and B.Chezum. "How do remittances affect human capital formation of school-age boys and girls?." *American Economic Review* 99.2,2009.p.145-148.
[753]A.Elbadawy, and R.Roushdy. "Impact of international migration and remittances on child schooling and child work: The case of Egypt." *Population Council Working Papers* 454 2009.
[754]B. Kumar, "Remittances, poverty and welfare: Evidence from Cumilla, Bangladesh." *American Journal of Data Mining and Knowledge Discovery* 4.1,2019.p.46-52.
[755]I. Mara, *Surveying Romanian migrants in Italy before and after the EU Accession: migration plans, labour market features and social inclusion*. No. 378. wiw Research Report, 2012.
[756]F. Docquier, H.Rapoport, and Sara Salomone. "Remittances, migrants' education and immigration policy:Theory and evidence from bilateral data." *Regional Science and Urban Economics* 42.5,2012.p.817-828.

investment[757]. Based on panel data from 46 Sub-Saharan African (SSA) countries from 1975 to 2014 and used panel GMM estimation another author investigated the impact of remittance inflow on health and education. The results indicate that remittance inflow positively increases educational outcomes in Sub-Saharan African countries[758]. Likewise, another author used panel data from 69 low and middle-income countries and applied 2sls estimation. Their findings revealed that remittances have a more significant impact on educational outcomes than public education investment because of their effect on private educational spending[759].

Furthermore, their results also mention that remittances positively correlate with secondary and primary school enrollment. Similar results were also confirmed by other author, in which they used panel data from 18 Sub-Saharan countries and applied 2sls estimation. Their results also reveal that remittance inflow impacts primary and secondary school enrollment positively[760]. Similar results were also confirmed by other author[761]. Likewise, another author investigated the impact of remittances on household expenditure in 115 developing countries. The findings indicate that households receiving international remittances spend less on food, and most remittances are used for education and housing[762].

There is a mixed relationship between aid inflow and educational outcomes. Another author empirically analyzed the study based on panel data for 100 countries from 1970 to 2004 to investigate the impact of aid on education. Their finding reveals that per capita aid for education increases primary education, whereas local governmental spending on education does not[763]. Aid is only effective for education in specific conditions such as the existence of appropriate infrastructure and the influential

[757]R.Sharma,. "Health and economic growth: Evidence from dynamic panel data of 143 years." *PloS one* 13.10,2018.p.e0204940.
[758]K.Amega, "Remittances, education and health in Sub-Saharan Africa." *Cogent Economics & Finance* 6.1,2018.p.1516488.
[759]M.C. Zhunio, S.Vishwasrao, and E.P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." *Applied Economics* 44.35,2012.p.4605-4616.
[760] U.Amakom, and C.Gerald Iheoma. "Impact of migrant remittances on health and education outcomes in sub-Saharan Africa." *IOSR Journal of Humanities and Social Science* 19.8,2014.p.33-44.
[761]Y. Lu, and D.J. Treiman. "The effect of labor migration and remittances on children's education among blacks in South Africa." 2007.
[762]R.Adams Jr,. "International remittances and the household: Analysis and review of global evidence." *Journal of African Economies* 15.suppl_2,2006.p.396-425.
[763]A.Dreher, Axel, P.Nunnenkamp, and Rainer Thiele. "Does aid for education educate children? Evidence from panel data." *The World Bank Economic Review* 22.2,2008.p.291-314.

role of local institutions[764]. Numerous researchers indicate a positive relationship between aid inflow and educational outcomes[765] [766] [767].

INTERNATIONAL TRADE AND EDUCATION

Regarding panel, an author used panel data of 184 UNDP member countries from 1990 to 2017 to evaluate the impact of trade on the quality of life. They found that international trade improves the overall human development index once the quality of education is available[768]. International trade tends to increase capital accumulation by improving and promoting school enrolment rates[769]. Another author argued that trade liberalization induces more immigration of labor; thus, highly skilled labor force from developing countries usually migrated to developed countries[770]. Likewise another author used data from nine Asian countries from 1972 to 2012 and applied a dynamic panel regression model. They found that trade positively impacts human capital, further enhancing economic growth[771]. Furthermore it has been argued that international cause technology transfer and improves human capital by increasing school enrolment[772]. Similarly, international trade improves human capital by increasing the school enrolment ratio and adding new skills to the labor force[773].

FINANCIAL DEVELOPMENT AND EDUCATION

Sustainable development goals and their achievement does not revolve around one particular community or country; thus, it is an outcome of the consensus of all the 193 UN member nations, which emphasizes global solidarity for collective social development under the shadow of sustainable economic growth without harming the

[764]S. Klees,. "Aid, development, and education." *Current issues in comparative education* 13.1,2010.
[765]R.d'Aiglepierre, and L.Wagner. "Aid and universal primary education." *Economics of education review* 37,2013.p.95-112.
[766]C.Colclough, and A.De. "The impact of aid on education policy in India." *International Journal of Educational Development* 30.5,2010.p. 497-507.
[767]E.Asiedu, "Does foreign aid in education promote economic growth? Evidence from Sub-Saharan Africa." *Journal of African Development* 16.1,2014.p.37-59.
[768]T.Tahir, and M.Tariq Majeed. "An Empirical Analysis of the Relationship between International Trade and Quality of Life." *Empirical Economic Review* 4.1,2021.p.1-32.
[769]A.Owen,. "International trade and the accumulation of human capital." *Southern Economic Journal* 66.1,1999.p.61-81.
[770] D.Uprety, "The impact of remittances on economic growth in Nepal." *Journal of Development Innovations* 1.1,2017.p.114-134.
[771]M. Haq, and M.Luqman. "The contribution of international trade to economic growth through human capital accumulation: Evidence from nine Asian countries." *Cogent Economics & Finance* 2.1,2014.p.947000.
[772]W.H.Tsen, "Granger causality tests among openness to international trade, human capital accumulation and economic growth in China: 1952–1999." *International Economic Journal* 20.3,2006.p.285-302.
[773]J.Hainmueller, and M.J. Hiscox. "Learning to love globalization: Education and individual attitudes toward international trade." *International Organization* 60.2,2006.p.469-498.

environment. Moreover, an author argued in his work that whether it is a millennium development goal or sustainable development goals, the fundamental attributes of sustainable prosperity can be achieved by reducing inequality in terms of gender and income; furthermore by increasing learning possibilities of all the youth through the provision of accessible and quality education[774].

Similarly, another author mentioned in their work, that for making education accessible for everyone, the low-cost private education sector in South Asia and Africa region has developed as a significant influence which has made substantial efforts to extend universal primary education from the beginning of millennium development era until now for sustainable development goals achievement[775]. On the other hand, the private sector can also be a source of innovation and allow for advancements in ways that large-scale government systems generally cannot afford due to the lack of funds. Furthermore, the private sector involves the human development process according to the need of local markets in terms of required skills for the employment sector. Likewise, the private sector catalyzed the public interest by highlighting the sector which requires government attention in the case of developing countries; the private sector is generally pushing for improvements in health, education, and early childhood development, intending to create a more productive workforce[776].

Furthermore, education levels have been shown to boost business creativity and increase a company's profitability, thus directly impacting economic growth[777]. However, education alone will not revolutionize an economy and enhance economic growth. Therefore, other key drivers and factors of economic performance, such as quantity and quality of domestic and foreign investment, usage of technology, and the general policy environment, are essential for development[778]. Education has an even more substantial impact due to its impact on health, however both require

[774] J.Sachs,. *The age of sustainable development*. Columbia University Press, 2015.
[775]A. Raikes,[et al.], "Children, Youth and Developmental Science in the 2015-2030 Global Sustainable Development Goals. Social Policy Report. Volume 30, Number 3." *Society for Research in Child Development*,2017.
[776]J. Spiteri. *Educating for Sustainability in a Small Island Nation: Voices from Early Childhood Education*. Vol. 11. Springer Nature, 2023.
[777]S. Zahra, "Predictors and financial outcomes of corporate entrepreneurship: An exploratory study." *Journal of business venturing* 6.4,1991.p.259-285.
[778] G.Ranis,. "Human development and economic growth." *Available at SSRN 551662* 2004.

sustainable finance[779]. Low-income people are better enabled to seek out economic opportunities once they have a good education and improved health. Those with a higher level of education and work experience earn more money than those with a lower level of education and work experience. In most developing countries, investment in primary education yields higher net marginal social returns than university education[780] **.**Inflation directly impact and harm human-well being[781] [782] [783].It has been endorsed that inflation harms economic growth via increasing interest rates, which directly impacts the cash requirements for household expenditures in education. He further highlights that a slight increase in monetary policy directly or indirectly impacts individuals' well-being[784]. Another author used household expenditure data from 1991 to 1996 for Taiwan. They mentioned that the increase in the consumer price index affects every household group differently; however, due to inflation, every household basket is significantly disturbed by the change in educational and health expenditure prices[785]. Likewise, in another study, the author collected primary data using a survey for the USA from 2009 to 2012 and found that an increase in the price of consumer goods directly impacts health expenditure and educational expenses[786]. Furthermore,it has been arugued that in developing countries, governments are unable to provide subsidies on education due to the lack of appropriate educational budgets; therefore, public and semi-government institutions inflate the education sector with more fees[787]. Similarly, another author highlighted that inflation harms the poor more than the rich people; it

[779]B. Wolfe, and J.R. Behrman. "Women's schooling and children's health: Are the effects robust with adult sibling control for the women's childhood background?." *Journal of health Economics* 6.3,1987.p.239-254.
[780]A. Weiss, "Human capital vs. signalling explanations of wages." *Journal of Economic perspectives* 9.4,1995.p.133-154.
[781]Y. Alem, and G.Köhlin. "The impact of food price inflation on subjective well-being: Evidence from urban Ethiopia." *Social indicators research* 116,2014.p.853-868.
[782]R. Hill, "Real income, unemployment and subjective well-being: Revisiting the costs and benefits of inflation reduction in Canada." *Canadian Public Policy/Analyse de Politiques*,2000.p. 399-414.
[783]H.C. Schönfeldt, N. Gibson, and H. Vermeulen. "News and views: The possible impact of inflation on nutritionally vulnerable households in a developing country using South Africa as a case study.",2010.p.254-267.
[784]T.N.Sequeira, "Inflation, economic growth and education expenditure." *Economic Modelling* 99,2021.p.105475.
[785]P.T. Lieu, C.Chang, and J.Chang. "inflation rate Variations across household: empirical evidence from taiwan." *Available at SSRN 490457*,2004.
[786]M.Burke, and A.Ozdagli. "Household inflation expectations and consumer spending: evidence from panel data." *Review of Economics and Statistics* 105.4,2023,p.948-961.
[787]M. Mumper, and M.L. Freeman. "The causes and consequences of public college tuition inflation." *Higher education: Handbook of theory and research*. Dordrecht: Springer Netherlands, 2005.p.307-361.

increases inequalities and decreases their ability to pay for health and education for their family members[788].

5.3.3 RESEARCH FRAMEWORK - SECONDARY SCHOOL ENROLMENT

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for upper-middle-income countries to leave the middle-income trap. This section will formulate the research hypothesis for the educational outcome, which provides empirical evidence for investigating the impact of economic growth, external finance, trade financial development, and governance on secondary school enrolment. Furthermore, this research work also provides a comparative analysis regarding the impact of economic growth, external finance, trade, and financial development along with the governance of sub-income groups (upper-middle-lower and lower-middle-income countries) for a full sample of middle-income countries. Similarly, this work also highlights the impact of economic growth on the secondary school enrolment in the panel of middle-income countries which possess seaports. Based on the research goals a relevant research framework is mentioned in figure 7.

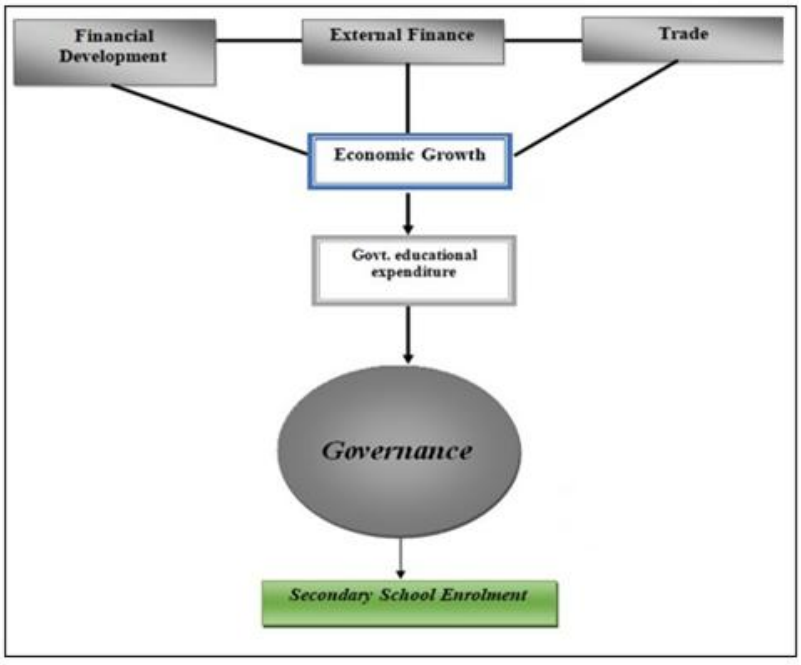


FIGURE 7. RESEARCH FRAMEWORK FOR THE MODEL OF SECONDARY SCHOOL ENROLMENT

[788]G.Kaplan, and S.Schulhofer-Wohl. "Understanding the long-run decline in interstate migration." *International Economic Review* 58.1,2017.p.57-94.

5.3.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique.

5.3.4.1 DATA

The present study investigates growth–finance-educational outcomes trilemma for middle-income and high-income countries for the period covering from 2001 to 2021. For evaluating the impact of economic growth on social dimension more specifically on education, School enrolment, secondary (% gross) is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 7. The other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refers to domestic credit to private sector percentage of GDP.GEDU refer to government expenditure on education, total (percentage of GDP). Likewise, GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 62, contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

TABLE 62. DATA SOURCES, ABBREVIATION AND DESCRIPTION- SECONDARY SCHOOL ENROLMENT

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
SSE	School enrolment, secondary (% gross)	World Bank Development Indicator	Endogenous
GDPPC	GDP per Capita (Constant USD 2015) –Economic growth	World Bank Development Indicator	Exogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
GEDU	Govt. expenditure on education (% of GDP)	World Bank Development Indicator	Exogenous
PS-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VA-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GE-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQ-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
CC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

5.3.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS

By limiting the discussion to the variable of interest, economic growth, international financeand school enrolment, secondary (% gross), the comparative statistics of variables are shown in table 63 for middle-income-countries and table 64 indicate correlation analysis among the variables. Likewise table 65 indicate comparative statistics of variables for high-income-countries and table 66 correlation analyses among the variables respectively.

TABLE 63. CORRELATION ANALYSIS (MIC-FS, SECONDARY SCHOOL ENROLMENT)

VARIABLE	MIDDLE-INCOME-COUNTRIES, FULL SAMPLE				
	OBSERVATIONS	MEAN	STD. DEV.	MIN	MAX
SSE	1,134	69.253	24.906	9.464	141.364
FDI	1,134	4.005	4.982	-11.624	55.075
REM	1,134	5.548	6.350	0.0001	34.499
ODA	1,134	2.721	3.133	-0.616	21.436
GDPPC	1,134	3547.478	2412.855	485.860	12654.69
T	1,134	78.392	33.334	20.722	220.406
DC	1,134	38.746	30.343	0.007	149.373
GEDU	1,134	15.274	5.319	4.552	37.520
PSI	1,134	-0.460	0.753	-2.823	1.286
VAI	1,134	-0.381	0.605	-1.826	1.156
GEI	1,134	-0.358	0.512	-1.789	1.274
RQI	1,134	-0.283	0.515	-1.858	1.133
COC	1,134	-0.516	0.543	-1.524	1.654
ROL	1,134	-0.492	0.493	-1.665	0.736

As per middle-income-countries the average real GDP per capita income is 3547.17 (USD Constant, 2015), with Cambodia having the lowest at 485.86 (USD Constant, 2015) in 2000 and Costa Rice showing the highest in 2019 with 12654.69 (USD Constant, 2015). The standard deviation appeared as 2412.1. The average foreign direct investment inflow percentage of GDP is 3.983%, with Mauritania having the lowest at -11.624% in 2019 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.921. Similarly, the average remittance inflow percentage of GDP is 5.691%, with Angola having the lowest at 0.00013% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.418. Furthermore, the average official development assistance inflow percentage of GDP is 2.779%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic showed the highest in 2005 with 21.43%, with a standard deviation of 3.163.In terms of educational outcomes, the average School enrolment, secondary (% gross) is 69.25, with Tanzania having the lowest at 9.464 in 2000 and Costa Rica showing the highest in 2019 with 141.364 and the standard deviation is 24.90. Furthermore according to the table 5.4.4, the correlation analysis indicates the absence of multicollinerity as all correlation coefficient is less than 0.800.

TABLE 64. CORRELATION ANALYSIS (MIC-FS, SECONDARY SCHOOL ENROLMENT)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE															
VARIABLE	**MRI**	**FDI**	**REM**	**ODA**	**GDPPC**	**T**	**INF**	**HB**	**CH**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
MRI	1														
FDI	-0.112	1													
REM	-0.310	0.069	1												
ODA	0.325	0.060	0.159	1											
GDPPC	-0.469	0.060	-0.168	-0.499	1										
T	-0.344	0.342	0.035	-0.031	0.188	1									
INF	0.084	0.029	-0.057	0.062	-0.100	0.104	1								
HB	-0.428	0.238	0.054	-0.154	0.270	0.341	0.229	1							
CH	-0.411	0.081	0.446	0.078	0.209	0.132	-0.114	0.206	1						
PSI	-0.228	0.124	-0.147	0.098	0.282	0.396	-0.097	0.211	0.171	1					
VAI	-0.243	-0.019	0.070	-0.074	0.194	-0.119	-0.092	-0.132	0.272	0.243	1				
GEI	-0.455	0.044	-0.129	-0.195	0.423	0.302	-0.190	0.013	0.131	0.396	0.430	1			
RQI	-0.464	0.156	0.069	-0.191	0.410	0.199	-0.237	-0.003	0.255	0.293	0.591	0.775	1		
COC	-0.344	-0.053	-0.062	-0.004	0.288	0.180	-0.165	-0.008	0.251	0.497	0.492	0.761	0.568	1	
ROL	-0.395	0.040	-0.039	-0.072	0.328	0.254	-0.176	-0.007	0.144	0.482	0.497	0.807	0.703	0.799	1

TABLE 65. SUMMARY STATISTICS (HIC, SECONDARY SCHOOL ENROLMENT)

VARIABLE	HIGH INCOME GRADUATED COUNTRIES				
	OBSERVATIONS	MEAN	STD. DEV.	MIN	MAX
SSE	420	96.745	16.791	22.028	154.908
FDI	420	10.146	27.541	-40.081	280.132
REM	420	0.791	1.146	0.000	6.877
ODA	420	0.556	1.134	-0.250	8.305
GDPPC	420	23062.750	14308.820	4454.038	75112.810
T	420	112.258	71.641	19.560	442.620
FD	420	83.916	55.773	2.149	255.310
GEDU	420	4.549	1.045	2.068	7.580
PSI	420	0.584	0.553	-1.630	1.590
VAI	420	0.587	0.782	-2.000	1.620
GEI	420	0.785	0.684	-1.700	1.910
RQI	420	0.787	0.726	-1.680	2.230
COC	420	0.662	0.729	-1.820	1.960

As per high-income countries the average real GDP per capita income is 23062.75 (USD Constant, 2015), with Equatorial Guinea having the lowest at 4454.03 (USD Constant, 2015) in 2000 and Ireland showing the highest in 2019 with 75112.81 (USD Constant, 2015). The standard deviation appeared as 14308.82. The average foreign direct investment inflow percentage of GDP is 10.145%, with Hungary having the lowest at -40.0811% in 2018 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 27.54. Similarly, the average remittance inflow percentage of GDP is 0.790%, with Uruguay having the lowest at 0.0000288917% in 2001 and Croatia showing the highest in 2019 with 6.876%, with a standard deviation of 1.146. Furthermore, the average official development assistance inflow percentage of GDP is 0.555%. Mauritius had the lowest at -0.2496% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134. In terms of educational outcomes, the average School enrolment, secondary (% gross) is 96.745, with Equatorial Guinea having the lowest at 22.02 in 2001 and Ireland showing the highest in 2018 with 154.90 and the standard deviation is 16.70. Furthermore according to the table 5.4.5, the correlation analysis indicates the absence of multicollinerity as all correlation coefficient is less than 0.800.

TABLE 66. CORRELATION ANALYSIS (HIC, SECONDARY SCHOOL ENROLMENT)

HIGH INCOME COUNTRIES GRADUATED COUNTRIES															
VARIABLE	**MR**	**FDI**	**REM**	**ODA**	**GDPPC**	**T**	**INF**	**HB**	**CH**	**PSI**	**VAI**	**GEI**	**RQI**	**COC**	**ROL**
MR	1														
FDI	-0.015	1													
REM	-0.138	0.137	1												
ODA	-0.005	-0.048	-0.060	1											
GDPPC	-0.236	0.070	-0.323	-0.014	1										
T	0.007	0.250	0.048	-0.068	0.191	1									
INF	0.183	-0.047	-0.087	-0.019	-0.196	0.022	1								
HB	-0.263	-0.092	0.145	0.060	-0.059	-0.049	-0.181	1							
CH	-0.522	0.011	0.058	-0.031	-0.092	-0.154	-0.204	0.328	1						
PSI	-0.207	0.034	0.107	-0.382	0.042	0.253	0.074	0.249	0.083	1					
VAI	-0.709	0.068	0.090	0.018	-0.156	-0.098	-0.093	0.319	0.773	0.227	1				
GEI	-0.792	0.142	-0.073	0.070	0.366	0.157	-0.231	0.311	0.573	0.213	0.738	1			
RQI	-0.735	0.130	-0.063	-0.041	0.306	0.203	-0.243	0.264	0.564	0.204	0.743	0.792	1		
COC	-0.702	0.129	-0.234	-0.013	0.432	0.143	-0.106	0.109	0.498	0.282	0.630	0.801	0.805	1	
ROL	-0.777	0.102	-0.204	-0.014	0.395	0.127	-0.184	0.240	0.536	0.274	0.733	0.800	0.793	0.799	1

5.3.4.3 MODEL SPECIFICATION

The hypotheses will be tested by estimating a series of panel data models. The models will explain the variables that measure the elements that characterize particular sustainability pillars. For evaluating the impact of economic dimension on social dimension more specifically on educational outcomes, School enrolment, secondary (% gross) is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure7. Based on research hypothesis as mentioned in Figure 7 initially below model will be formed,

$$SSE_{it} = \alpha_o + \alpha_1 FDI_{it} + \alpha_2 REM_{it} + \alpha_3 ODA_{it} + \alpha_4 GDPPC_{it} + \alpha_5 T_{it} + \alpha_6 FD_{it} + \alpha_7 GEDU_{it} + e_{it} \quad \textit{(Equation 1)}$$

Where SSE is the School enrolment, secondary (% gross) refer to educational outcomes, FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP. GEDU refer to government expenditure on education, total (percentage of GDP). GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in Table 5.3.1. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore above equation above 1 will be ,

$$LNSSE_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNGECU + e_{it} \quad \textit{(Equation 2)}$$

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the impact of external finance, economic properity and governance indicators on sustainability. Therefore, below model will be estimated which incorporate the impact of political governance along with economic sustainability

and international financeon infant mortality rate. By incorporating political governance index in equation 2 , given below model will estimated.

$LNSSE_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNGEDU_{it} + \alpha_8 PSI\text{-}PG_{it} + \alpha_9 VAI\text{-}PG_{it} + e_{it}$ *(Equation 3)*

In above equation 3, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm.

However, by incorporating economic and institutional governance in equation 2, the estimated equations will be written as,

$LNSSE_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNGEDU_{it} + \alpha_8 GEI\text{-}EG_{it} + \alpha_9 RQI\text{-}EG_{it} + e_{it}$ *(Equation 4)*

And,

$LNSSE_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNGEDU_{it} + \alpha_9 COC\text{-}IG_{it} + \alpha_{10} ROL\text{-}IG_{it} + e_{it}$ *(Equation 5)*

In above equation 4, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 5, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$LNSSE_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNGEDU_{it} + \alpha_8 PSI\text{-}PG_{it} + \alpha_9 VAI\text{-}PG_{it} + \alpha_{10} GEI\text{-}EG_{it} + \alpha_{11} RQI\text{-}EG_{it} + \alpha_{12} COC\text{-}IG_{it} + \alpha_{13} ROL\text{-}IG_{it} + e_{it}$ *(Equation 6)*

5.3.4.4 EMPIRICAL ESTIMATION

The estimation begins with fixed effect Driscoll-Kraay (main) of middle-income-countries for analysing the impact of economic growth and other exogenous

variable education (secondary school enrolment). Similarly System-GMM is used as robust estimation.[789]

TABLE 67. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, STATIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

FULL SAME					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.0756 (0.087)	-0.064 (0.072)	-0.052 (0.077)	-0.054 (0.073)	-0.018 (0.099)
LNREM	0.097 (0.011)***	0.107 (0.082)***	0.103 (0.010)***	0.101 (0.010)***	0.111 (0.082)***
LNODA	-0.081 (0.059)***	-0.096 (0.010)***	-0.077 (0.055)***	-0.087 (0.078)***	-0.096 (0.011)***
LNGDP	0.231 (0.018)***	0.191 (0.029)***	0.225 (0.022)***	0.207 (0.026)***	0.192 (0.031)***
LNT	0.237 (0.035)***	0.176 (0.049)***	0.214 (0.044)***	0.218 (0.040)***	0.168 (0.055)***
LNFD	0.033 (0.062)*	0.027 (0.064)*	0.082 (0.099)	0.013 (0.084)	0.122 (0.010)
LNGEDU	0.082 (0.017)***	0.039 (0.018)**	0.069 (0.012)***	0.053 (0.012)***	0.040 (0.018)**
PSI-PG		0.095 (0.023)***	-	-	0.074 (0.018)***
VAI-PG		0.013 (0.008)	-	-	-0.050 (0.019)
GEI-EG		-	0.138 (0.045)***	-	0.035 (0.064)**
RQI-EG		-	-0.048 (0.026)	-	-0.047 (0.041)
COC-IG		-	-	0.053 (0.026)	0.026 (0.045)
ROL-IG		-	-	0.068 (0.050)**	0.059 (0.050)*
Constant	0.925 (0.240)***	1.678 (0.468)***	1.212 (0.349)	1.394 (0.400)***	1.762 (0.518)***
R.Sq	0.516	0.533	0.526	0.530	0.539
Observations	1007				
Groups	54				

Table 67, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, besides LNODA, all other variables such as LNREM, LNGDP, LNT, LNFD, and LNGEUD improve secondary school enrollment rates in a full sample of middle-income countries. Among the external financial inflows, LNODA

[789] The methodology of estimation is mentioned in Chapter 3 section 3.4.4 in detailed form.

indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.081%. However, LNREM causes an increase in secondary school enrollment rates in the sample countries. A 1 unit increase in LNREM tends to increase LNSSE by 0.097%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.231 %, 0.237%, and 0.033%. A 1 unit increase in LNGEDU tends to increase LNSSE by 0.082%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNGDP, LNT, and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. A 1 unit increase in PSI-PG increases LNSSE by 0.095%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) except LNFD, as LNFD become insignificant; however, the government effectiveness index indicates a positive contributor for improving secondary school enrollment rate. 1 unit increase in GEI-EG increases LNSSE by 0.180%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. 1 unit increase in ROL-IG increases LNSSE by 0.068%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, and LNGEDU improve secondary school enrollment rates in the presence of political stability, government effectiveness, and the rule of law. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.096%. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.111%. Similarly, a 1 unit increase in LNGDP, LNT, and LNGEDU increase LNSSE by 0.192%, 0.168%, and 0.040%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG, GEI-EG, and ROL-IG improve LNSSE by 0.074%, 0.035%, and 0.059% respectively and appeared to be statistical significant in the estimation.

TABLE 68. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, DYNAMIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

FULL SAMPLE					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNSSE	0.892 (0.031)***	0.888 (0.031)***	0.887 (0.0321)***	0.893 (0.029)***	0.888 (0.032)***
LNFDI	0.014 (0.023)	0.088 (0.028)	0.064 (0.021)	0.048 (0.021)	0.097 (0.022)
LNREM	0.071 (0.040)*	0.079 (0.042)*	0.083 (0.043)**	0.071 (0.039)*	0.087 (0.044)**
LNODA	-0.083 (0.031)***	-0.092 (0.033)***	-0.082 (0.031)***	-0.087 (0.032)***	-0.091 (0.033)***
LNGDP	0.013 (0.011)*	0.122 (0.012)*	0.014 (0.012)*	0.010 (0.010)*	0.012 (0.011)**
LNT	0.024 (0.010)**	0.021 (0.010)**	0.022 (0.011)**	0.023 (0.010)**	0.021 (0.010)**
LNFD	-0.093 (0.032)	-0.021 (0.031)	-0.015 (0.033)	-0.053 (0.031)	-0.012 (0.033)
LNGEDU	0.072 (0.045)*	0.057 (0.045)*	0.073 (0.043)*	0.054 (0.031)*	0.054 (0.035)**
PSI-PG	-	0.051 (0.045)**	-	-	0.036 (0.045)***
VAI-PG	-	0.067 (0.036)	-	-	0.012 (0.042)
GEI-EG	-	-	0.018 (0.010)*	-	0.013 (0.010)*
RQI-EG	-	-	-0.013 (0.087)	-	-0.013 (0.009)
COC-IG	-	-	-	-0.012 (0.082)	-0.094 (0.083)
ROL-IG	-	-	-	0.053 (0.011)*	0.063 (0.013)**
Constant	0.239 (0.060)***	0.278 (0.067)***	0.255 (0.067)***	0.266 (0.063)***	0.283 (0.070)***
AR(2)	0.099	0.104	0.098	0.102	0.105
Hansen	0.444	0.454	0.476	0.403	0.475
Group	54	54	54	54	54
Observation	960	960	960	960	960
Instruments	24	26	26	26	30

Table 68 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment.System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNSSE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the secondary school enrolment, which means that lag.LNSSE has had a positive and

significant impact on the current value of secondary school enrolment in the past few years. Column (1) shows that among seven exogenous variables, besides LNODA, all other variables such as LNREM, LNGDP, LNT, and LNGEUD improve secondary school enrollment rates in a full sample of middle-income countries. Among the external financial inflows, LNODA indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.083%. However, LNREM causes an increase in secondary school enrollment rates in the sample countries. According to the results, 1 unit increase in LNREM tends to increase LNSSE by 0.071%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP and LNT, increase LNSSE by 0.013%, and 0.024%. A 1 unit increase in LNGEDU tends to increase LNSSE by 0.072%, regarding a more specific education variable. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNGDP, LNT, and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. A 1 unit increase in PSI-PG increases LNSSE by 0.051%.By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ;however, the government effectiveness index indicates a positive contributor for improving secondary school enrollment rate. 1 unit increase in GEI-EG increases LNSSE by 0.018%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. 1 unit increase in ROL-IG increases LNSSE by 0.053%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, and LNGEDU improve secondary school enrollment rates in the presence of political stability, government effectiveness, and the rule of law. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.091%. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.087% .Similarly, a 1 unit increase in LNGDP, LNT, and LNGEDU increase LNSSE by 0.012%, 0.021%, and 0.054%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG, GEI-EG, and ROL-IG improve LNSSE by 0.036%,

0.013%, and 0.063%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 67 with the estimated results system-GMM (robustness analysis) in table 68 the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDP, LNT. LNGEDU, PSI-PG, GEI-EG and ROL-IG positively impact secondary school enrolment in full sample middle-income countries. The coefficients are positive and have statistical significance across all the entire models. However LNODA indicate negative association as per both static and dynamic estimation.

TABLE 69. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, STATIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

UPPER MIDDLE INCOME COUNTRIES (MIT)					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.030 (0.095)***	0.030 (0.078)***	0.017 (0.097)*	0.028 (0.080)***	0.023 (0.067)***
LNREM	-0.014 (0.011)	0.053 (0.013)	0.011 (0.014)	0.071 (0.014)	0.019 (0.013)
LNODA	-0.047 (0.091)***	-0.073 (0.018)***	-0.041 (0.088)***	-0.054 (0.012)***	-0.056 (0.019)**
LNGDP	0.058 (0.040)**	0.147 (0.058)**	0.047 (0.046)*	0.063 (0.039)**	0.119 (0.056)**
LNT	0.056 (0.023)**	0.016 (0.046)	0.050 (0.027)*	0.057 (0.040)	0.066 (0.060)
LNFD	0.088 (0.012)	0.066 (0.014)	0.050 (0.018)**	0.024 (0.015)	0.010 (0.015)
LNGEDU	0.056 (0.022)**	0.157 (0.051)***	0.106 (0.025)***	0.113 (0.033)***	0.156 (0.046)***
PSI-PG	-	0.135 (0.041)***	-	-	0.148 (0.028)***
VAI-PG	-	0.020 (0.020)	-	-	-0.03 (0.019)
GEI-EG	-	-	0.108 (0.039)**	-	0.110 (0.051)**
RQI-EG	-	-	0.025 (0.025)	-	0.111 (0.046)**
COC-IG	-	-	-	0.163 (0.051)***	0.119 (0.055)**
ROL-IG	-	-	-	-0.072 (0.091)	-0.026 (0.124)**
Constant	4.754 (0.392)***	6.083 (0.710)***	5.033 (0.342)***	5.052 (0.430)***	5.787 (0.729)***
R.Sq	0.435	0.475	0.445	0.468	0.488
Observations	449				
Groups	24				

Table 69, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, besides LNODA, all other variables such as LNFDI, LNGDP, LNT, and LNGEUD improve secondary school enrollment rates in upper-middle-income countries. Among the external financial inflows, LNODA indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.047% at a 1% level of significance. However, LNFDI causes an increase in secondary school enrollment rates in upper-middle-income countries. A 1 unit increase in LNFDI increases LNSSE by 0.030% at a 1% significance level.

Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP and LNT increases LNSSE by 0.058% and 0.056%, at a 5% significance level. A 1 unit increase in LNGEDU tends to increase LNSSE by 0.056% at a 5% significance level regarding a more specific education variable. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNODA, LNGDP, LNT, and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. A 1 unit increase in PSI-PG increases LNSSE by 0.135% at a 1% significance level. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2). furthermore, LNT appeared to be significant and improved LNSSE by 0.050% at a 10% significance level; however, the government effectiveness index indicates a positive contributor to improving secondary school enrollment rate. 1 unit increase in GEI-EG increases LNSSE by 0.108% at a 5% significance level. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables except for LNT as it becomes insignificant; as mentioned in Column (3), the magnitude of coefficients is slightly different. 1 unit increase in COC-IG increases LNSSE by 0.163% at a 1% significance level. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNFDI, LNGDP, and LNGEDU improve secondary school enrollment rates in political stability, government effectiveness, and control of corruption. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.056% at a1 % significance level. On the other hand, a 1 unit increase in LNFDI increases LNSSE by 0.067% at a 1% significance level. Similarly, a 1 unit increase in LNGDP and LNGEDU increase LNSSE by 0.119% and 0.156% at 5% and 1% significance levels. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG, GEI-EG, and COC-IG improves LNSSE by 0.148%, 0.110%, and 0.119% at a 1% 5% significance level.

TABLE 70. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

UPPER MIDDLE INCOME COUNTRIES MIT					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNSSE	0.915 (0.026)***	0.093 (0.025)***	0.917 (0.027)***	0.915 (0.024)***	0.921 (0.027)***
LNFDI	0.059 (0.036)*	0.054 (0.032)*	0.048 (0.033)**	0.052 (0.032)*	0.049 (0.030)*
LNREM	-0.012 (0.028)	-0.018 (0.027)	-0.015 (0.033)	0.071 (0.029)	-0.023 (0.029)
LNODA	-0.071 (0.035)**	-0.059 (0.037)*	0.068 (0.033)**	0.070 (0.029)**	-0.054 (0.027)**
LNGDP	0.032 (0.010)**	0.014 (0.010)**	0.030 (0.011)**	0.031 (0.010)**	0.010 (0.011)**
LNT	0.014 (0.013)	0.018 (0.013)	0.015 (0.013)	0.014 (0.013)	0.019 (0.014)
LNFD	0.031 (0.059)	0.041 (0.065)	0.038 (0.062)	0.014 (0.065)	0.030 (0.066)
LNGEDU	0.060 (0.014)*	0.027 (0.015)**	0.078 (0.015)**	0.044 (0.015)*	0.031 (0.014)**
PSI-PG	-	0.072 (0.046)**	-	-	0.055 (0.061)*
VAI-PG	-	0.038 (0.075)	-	-	0.018 (0.080)
GEI-EG	-	-	0.080 (0.017)**	-	0.022 (0.021)**
RQI-EG	-	-	0.012 (0.016)	-	0.011 (0.015)
COC-IG	-	-	-	0.034 (0.010)	0.036 (0.078)
ROL-IG	-	-	-	0.052 (0.016)	-0.012 (0.012)
Constant	0.364 (0.151)**	0.271 (0.165)*	0.359 (0.164)**	0.355 (0.146)**	0.272 (0.0156)*
AR(2)	0.562	0.517	0.631	0.541	0.618
Hansen	0.544	0.675	0.522	0.498	0.445
Group	24	24	24	24	24
Observation	428	428	428	428	428
Instruments	14	16	16	16	20

Table 70, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment in upper-middle income countries.System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNSSE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the secondary school

enrolment, which means that lag.LNSSE has had a positive and significant impact on the current value of secondary school enrolment in the past few years.

Column (1) shows that among seven exogenous variables, besides LNODA, all other variables such as LNFDI, LNGDP, and LNGEUD improve secondary school enrollment rates in a upper-middle-income countries. Among the external financial inflows, LNODA indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.071%.

However, LNFDI causes an increase in secondary school enrollment rates in the sample countries. According to the results, 1 unit increase in LNFDI tends to increase LNSSE by 0.059%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP and LNGEDU tends to increase LNSSE by 0.032% and 0.060% respectively. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNODA, LNGDP, and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. A 1 unit increase in PSI-PG increases LNSSE by 0.072%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ;however, the government effectiveness index indicates a positive contributor for improving secondary school enrollment rate. 1 unit increase in GEI-EG increases LNSSE by 0.080%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. However, COC-IG and ROL-IG appear to be insignificant. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNFDI, LNGDP, LNGEDU, PSI-PG and GEI-EG improve secondary school enrollment. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.054%. On the other hand, a 1 unit increase in LNFDI increases LNSSE by 0.049% .Similarly, a 1 unit increase in LNGDP and LNGEDU increase LNSSE by 0.010% and 0.031%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and GEI-EG improve LNSSE by 0.055%, and 0.022%. In system-GMM, post estimation diagnosis

shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 69 with the estimated results system-GMM (robustness analysis) in table 70 the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNGDP, LNGEDU, PSI-PG and GEI-EG positively impact secondary school enrolment in full sample middle-income countries. The coefficients are positive and have statistical significance across all the entire models. However LNODA indicate negative association as per both static and dynamic estimation.

TABLE 71. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, STATIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.073 (0.016)***	-0.072 (0.015)***	-0.053 (0.018)**	-0.085 (0.017)***	-0.070 (0.018)***
LNREM	0.109 (0.008)***	0.112 (0.009)***	0.126 (0.096)***	0.105 (0.006)***	0.118 (0.009)***
LNODA	-0.093 (0.009)**	-0.112 (0.012)	-0.090 (0.091)	-0.084 (0.012)	-0.102 (0.013)
LNGDP	0.267 (0.015)***	0.250 (0.020)***	0.258 (0.016)***	0.282 (0.027)***	0.270 (0.021)***
LNT	0.373 (0.065)***	0.321 (0.072)***	0.357 (0.074)***	0.373 (0.068)***	0.371 (0.076)***
LNFD	0.080 (0.025)***	0.072 (0.023)***	0.061 (0.029)*	0.063 (0.023)**	0.071 (0.023)***
LNGEDU	0.090 (0.022)***	0.071 (0.014)***	0.091 (0.020)***	0.089 (0.015)***	0.096 (0.0133)***
PSI-PG		0.082 (0.051)***	-	-	0.061 (0.015)***
VAI-PG		0.075 (0.022)	-	-	0.044 (0.039)
GEI-EG		-	0.178 (0.042)***	-	0.015 (0.070)
RQI-EG		-	-0.209 (0.034)***	-	-0.291 (0.059)***
COC-IG		-	-	-0.182 (0.042)***	-0.237 (0.037)***
ROL-IG		-	-	0.317 (0.037)***	0.445 (0.039)***
Constant	0.868 (0.302)	0.406 (0.354)	0.624 (0.410)	0.642 (0.445)	0.736 (0.380)
R.Sq	0.632	0.643	0.652	0.660	0.639
Observations	558				
Groups	30				

Table 71, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, besides LNFDI and LNODA, all other variables include LNREM, LNGDP, LNT, LNFD, and LNGEUD improve secondary school enrollment rates in lower-middle-income countries. Among the external financial inflows, LNFDI and LNODA indicate a negative association with LNSSE; thus, a 1 unit increase in LNFDI and LNODA tends to decrease LNSSE by 0.073% and 0.093%. However, LNREM causes an increase in secondary school enrollment rates in lower-middle-income countries. A 1 unit increase in LNREM increases LNSSE by 0.109%.

Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD also increases LNSSE by 0.267%, 0.373%, and 0.080%. Economic growth allows countries to spend more on human well-being; therefore, countries allocate more budgets to health and education. A 1 unit increase in LNGEDU tends to increase LNSSE by 0.090%, regarding a more specific education variable. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDP, LNT, LNFD, and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. Furthermore, LNODA appears to be insignificant. A 1 unit increase in PSI-PG increases LNSSE by 0.082%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2) except LNODA; however, the regulatory quality index indicates a negative association with secondary school enrollment rate. 1 unit increase in RQI-EG decreases LNSSE by 0.209%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables but the different magnitude of coefficient except for governance indexes as mentioned in Columns (1) and (3). 1 unit increase in ROL-IG increases LNSSE by 0.445%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, LNFD, and LNGEDU improve secondary school enrollment rates in the presence of political stability and the rule of law. However, LNFDI does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNFDI reduces LNSSE by 0.070%. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.118%. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.270%, 0.371%, and 0.07%. The estimated results also reveal that a 1 unit increase in LNGEDU increases LNSSE by 0.096%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and ROL-IG improves LNSSE by 0.061% and 0.445%. However, RQI-EG appears to be negatively associated with LNSSE; thus, a 1 unit increase in RQI-EG decreases LNSSE by 0.291%.

TABLE 72. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, DYNAMIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNSSE	0.668 (0.073)***	0.655 (0.073)***	0.681 (0.074)***	0.668 (0.080)***	0.640 (0.089)***
LNFDI	-0.017 (0.010)*	-0.018 (0.010)*	-0.014 (0.089)*	-0.016 (0.010)*	-0.014 (0.009)*
LNREM	0.026 (0.008)***	0.029 (0.009)***	0.026 (0.007)***	0.027 (0.090)***	0.033 (0.013)**
LNODA	-0.015 (0.011)	-0.018 (0.011)	-0.013 (0.019)	-0.017 (0.011)	-0.020 (0.013)
LNGDP	0.092 (0.043)**	0.091 (0.043)**	0.088 (0.044)**	0.083 (0.040)**	0.091 (0.044)**
LNT	0.078 (0.041)*	0.068 (0.041)*	0.081 (0.0431)*	0.085 (0.044)*	0.094 (0.051)*
LNFD	0.029 (0.017)*	0.028 (0.018)	0.022 (0.015)	0.210 (0.016)	0.025 (0.017)
LNGEDU	0.095 (0.013)**	0.039 (0.010)**	0.092 (0.012)**	0.097 (0.096)**	0.084 (0.093)**
PSI-PG	-	0.026 (0.018)**	-	-	0.021 (0.016)**
VAI-PG	-	0.086 (0.022)	-	-	0.017 (0.016)
GEI-EG	-	-	0.038 (0.039)	-	0.010 (0.053)
RQI-EG	-	-	-0.046 (0.032)	-	-0.065 (0.031)*
COC-IG	-	-	-	-0.014 (0.037)**	-0.026 (0.055)**
ROL-IG	-	-	-	0.060 (0.062)	0.085 (0.066)
Constant	0.208 (0.303)	0.349 (0.302)	0.188 (0.346)	0.300 (0.332)	0.283 (0.346)
AR(2)	0.152	0.164	0.142	0.146	0.186
Hansen	0.242	0.298	0.210	0.204	0.217
Group	30	30	30	30	30
Observation	532	532	532	532	532
Instruments	20	22	22	22	26

Table 72, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment in lower-middle income countries.System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNSSE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the secondary school

enrolment, which means that lag.LNSSE has had a positive and significant impact on the current value of secondary school enrolment in the past few years. Column (1) shows that among seven exogenous variables, besides LNFDI, all other variables such as LNREM, LNGDP, LNT, LNFD and LNGEUD improve secondary school enrollment rates in lower-middle-income countries. Among the external financial inflows, LNFDI indicates a negative association with LNSSE; thus, a 1 unit increase in LNFDI tends to decrease LNSSE by 0.017%. However, LNREM causes an increase in secondary school enrollment rates in the sample countries. According to the results, 1 unit increase in LNREM tends to increase LNSSE by 0.026%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT, LNFD and LNGEDU tends to increase LNSSE by 0.092%, 0.078%, 0.029% and 0.095% respectively. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDP, LNT and LNGEDU; however, the magnitude of coefficients is slightly different. Furthermore, LNFD appear to be insignificant. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. According to the results A 1 unit increase in PSI-PG increases LNSSE by 0.026%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ;however, GEI-EG and RQI-EG does not indicate any statistical significance impact on LNSSE. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. However, ROL-IG appears to be significant; thus 1 unit increase in ROL-IG increases LNSSE by 0.060%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, LNGEDU, PSI-PG and ROL-IG improve secondary school enrollment. However, LNFDI does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNFDI reduces LNSSE by 0.014%. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.033% .Similarly, a 1 unit increase in LNGDP, LNT and LNGEDU increase LNSSE by 0.091%, 0.094% and 0.084%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and ROL-IG improve LNSSE by 0.021%, and 0.085%. In system-GMM, post estimation diagnosis shows that AR (2) and

Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 71 with the estimated results system-GMM (robustness analysis) in table 72B the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDP, LNT, LNGEDU, PSI-PG and ROL-IG positively impact secondary school enrolment in full sample middle-income countries. The coefficients are positive and have statistical significance across all the entire models. However LNFDI indicate negative association as per both static and dynamic estimation.

TABLE 73. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

MIDDLE INCOME COUNTRIES WITH PORTS					
VARIABLES	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.039 (0.013)	0.034 (0.011)	0.070 (0.015)	0.028 (0.010)	0.086 (0.015)
LNREM	0.093 (0.011)***	0.099 (0.087)***	0.094 (0.098)***	0.093 (0.011)	0.098 (0.084)***
LNODA	-0.114 (0.006)***	-0.122 (0.084)***	-0.106 (0.087)**	-0.115 (0.064)***	-0.131 (0.010)***
LNGDP	0.183 (0.013)***	0.160 (0.020)***	0.181 (0.014)***	0.167 (0.019)***	0.151 (0.023)***
LNT	0.202 (0.035)***	0.169 (0.046)***	0.187 (0.046)***	0.188 (0.037)***	0.175 (0.052)***
LNFD	0.061 (0.012)***	0.054 (0.013)***	0.043 (0.024)*	0.039 (0.017)**	0.048 (0.025)*
LNGEDU	0.097 (0.017)***	0.053 (0.022)**	0.083 (0.014)***	0.069 (0.017)***	0.054 (0.025)**
PSI-PG		0.069 (0.024)**		-	0.047 (0.021)**
VAI-PG		0.040 (0.009)***		-	0.073 (0.017)
GEI-EG		-	0.076 (0.098)	-	0.082 (0.096)
RQI-EG		-	0.068 (0.0724)	-	0.027 (0.068)
COC-IG		-	-	-0.064 (0.037)*	-0.087 (0.052)
ROL-IG		-	-	0.077 (0.042)*	0.105 (0.040)**
Constant	1.261 (0.213)***	1.794 (0.400)***	1.463 (0.308)***	1.669 (0.345)***	1.864 (0.450)***
R.Sq	0.524	0.536	0.528	0.538	0.544
Observations	756				
Groups	41				

Table 73 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, besides LNODA, all other variables include LNREM, LNGDP, LNT, LNFD, and LNGEUD improve secondary school enrollment rates for middle-income countries with seaports. Among the external financial inflows, LNODA indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.114%. However, LNREM causes an increase in secondary school enrollment rates in middle-income countries with seaports. A 1 unit increase in LNREM

increases LNSSE by 0.093%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.183%, 0.202%, and 0.061%. Economic growth allows countries to spend more on human well-being; therefore, countries allocate more budgets to health and education. A 1 unit increase in LNGEDU tends to increase LNSSE by 0.097% .regarding a more specific education variable. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNGDP, LNT, LNFD, and LNGEDU, but the magnitude of coefficients is slightly different. Similarly, the PSI-PG and VAI-PG appear to positively improve the secondary school enrollment rate in middle-income countries with seaports. According to the estimations, a 1 unit increase in PSI-PG and VAI-PG increases LNSSE by 0.069% and 0.040%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2) except PSI-PG and VAI-PG; however, the regulatory quality indexes appeared to be insignificant. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables but the different magnitude of coefficient except for governance indexes as mentioned in Columns (1) and (3). 1 unit increase in ROL-IG increases LNSSE by 0.077%. However, COC-IG indicates a negative association. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, LNFD, and LNGEDU improve secondary school enrollment rates in the presence of political stability, voice and accountability, and the rule of law. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.131% at a 1 % significance level. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.098% at a 1% significance level. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.151%, 0.175%, and 0.048% at 1% and 5% significance levels. The estimated results also reveal that a 1 unit increase in LNGEDU increases LNSSE by 0.054% at a 1% significance level. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and VAI-PG improves LNSSE by 0.047% and 0.073% at a 5% and 10% significance level. Furthermore, a 1 unit increase in ROL-IG increases LNSSE by 0.105% at a 5% significance level.

TABLE 74. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

MIDDLE INCOME COUNTRIES WITH PORTS					
VARIABLES	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNSSE	0.908 (0.026)***	0.907 (0.029)***	0.910 (0.036)***	0.910 (0.025)***	0.907 (0.028)***
LNFDI	0.064 (0.027)	0.067 (0.022)	0.057 (0.031)	0.087 (0.026)	0.015 (0.027)
LNREM	0.061 (0.033)*	0.064 (0.031)**	0.067 (0.034)**	0.059 (0.031)*	0.067 (0.034)*
LNODA	-0.086 (0.036)**	-0.090 (0.037)**	-0.091 (0.034)**	-0.089 (0.075)**	-0.086 (0.040)**
LNGDP	0.010 (0.081)**	0.098 (0.077)**	0.094 (0.027)***	0.089 (0.075)**	0.010 (0.084)**
LNT	0.019 (0.011)*	0.018 (0.012)*	0.014 (0.022)*	0.019 (0.011)*	0.017 (0.011)**
LNFD	0.016 (0.028)	0.019 (0.023)	0.016 (0.027)	0.022 (0.025)	0.033 (0.028)
LNGEDU	0.070 (0.040)*	0.059 (0.034)*	0.054 (0.028)*	0.055 (0.034)*	0.052 (0.030)*
PSI-PG	-	0.022 (0.036)**		-	0.018 (0.040)**
VAI-PG	-	0.021 (0.044)		-	0.010 (0.050)
GEI-EG	-	-	0.015 (0.011)	-	0.013 (0.011)
RQI-EG	-	-	0.090 (0.094)	-	0.010 (0.010)
COC-IG	-	-		-0.012 (0.093)	-0.011 (0.099)
ROL-IG	-	-		0.052 (0.012)**	0.089 (0.014)*
Constant	0.216 (0.062)***	0.233 (0.063)***	0.231 (0.066)***	0.233 (0.064)***	0.242 (0.067)***
AR(2)	0.122	0.125	0.123	0.124	0.130
Hansen	0.420	0.409	0.378	0.361	0.363
Group	41	41	41	41	41
Observation	721	721	721	721	721
Instruments	24	26	26	26	30

Table 74, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment in middle-income countries with seaports.System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNSSE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the secondary school

enrolment, which means that lag.LNSSE has had a positive and significant impact on the current value of secondary school enrolment in the past few years. Column (1) shows that among seven exogenous variables, besides LNODA, all other variables such as LNREM, LNGDP, LNT and LNGEUD improve secondary school enrollment rates in middle-income countries with seaports. Among the external financial inflows, LNODA indicates a negative association with LNSSE; thus, a 1 unit increase in LNODA tends to decrease LNSSE by 0.086%. However, LNREM causes an increase in secondary school enrollment rates in the sample countries. According to the results, 1 unit increase in LNREM tends to increase LNSSE by 0.061%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT and LNGEDU tends to increase LNSSE by 0.010%, 0.019%, and 0.070% respectively. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNGDP, LNT and LNGEDU; however, the magnitude of coefficients is slightly different. Similarly, the political stability index appears to improve the secondary school enrollment rate in middle-income countries positively. According to the results A 1 unit increase in PSI-PG increases LNSSE by 0.022%.By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ;however, GEI-EG and RQI-EG does not indicate any statistical significance impact on LNSSE. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. However, ROL-IG appears to be significant; thus 1 unit increase in ROL-IG increases LNSSE by 0.052%.Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNREM, LNGDP, LNT, LNGEDU, PSI-PG and ROL-IG improve secondary school enrollment. However, LNODA does not contribute to improving the secondary school enrollment rate. According to the results, a 1 unit increase in LNODA reduces LNSSE by 0.086%. On the other hand, a 1 unit increase in LNREM increases LNSSE by 0.067% .Similarly, a 1 unit increase in LNGDP, LNT and LNGEDU increase LNSSE by 0.010%, 0.017% and 0.052%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and ROL-IG improve LNSSE by 0.018%, and 0.089%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no

correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 73 with the estimated results system-GMM (robustness analysis) in table 74 the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDP, LNT, LNGEDU, PSI-PG and ROL-IG positively impact secondary school enrolment in middle-income countries with seaports. The coefficients are positive and have statistical significance across all the entire models. However LNODA indicate negative association as per both static and dynamic estimation.

TABLE 75. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, STATIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

HIGH-INCOME COUNTRIES					
VARIABLES	**FIXED EFFECT DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.012 (0.090)**	0.027 (0.048)***	0.023 (0.075)***	0.027 (0.080)***	0.032 (0.068)***
LNREM	0.031 (0.047)***	0.014 (0.048)***	0.023 (0.048)***	0.033 (0.064)***	0.024 (0.088)**
LNODA	-0.071 (0.064)	-0.027 (0.054)	-0.055 (0.052)	-0.034 (0.059)	-0.019 (0.051)
LNGDP	0.055 (0.018)***	0.121 (0.012)***	0.027 (0.012)**	0.013 (0.011)**	0.091 (0.022)***
LNT	0.077 (0.011)***	0.020 (0.058)***	0.079 (0.064)***	0.065 (0.058)***	0.015 (0.061)**
LNFD	0.017 (0.023)***	0.066 (0.011)***	0.060 (0.013)***	0.066 (0.087)***	0.070 (0.011)***
LNGEDU	0.027 (0.048)	0.032 (0.040)	0.021 (0.039)	0.013 (0.029)	0.017 (0.044)
PSI-PG	-	0.035 (0.011)**	-	-	0.013 (0.015)**
VAI-PG	-	0.170 (0.023)***	-	-	0.139 (0.024)***
GEI-EG	-	-	0.098 (0.038)**	-	0.085 (0.039)**
RQI-EG	-	-	0.081 (0.017)***	-	0.078 (0.025)**
COC-IG	-	-	-	0.061 (0.026)	0.078 (0.025)
ROL-IG	-	-	-	0.139 (0.040)***	0.046 (0.071)**
Constant	3.708 (0.139)***	3.113 (0.018)***	4.260 (0.106)***	4.360 (0.126)***	3.389 (0.245)***
R.Sq	0.534	0.661	0.612	0.638	0.673
Observations	395				
Group	21				

Table 75, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, besides LNODA and LNGEDU, all other variables such as LNFDI, LNREM, LNGDP, LNT and LNFD improve secondary school enrollment rates in a high- income countries. According to the estimated results, a 1 unit increase in LNREM and LNFDI tends to increase LNSSE by 0.012% and 0.031%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.055 %, 0.077%, and 0.017%. Similarly, in Column (2), the estimated results indicate the statistical significance and

consistent signs of LNFDI, LNREM, LNGDP, LNT, and LNFD; however, the magnitude of coefficients is slightly different. Similarly, the political stability index and voice & accountability index appears to improve the secondary school enrollment rate in high-income countries positively. According to the, a 1 unit increase in PSI-PG and VAI-PG increases LNSSE by 0.035% and 0.170% By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ; however, the government effectiveness index and regulatory quality index indicates a positive contributor for improving secondary school enrollment rate. 1 unit increase in GEI-EG and RQI-EG increases LNSSE by 0.098% and 0.081%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. 1 unit increase in ROL-IG increases LNSSE by 0.139%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNFDI, LNREM, LNGDP, LNT, and LNFD improve secondary school enrollment rates in the presence of political stability, voice & accountability, government effectiveness, regulatory quality and the rule of law. According to the results, a 1 unit increase in LNFDI and LNREM increases LNSSE by 0.032% and 0.024%. Similarly, a 1 unit increase in LNGDP, LNT, and LNFD increase LNSSE by 0.091%, 0.015%, and 0.070%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG, VAI-PG , GEI-EG, RQI-EG and ROL-IG improve LNSSE by 0.013%, 0.139%, 0.085, 0.078% and 0.046%.

TABLE 76. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, DYNAMIC MODEL ESTIMATION, SECONDARY SCHOOL ENROLMENT)

HIGH INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNSSE	0.954 (0.107)***	0.976 (0.088)***	0.967 (0.084)***	0.966 (0.077)***	0.966 (0.078)***
LNFDI	0.017 (0.020)*	0.192 (0.027)**	0.018 (0.023)**	0.021 (0.025)**	0.024 (0.028)**
LNREM	0.018 (0.028)**	0.025 (0.020)*	0.021 (0.022)**	0.022 (0.029)**	0.042 (0.026)*
LNODA	-0.017 (0.095)	-0.019 (0.011)	0.017 (0.091)	0.018 (0.010)	-0.019 (0.096)
LNGDP	0.034 (0.045)*	0.031 (0.086)*	0.035 (0.044)**	0.025 (0.057)**	0.096 (0.077)**
LNT	0.010 (0.010)**	0.048 (0.062)*	0.020 (0.088)**	0.034 (0.079)**	0.056 (0.064)**
LNFD	0.038 (0.179)	0.047 (0.011)	0.030 (0.010)	0.084 (0.098)	0.082 (0.096)
LNGEDU	0.031 (0.078)	0.039 (0.091)	0.011 (0.016)	0.044 (0.071)	0.061 (0.088)
PSI-PG	-	0.027 (0.035)*	-		0.025 (0.043)**
VAI-PG	-	0.029 (0.017)**	-		0.010 (0.012)**
GEI-EG	-	-	0.011 (0.067)		0.011 (0.090)
RQI-EG	-	-	0.011 (0.067)**		0.019 (0.079)**
COC-IG	-	-	-	0.097 (0.081)	0.099 (0.071)
ROL-IG	-	-	-	0.014 (0.012)*	0.047 (0.015)**
Constant	0.187 (0.043)	0.083 (0.032)	0.124 (0.390)	0.118 (0.037)	0.036 (0.330)
AR(2)	0.499	0.539	0.530	0.533	0.584
Hansen	0.439	0.379	0.433	0.410	0.432
Group	21	21	21	21	21
Observation	375	375	375	375	375
Instruments	12	14	14	14	18

Table 76. reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on secondary school enrollment.System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay estimation. The results indicate that the lagged dependent variable coefficient lag.LNSSE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the

secondary school enrolment, which means that lag.LNSSE has had a positive and significant impact on the current value of secondary school enrolment in the past few years. Column (1) shows that among seven exogenous variables, besides LNODA and LNGEDU, all other variables such as LNFDI, LNREM, LNGDP and LNT improve secondary school enrollment rates in high- income countries. According to the estimated results, a 1 unit increase in LNREM and LNFDI tends to increase LNSSE by 0.018% and 0.017%. Furthermore, economic growth has a positive impact on the quality of life. Similarly, a 1 unit increase in LNGDP and LNT increase LNSSE by 0.034%, and 0.010%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDP and LNT, however, the magnitude of coefficients are slightly different. Similarly, the political stability index and voice & accountability index appears to improve the secondary school enrollment rate in high-income countries positively. According to the, a 1 unit increase in PSI-PG and VAI-PG increases LNSSE by 0.027% and 0.029% By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Column (1) and (2) ; however, the regulatory quality index indicates a positive contributor for improving secondary school enrollment rate. 1 unit increase in RQI-EG increases LNSSE by 0.011%. By incorporating the institutional governance indicator in Column (4), the results also indicate consistent signs of variables; as mentioned in Column (3), the magnitude of coefficients is slightly different. 1 unit increase in ROL-IG increases LNSSE by 0.047%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on educational outcomes proxied by secondary school enrollment rate (LNSSE). The estimated results reveal that LNFDI, LNREM, LNGDP, and LNT improve secondary school enrollment rates in the presence of political stability, voice & accountability, regulatory quality and the rule of law. According to the results, a 1 unit increase in LNFDI and LNREM increases LNSSE by 0.024% and 0.042%. Similarly, a 1 unit increase in LNGDP and LNT, increase LNSSE by 0.096%, and 0.056%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG, VAI-PG,RQI-EG and ROL-IG improve LNSSE by 0.024%, 0.010%, 0.019% and 0.047%. %. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis),

which are mentioned in table 75 with the estimated results system-GMM (robustness analysis) in table 76 the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNREM, LNGDP, LNT. PSI-PG, VAI-PG, RQI-EG and ROL-IG positively impact secondary school enrolment in full sample middle-income countries. The coefficients are positive and have statistical significance across all the entire models.

5.3.5 DISCUSSION

This research work questions the growth-finance-educational outcomes trilemma by presenting empirical evidence from middle-income countries and high-income countries, which fills the lacuna in the literature. The estimated results reveal that the positive and significant relations depict that incremental economic growth increases the secondary school enrolment in middle-income, high-income, upper-middle-income, lower-middle-income countries, and middle-income countries with the sea. The high impact of growth-educational outcomes has been observed in middle-income countries due to the high level of economic activities for economic development, which further enhances human well-being. The findings reveal that, once the individual income increases, spending on health also increases, which directly improves the educational outcomes such as secondary school enrolment. Several studies also found a positive association between economic growth and secondary school enrolment in different regions, confirming this study's findings[790] [791]. Likewise, more government spending on the education sector at the national level also improves educational outcomes. The finding of this research reveals a positive association between government spending on education and secondary school enrolment. The findings support by previous studies[792] [793] [794] [795]. In terms of external finance, the findings of this study reveal that FDI inflow

[790] S.Gumus, and S.Kayhan. "The Relationship between Economic Growth and School Enrollment Rates: Time Series Evidence from Turkey." *Educational Policy Analysis and Strategic Research* 7.1,2012.p.24-38.
[791] J.C. Anyanwu,. "Accounting for gender equality in secondary school enrollment in Africa." *African Development Review* 28.2,2016.p.170-191.
[792] S.Gupta, M.Verhoeven, and E.R. Tiongson. "The effectiveness of government spending on education and health care in developing and transition economies." *European Journal of Political Economy* 18.4,2002.p. 717-737.
[793] D. Dey, and S.Mishra. "A study on FDI in education sector and its impact on gross enrolment ratio in higher education in India. An econometric approach." *International Journal of Management Studies* 3.6,2018.p.2231-2528.
[794] M.Mughal, and N.Vechiu. "Does FDI promote higher education? Evidence from developing countries." *10th Nordic Conference in Development Economics (NCDE)*. 2009.

in upper-middle-income countries and high-income countries increase secondary school enrolment. The positive association might be due to the strong spillover effect of FDI; thus, MNC Corporations induce more human capital in middle-income countries, upper-middle-income countries, and high-income countries. Other authors also found that there is a positive association between FDI inflow and secondary school education enrolment in a different region which reinforces the finding of this study[796] [797]. However, the FDI inflow in lower-income countries decreases secondary school enrolment. The negative effect of FDI might be due to a weak spillover of FDI. Employment provided by MNC may require a particular skill, which does not require secondary schooling. Furthermore, in lower-income countries, most of the labor force is engaged in the agriculture sector; therefore, as MNC start up their business in lower-income countries, the labor force and young students are employed by MNC despite their education, which further decreases the secondary school enrolment. Remittance inflow also indicates a positive association with secondary school enrolment in middle-income countries, lower-middle-income countries, middle-income countries with seaports, and high-income countries. The remittance inflow increases the income basket of family members of immigrants, which further impacts secondary school enrollment. It has been endorsed that remittance inflow improves social well-being[798]. Several studies, also found a positive correlation between remittance inflow and secondary school enrolment in different regions and different countries, which reinforces the outcome of this research work[799] [800] [801].The findings reveal a negative association between official development assistance and secondary school enrolment. Official development assistance usually flows in different sectors, not only in the education sector. Therefore the findings reveal a negative association between official

[795]O.Adesiyan, C. *The impact of public spending on education in Nigeria*. MS thesis. University of Cape Town, 2017.
[796]M.Wang, and H.Zhuang. "FDI and educational outcomes in developing countries." *Empirical Economics*,2021.p.1-35.
[797]M.Mughal, and N.Vechiu. "Does FDI promote higher education? Evidence from developing countries." *10th Nordic Conference in Development Economics (NCDE)*. 2009
[798]M.Ajayi,[et al.], "International remittances and well-being in sub-Saharan Africa." *Journal of Economics and International Finance* 1.3,2009.p. 078-084.
[799]C.Calero, A.S. Bedi, and R.Sparrow. "Remittances, liquidity constraints and human capital investments in Ecuador." *World Development* 37.6,2009.p.1143-1154.
[800]M.S. Atanda, and O.Charles. "Inward remittance and economic growth in Sub-Saharan African countries: Application of panel cointegration approach." *Research Journal of Finance and Accounting* 5.12,2014.p.51-68.
[801]C.Xia, Md Qamruzzaman, and A.Hamadelneel Adow. "An asymmetric nexus: Remittance-led human capital development in the top 10 remittance-receiving countries: Are FDI and gross capital formation critical for a road to sustainability?." *Sustainability* 14.6,2022.p.3703.

development assistance and secondary school enrolment. Furthermore, the possible reason for the negative relationship might be the absence of strong governance monitoring in AID recipient countries. Other author also found a negative association between foreign aid and secondary school enrolment in developing countries which reinforces the findings of this study[802]. Similarly, it has been argued that the effectiveness of AID in the education sector depends on the education structure of the recipient country; in a complex educational structure, AID does not work effectively[803]. The research evidence also indicates a positive association between trade and secondary school enrolment in middle-income countries full sample, lower-middle-income countries, middle-income countries with seaports, and high-income countries. Trade increases local production; thus, local production requires more human capital. The high demand for human capital positively impacts secondary school enrolment. A similar positive association between international trade and secondary school enrolment is also confirmed by other studies[804] [805] [806]. Regarding governance indicators, the findings reveal that the political stability index positively increases secondary school enrolment in middle-income countries full sample, its sub-income group, middle-income countries with seaports, and high-income countries. It is because political stability increases economic activities and the economic growth process. It has been endorsed in the literature that high political stability induces human well-being[807]. The positive association between political stability and secondary school enrolment is also supported by previous studies[808] [809] [810]. On the other hand, voice and accountability also increase secondary school enrolment in high-income countries. In high-income countries, the selection process for governments is free and fair; furthermore, the media act as an

[802]K. Michaelowa, and A.Weber. "Chapter 18 aid effectiveness in the education sector: A dynamic panel analysis." *Theory and practice of foreign aid*. Emerald Group Publishing Limited, 2006.p.357-385.
[803]A. Riddell, and M.Niño-Zarazúa. "The effectiveness of foreign aid to education: What can be learned?." *International Journal of Educational Development* 48,2016.p.23-36.
[804]A.L. Owen, and S.Wu. "Is trade good for your health?." *Review of International Economics* 15.4,2007.p.660-682.
[805]J.J. Lewer, and H.Van den Berg. "Does immigration stimulate international trade? Measuring the channels of influence." *The International Trade Journal* 23.2,2009.p.187-230.
[806]T.Tahir, and M.Tariq Majeed. "An Empirical Analysis of the Relationship between International Trade and Quality of Life." *Empirical Economic Review* 4.1.p.2021.p.1-32.
[807]R.Posner,. "Equality, wealth, and political stability." *The journal of law, economics, and organization* 13.2,1997.p.344-365.
[808]A.Alesina, and R.Perotti. "Income distribution, political instability, and investment." *European economic review* 40.6,1996.p.1203-1228.
[809]W.McMahon, Walter. "Education and growth in East Asia." *Economics of Education Review* 17.2,1998.p.159-172.
[810]N.Mose,. "Determinants of regional economic growth in Kenya." *African Journal of Business Management* 15.1,2021.p.1-12.

opposition to existing governments. Considering that fact-free media usually builds pressure on the government to provide adequate social services to the population. Therefore voice and accountability improve educational outcomes in secondary schooling in high-income countries. Similar findings are also indicated by other authors, which endorse the findings of this research. Furthermore, the regulatory quality index indicates a positive association with secondary school enrolment in high-income countries[811]. In high-income countries, along with the government sector, the private sector also participates in human-wellbeing activities, which further improve health and educational outcomes. Likewise, another author endorse in their research work that private and public sector cooperation in the education and health sector improves social well-being more than the engagement of one sector, either private or public[812]. The positive association between the regulatory quality index and secondary school enrolment is also supported by other studies[813] [814]. Likewise, the rule of the law indicates a positive association with secondary school education in middle-income countries of the full sample, lower-middle-income countries, middle-income countries with seaports and high-income countries. It means that social justice within the society positively increases educational outcomes as secondary school enrolment. The law enforcement and judiciary take an active part in providing fundamental rights as an educational facility to the population. The findings of this study are also confirmed by previous studies[815] [816].

5.3.6 SUMMARY OF RESEARCH FINDINGS - SECONDARY SCHOOL ENROLMENT

The research objective by investigating the impact of economic growth, macro-economic variable and governance indicators on secondary school enrollment is

[811]E.Ifinedo and M.Kankaanranta. "Understanding the influence of context in technology integration from teacher educators' perspective." *Technology, Pedagogy and education* 30.2,2021.p.201-215.
[812]R.Geiger, . "Public and private sectors in higher education: A comparison of international patterns." *Higher education* 17.6,1988.p.699-711.
[813]S.Saengchai, M.Mitprasat, and P.Horakul. "Judging quality of education from social paradigm in Asia: effect of civil liberties, regulatory quality and voice and accountability." *Journal of Security and Sustainability Issues* 9.J,2020.p.240-251.
[814]P.Karkatsoulis,[et al.], "Regulatory quality index: Methodology and implementation guide for European countries." *Regulatory Quality Index: Methodology and Implementation Guide. European Liberal Forum (ELF)*. 2019.
[815]N.Campos,. "Context is everything: measuring institutional change in transition economies." *World Bank Policy Research Working Paper* 2269,1999.
[816]S.A.Ejuvbekpokpo, and S.Hassan. "Impact of Institutional Quality on Educational Attainment: The Case of Low-Income SSA Countries." *Canadian Social Science* 15.9,2019.p.19-24.

conducted in this part for middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. The findings reveal that economic growth is crucial to reducing the infant mortality rate in all the sample panels. Based on the magnitude, economic growth indicates a high magnitude for high-income countries (0.270), followed by middle-income countries full sample (0.192).In middle-income countries of full sample, along with economic growth, remittance inflow, and trade improve secondary schooling when there is strong political stability, government effectiveness, and rule of law exist. In upper-middle-income countries, economic growth positively increases the secondary school enrollment along with foreign direct investment inflow, and trade under the condition of strong political stability and government effectiveness. Likewise, in lower-middle-income countries, economic growth increases secondary school enrollment along with remittance inflow and trade; when there is strong political stability and rule of law. However, in middle-income countries with seaports, secondary school enrollment is increased by economic growth, remittance inflow, and trade. Similarly, these factors also require a strong political stability and rule of law. Lastly, in high-income countries, besides economic growth, foreign direct investment inflow, remittance inflow, trade, political stability, voice and accountability, regulatory quality and rule of law are key determent for increasing secondary school enrollment. Empirical results reveal that economic growth along with trade and political satiability are common factor for increasing secondary school enrolment in all panel samples.

5.4.1 INCOME INEQUALITY

Due to the pandemic crises the average 'Gini' increased by 6% in emerging and developing countries.[817] The leading indicator of income distribution used is the Gini coefficient. Values of the Gini coefficient range between 0 in the case of "perfect equality refers to if each person gets the same income, and 1 in the case of "perfect inequality," which means if all income goes to the share of the population with the highest income (OECD,2008). High-income inequalities and gaps become a significant concern in developing countries and developed countries[818]. Similarly, equal income distribution in society appears to be a substantial indicator of socio-economic

[817]Q.Wang, and R.Huang. "The impact of COVID-19 pandemic on sustainable development goals–a survey." *Environmental Research* 202,2021.p.111637.
[818]D.Coburn,. "Income inequality, social cohesion and the health status of populations: the role of neo-liberalism." *Social science & medicine* 51.1,2000.p.135-146.

amalgamation[819]. My research questions the growth–finance-income distribution trilemma by presenting the empirical discoveries which fill a hiatus in the literature. This research also highlights the role of governance and economic prosperity in discovering its impact on the GINI coefficient and thus income distribution. Similarly, this research work adds a new perspective and highlights whether international financeimproves income distribution or worsens it. The findings reveal that economic growth is crucial to reducing income inequalities in upper-middle income countries, middle-income countries with seaports and high-income countries. However; economic growth increases income inequalities in lower-middle-income countries. Foreign direct investment only decreases income inequalities middle-income countries with seaports. However, remittance inflow reduces income inequalities in all the sample panels; whereas official development assistance increases income distribution in middle-income countries full sample and upper-middle-income countries. Considering the impact of economic growth on income distribution, the effect can either worsen or improve. However, in the long-run economic growth and development improve income distribution[820]. Considering that income distribution and its consequences are critical in middle-income and low-income countries, my study justifies engaging in this empirical research work, especially from an income-group perspective. Several pieces of research identified the nexus between economic growth and income distribution inclusion[821] [822]. However, numerous studies highlight the negative association between both variables[823] [824]; likewise, other studies indicate a positive association between income distribution and economic growth[825].

In developing countries, lack of finances is an emerging issue in the development process[826].It has been argued that international finance drives development

[819] M.Van Ham, D.Manley, and T.Tammaru. "Geographies of socio-economic inequality." 2022.
[820] Shin, Inyong. "Income inequality and economic growth." *Economic Modelling* 29.5,2012.p. 2049-2057.
[821]A.Banerjee, and E.Duflo. "Inequality and growth: What can the data say?." *Journal of economic growth* 8,2003.p.267-299.
[822]I.Shin, "Income inequality and economic growth."2008.
[823]E.Helpman, *Globalization and wage inequality*. No. w22944. National Bureau of Economic Research, 2016.
[824]T.Tachibanaki, and S.Sakoda. "Comparative Study of Happiness and Inequality in Five Industrialized Countries." *Advances in Happiness Research: A Comparative Perspective*,2016, 97-118.
[825]K. Forbes,. "A reassessment of the relationship between inequality and growth." *American economic review* 90.4,2000,p.869-887.
[826]C.Kirkpatrick, and C.Green. "Finance and development: an overview of the issues." *Journal of International Development* 14.2,2002.p.207.

and well-being in emerging economies[827]. Foreign direct investment also improves income distribution in the development process, whereas its impact worsens in other emerging countries thus, its effect is inclusive[828]. On the other hand, remittance by increasing household income decreases income inequalities in most developing countries[829] [830] [831]. Furthermore, aid appeared to be a key determinant for inequality reduction in developing countries[832] [833]. Middle-income countries experience high income-inequalities[834] [835]. Furthermore, upper-middle-income countries also experience a middle-income trap due to the high income-inequalities[836]. Due to fact, high-income inequalities also directly impact other social issues such as health and education.[837]

In this regard, developing countries, especially middle-income countries, face stagnant economic growth, and a high level of income inequalities cause hurdles in their graduation toward the high-income group[838]. Therefore, against this background, it becomes essential to investigate the economic growth, external finance, and income distribution trilemma. The study is a comparative analysis of economic growth and income distribution from the growth-income-equality paradigm. It incorporates other macroeconomic factors such as external finance, trade, and financial development for middle-income and high-income countries. The study comparatively analyzes this phenomenon for upper-middle-income and lower-middle-income countries while incorporating governance indicators. Due to stagnant economic growth, numerous upper-middle-income countries cannot graduate to high-income countries. This study uniquely considers the essence of socio-economic development as improved income distribution, which might highlight a significant factor in the graduation process.

[827]N.Kutivadze,. *Public debt, domestic and external financing, and economic growth*. No. 2011-12. 2011.
[828]H.Kang, and J.Martinez-Vazquez. "When does foreign direct investment lead to inclusive growth?." *The World Economy* 45.8,2022.p.2394-2427.
[829]B.Milanovic, "Remittances and income distribution." *Journal of Economic Studies* 14.5,1987.p. 24-37.
[830]M.Quibria, "International migration, remittances and income distribution in the source country: a synthesis." *Bulletin of economic research* 49.1,1997.p. 29-46.
[831]B.Barham, and S.Boucher. "Migration, remittances, and inequality: estimating the net effects of migration on income distribution." *Journal of development economics* 55.2,1998.p.307-331.
[832]D.Castells-Quintana, and J.María Larrú. "Does aid reduce inequality? Evidence for Latin America." *The European Journal of Development Research* 27,2015.p.826-849.
[833]H. Kasuga, and Y.Morita. "Does aid affect inequality?." *Applied Economics* 50.58,2018.p.6249-6262.
[834]C.Li,Y.Yu, and Qinghai Li. "Top-income data and income inequality correction in China." *Economic Modelling* 97 (2021): 210-219.
[835]J.Ward, and R.M. Viner. "The impact of income inequality and national wealth on child and adolescent mortality in low and middle-income countries." *BMC public health* 17,2017.p.1-8.
[836]A.Egawa,. *Will Income Inequality Cause a Middle-income Trap in Asia?*. Vol. 797. Bruegel, 2013.
[837]T.Houweling, and A.E. Kunst. "Socio-economic inequalities in childhood mortality in low-and middle-income countries: a review of the international evidence." *British medical bulletin* 93.1,2010.p.7-26.
[838]H.Kharas and H.Kohli. "What is the middle income trap, why do countries fall into it, and how can it be avoided?." *Global Journal of Emerging Market Economies* 3.3,2011.p.281-289.

Similarly, the timely transition toward socio-economic development is crucial for graduation from one income group to another[839] [840]. Therefore, this empirical analysis appeared to be a timely study as most middle-income countries strives toward achieving sustainable development goals, especially SDG 10.

A panel for 56 middle-income countries and 21 high-income-countries is used to probe the discourse from 2000 to 2015. Furthermore, the middle-income countries are further divided based on income and geography, indicatively upper-middle-income countries as income group and middle-income countries with seaport as geographical division. For empirical investigation, static and dynamic model estimations are adopted to analyze the impact of economic growth, external finance, trade, and financial development on the GINI coefficient. Furthermore, the analysis also includes six governance indicators. This study offers a new explanation for interpreting the impact of external finance, trade, and financial development on income distribution in different income groups, presenting new and potential policy options for government consideration in sample countries. The recommended policy framework provides a road map to the upper-middle-income countries for their graduation process, from the middle-income group to the high-income group.

To achieve the objective of this thesis, which is to investigate whether economic growth enhances social sustainability by improving income distribution as SDG goal 10 or dims its impact? Therefore, this section provides an empirical investigation of whether economic growth reduces the income inequalities in external finance, trade, financial development, and governance. A multidimensional approach is adopted, which estimated the nexus between GINI coefficient, economic growth, and other macro-economic variables performed on a total sample of middle-income countries than respective income and geographical group division. This methodology allows my study to reveal a holistic review of the relationship between exogenous and endogenous variables for other income and geographical groups to ensure a critical examination of the core argument. The rest of this section's structure is as follows; section 5.4.2 presents a literature review, 5.4.3 highlights the research framework based on hypothesis, 5.4.4 indicates data along with the model specification and empirical

[839]G.Firebaugh, and F.D. Beck. "Does economic growth benefit the masses? Growth, dependence, and welfare in the third world." *American Sociological Review*,1994.p.631-653.
[840]M.Dahan, and D.Tsiddon. "Demographic transition, income distribution, and economic growth." *Journal of Economic growth* 3.1,1998.p.29-52.

estimation followed by results interpretation, 5.4.5 mentions discussion of results, and section 5.5.6 consist summary of findings.

5.4.2 LITERATURE REVIEW

Social sustainability cannot be achieved without overcoming the issues related with income inequalities[841]. Economic growth indicates mix relationship (positive or negative with income inequalities[842]. Beside income growth there are numerous other factors which directly or indirect impact on income inequalities are discussed below,

INTERNATIONAL FINANCE AND INCOME INEQUALITIES

Foreign direct investment increases human well-being and infrastructure in the recipient country[843]. More specifically, it creates employment opportunities and increases individual income[844]. Researchers reviewed 25 years of literature on income inequality and the FDI relationship[845]. They highlight that no consensus exists on this issue as empirical evidence provides mixed results. However, they suggest that FDI usually increases income inequalities, and once countries develop and reach a certain level of development, inequalities reduce. Similar evidence was provided by other authors by investigating the impact of FDI inflow on income inequalities for 16 African countries. Their results indicate that FDI increases income inequality; however, the effect reduces with the further inflow of FDI in the long run[846].

Another researcher also investigated the impact of globalization on income allocation from 1975 to 2018 for Bangladesh. His results indicate that trade as export and import, aid, FDI, and remittance inflow has a significant long-term impact on income inequality. In the long run, aid and import improve income distribution; however, export, FDI, and remittance inflow deteriorate income distribution[847]. An

---

[841]I.Omann, and J.H. Spangenberg. "Assessing social sustainability." *Biennial conference of the international society for ecological economics*. Vol. 7. 2002.
[842]R.Argüello,. "Revisiting the relationship between income, inequality and economic growth." *Lecturas de Economía* 64,2006.p. 37-58.
[843]A.V. Mollick, R.Ramos-Duran, and E.Silva-Ochoa. "Infrastructure and FDI inflows into Mexico: A panel data approach." *Global Economy Journal* 6.1,2006.p.1850078.
[844] S.Z.A.Rizvi, and M.Nishat. "The impact of foreign direct investment on employment opportunities: Panel data analysis: Empirical evidence from Pakistan, India and China." *The Pakistan development review* ,2009,p.841-851.
[845]K.Huang, N.Sim, and H.Zhao. "Does FDI actually affect income inequality? Insights from 25 years of research." *Journal of Economic Surveys* 34.3,2020.p.630-659.
[846]T.Kaulihowa, and C.Adjasi. "FDI and income inequality in Africa." *Oxford Development Studies* 46.2,2018.p.250-265.
[847]Md.Uddin, Nezum. "Bangladesh: Income inequality and globalization." *Asian Business Review* 10.1,2020.p.43-52.

author investigated the impact of inward FDI on poverty reduction and income inequality for Portugal from 1973 to 2016 using time series estimation. Their results indicate that FDI significantly reduces poverty, and in terms of income inequality, the findings suggest that FDI does not contribute to higher (or lower) income inequality[848]. Instead, more unequal income distributions significantly and negatively impact inward FDI in the long run. Another author applied DOLS estimation to Nigeria's annual time series to investigate the impact of FDI inflow and its interaction with trade openness on income inequality from 1981 to 2015. The findings suggest that FDI inflow positively affects income inequalities; however, trade while interaction between FDI and trade openness negatively affects income inequality; thus, trade reduces income inequality caused by FDI inflow[849].

Furthermore, financial development and growth are crucial for reducing income inequality in the country. Likeiwse another author used time series yearly data covering the period 1980 to 2014 in Australia to analyze income inequality determinates such as inflation, per capita income, and trade openness. Their results suggest that financial development, the inflow of FDI, trade, and inflation positively impact income equality; however, economic growth acts oppositely[850]. In another empirical work, the author examined the effect of globalization on income inequalities in Ghana. The findings suggest that a long-run association exists between FDI, remittances, trade openness, and income inequalities; furthermore, remittances harm income inequalities, whereas no effect of FDI has been found[851]. Another author empirically investigated the impact of FDI on income inequality for 24 developed and 37 developing countries using two-step systems GMM for the period 2005 to 2018. The findings provide evidence that FDI inflow decreases income inequalities in developing countries; however, FDI increases income inequalities in developed countries. Furthermore, governance and education narrow income inequality in both groups of countries while economic growth widens it[852]. In another empirical work the author studied the nexus between trade, FDI inflow,

[848] A.Teixeira, AC, and A.Sofia Loureiro. "FDI, income inequality and poverty: a time series analysis of Portugal, 1973–2016." *Portuguese Economic Journal* 18.3,2019.p.203-249.
[849]O.Aigheyisi,. "Non-Oil Trade and Income Inequality in Nigeria." *The Empirical Economics Letters* 19.6,2020.
[850]Y.Shi, S.Paul, and Sudharshan Reddy Paramati. "The impact of financial deepening on income inequality: Empirical evidence from Australia." *International Journal of Finance & Economics* 27.3,2022.p.3564-3579.
[851]C.Manu, "Effect of globalization on income inequality in Ghana." *International Journal of Economics and Finance* 13.2,2021.p.15-24.
[852]T.C. Nguyen,. "Financial crises and income inequality." *Available at SSRN 3879483*,2021.

and income inequality for CIS countries using annual data from 1990 to 2016 and applied system GMM estimation. Then findings indicate that when trade and FDI interact with the Gini-index, they have considerable effects on income inequality; in the case of trade, an inverted U-shaped curve holds, as predicted by trade theory. Except for imports from advanced nations, the component-wise effect of trade was small. Furthermore, in the case of the human development index, the results were not determined to be significant[853]. Different results were found when trade and FDI interacted with education, which is a key avenue via which inequality is influenced. Furthermore another author used panel data from 37 countries from 2001 to 2015 to investigate the relationship between income inequality, FDI, and financial development by applying panel smooth transition regression. Their findings suggest that FDI helps reduce income inequality; however, in the long run, its benefit becomes weak when the country reaches a threshold level of financial development. Furthermore, the relationship between financial development and income inequality is significantly positive[854]. Similarly, another researcher used panel data from different provinces of Vietnam to analyze the effect of FDI inflow on income inequality in the presence of education and institution quality. By applying system GMM estimation, the findings suggest that FDI increases income inequality in Vietnam. Furthermore, the effects of FDI on income inequality are different depending on the level of education and institution quality of the host provinces in Vietnam[855]. In another research work author used panel data from 33 provinces of Indonesia from 2012 to 2016 to investigate the relationship between FDI inflow and income inequality[856]. The findings reveal that FDI inflow has an indirect and negative effect on income inequality in the presence of economic growth. Similarly in another research work based empirical analysis to investigate the relationship between income inequalities and different macroeconomic variables from Indonesis. The findings confirm the existence of the Kuznets hypothesis for Indonesia. Furthermore, trade and education harm income inequality in the long run; however, trade increases income inequality, and education has a decreasing effect in the

[853]I.Khan, and Z.Nawaz. "Trade, FDI and income inequality: empirical evidence from CIS." *International Journal of Development Issues* 18.1,2019.p.88-108.
[854]K-K, Lee, and T.V. Vu. "Economic complexity, human capital and income inequality: a cross-country analysis." *The Japanese Economic Review* 71,2020.p.695-718.
[855]Q.Le,[et al.], "The impact of foreign direct investment on income inequality in Vietnam." *Economies* 9.1,2021.p. 27.
[856]AL.M.Fazaalloh, "Is foreign direct investment helpful to reduce income inequality in Indonesia?." *Economics & Sociology* 12.3,2019.p.25-36.

short run[857]. Likewise another author used panel data covering 2000 to 2015 for the Sub-Saharan region to investigate the nexus between trade openness, FDI, and income inequality. They applied panel GMM estimation, and their results reveal that FDI inflow and income inequality hold a negative relationship. Furthermore, trade openness, education, political stability, corruption, and the rule of law positively correlate with income inequalities[858]. Furthermore in another empirical analysis the author used panel data from 21 Sub-saharan African countries to analyze the effect of urbanization on income inequality from 1984 to 2014 using Pooled Mean Group and Common Correlated Effects Mean Group estimation. Their finding suggests that GDP per capita, trade openness, and urbanization positively affect income inequality[859]. Furthermore, the nexus between remittance inflow and income inequality indicates mix relationship. In terms of survey data the author used a household survey of Mali to evaluate the nexus between income inequalities and remittance inflow in the presence of poverty. The finding reveals that remittances inflow reduces income inequalities in Mali[860]. Likewise, another survey data used by another author based on a household survey of 2008 of 600 samples for Pakistan to investigate the impact of remittance on income inequality. The outcome suggests that remittance inflow reduces income inequality[861]. Several studies highlight that remittance inflow improved income inequalities[862] [863] [864]. However, on the other hand, some empirical evidence indicates that remittance inflow worsens the income distribution[865] [866]. Another author also used panel data from 78 countries and suggested that remittance inflow reduces income inequalities under

[857]S.N.Azizah, N.Ela Fauziyyah, and A.Qoyum. "Short-run and Long-run Relationship between Economic Growth, Foreign Direct Investment, Trade Liberalization and Education on Income Inequality: Evidence from Indonesia." *Journal of Islamic Finance* 8,2019.p.047-055.

[858]C.Xu, [et al.], "Trade openness, FDI, and income inequality: Evidence from sub-Saharan Africa." *African Development Review* 33.1,2021.p.193-203.

[859]S.Adams, and E.Kwame Mensah Klobodu. "Urbanization, economic structure, political regime, and income inequality." *Social Indicators Research* 142,2019.p.971-995.

[860] G.Flore, T.Lassourd, and S.Mesplé-Somps. "Do remittances affect poverty and inequality? Evidence from Mali." 2010.

[861]K.Shams, and A.Kadow. "Income inequality, remittances and economic wellbeing in rural Pakistan: linkages and empirical evidence." *Asia-Pacific Journal of Regional Science* 4,2020.p.499-519.

[862]A. Arapi-Gjini, J.Möllers, and T.Herzfeld. "Measuring dynamic effects of remittances on poverty and inequality with evidence from Kosovo." *Eastern European Economics* 58.4,2020.p.283-308.

[863]F. Ahmed, J.Ama Dzator, and J.Xiaohe Zhang. "Remittances, income inequality and investment in Bangladesh." *The Journal of Developing Areas* 55.1,2021.

[864]M.Shahbaz,I.Ur Rehman, and N.Shahnaz Ahmad Mahdzan. "Linkages between income inequality, international remittances and economic growth in Pakistan." *Quality & quantity* 48. 2014.p.1511-1535.

[865] J.Bouoiyour, and A.Miftah. "The effects of remittances on poverty and inequality: Evidence from rural southern Morocco."2014.

[866]H.D.Karunaratne,. "International labour migration, remittances and income inequality in a developing country: The case of Sri Lanka.",2012.

certain conditions. The reduction effect of remittance was observed in the presence of financial sector development and the country's high literacy rate[867]. Furthermore in another panel data study based on 47 African countries from 2004 to 2014 to investigate the nexus between income inequality, financial inclusion, and remittance inflow. Their findings suggest that financial inclusion and remittance inflow reduces income inequality in African countries[868]. Numerous panel studies also indicate that remittance inflow reduces income inequalities such as for Balkan countries[869], Latin American countries[870], and in emerging countries[871]. In another study based on panel data from African countries from 1960 to 2006 to investigate the impact of remittances on income inequality; the authors finding suggests that remittances positively impact income inequalities, and initial per capita GDP increases income inequality and inflation[872]. Furthermore, another author investigated the impact of remittance inflow on poverty and income equality. In his investigation, he used panel data from 103 countries from 1990 to 2014. The finding suggests that Remittances decrease inequality in developing countries[873]. Likewise in another study used a panel of 20 major remittance-receiving countries covering 1980 to 2016 to examine the effect of remittance inflow, FDI, and economic growth on income inequality. The findings suggest that increasing FDI inflows and remittances raises income inequality while economic growth reduces[874]. Furthermore another author also used panel data from 16 African countries covering the period 1990 to 2011 to investigate the relationship between foreign aid and income inequalities. They used random effect, panel OLS, and dynamic system GMM for empirical estimation. Their results indicate that foreign aid, FDI, trade openness, and

[867]V.Koechlin, and G.Leon. "International remittances and income inequality: An empirical investigation." *Journal of Economic Policy Reform* 10.2,2007.p.123-141.
[868]N.BKWAYEP, Y.Rodrigue, and N.Roger TSAFACK. "Remittances, financial inclusion and income inequality in Africa." 2020.
[869]U.Bajra,. "The interactive effects of remittances on economic growth and inequality in Western Balkan countries." *Journal of Business Economics and Management* 22.3,2021.p.757-775.
[870] D.E.Vacaflores, "Are remittances helping lower poverty and inequality levels in Latin America?." *The Quarterly Review of Economics and Finance* 68,2018.p.254-265.
[871] K.Tsaurai, "Is the complementarity between remittances and human capital development a panacea for income inequality reduction?." *International Journal of Services, Economics and Management* 9.1,2018.p.1-17.
[872] J.C.Anyanwu,. "International remittances and income inequality in Africa." 2011.
[873]S.Azizi. "The impacts of workers' remittances on poverty and inequality in developing countries." *Empirical Economics* 60.2,2021.p.969-991.
[874] Y.Song, [et al.], "The effect of remittances and FDI inflows on income distribution in developing economies." *Economic Analysis and Policy* 72.2021.p.255-267.

corruption have a positive effect on income inequalities[875]. Similarly, another driving factor also reduces income inequalities, such as high agriculture productivity[876].

FINANCIAL DEVELOPMENT AND INCOME INEQUALITIES

Financial sector stability is a crucial determinant of economic growth[877]. Financial sector development increases productively in developing countries by providing more credit facilities to the business sector[878].However, financial development tends to increase income inequalities in most emerging countries[879] [880] [881]. Another author investigated the impact of financial development on income equality in the presence of inflation for seven South-Eastern European countries. According to the fixed effect estimation, financial development increased income inequality, whereas POLS indicates that financial development narrowed down income inequality. On ther other hand, another author investigated the impacts of financial inclusion on poverty and income inequality in 27 developing countries in Asia from 2004 to 2019 by applying panel GMM estimation. The finding suggests that financial inclusion reduces poverty and income inequality in developing countries. Furthermore, financial development decreases income equality, and on the other hand, trade enhances the living standard of poor people[882]. Numerous studies suggest that financial sector development reduces income inequalities[883] [884]. Similarly, another author argued in their work that due to their lack of education, the financial sector does not lend to the poor[885]. Poor people cannot break free from the cycle of income inequality under such circumstances. As a result, income inequality in transition nations worsens faster than in

[875] M.Younsi, H.Khemili, and Marwa Bechtini. "Does foreign aid help alleviate income inequality? New evidence from African countries." *International Journal of Social Economics* 46.4,2019.p.549-561.
[876]C.Constantine, "The rise of income inequality in Guyana." *Social and Economic Studies*,2017.p.65-95.
[877]M. Blejer, "Economic growth and the stability and efficiency of the financial sector." *Journal of Banking & Finance* 30.12,2006.p.3429-3432.
[878]M.S Creane,[et al.], *Financial development and growth in the Middle East and North Africa*. International Monetary Fund, 2003.
[879]A.Johansson., and Xun Wang. "Financial sector policies and income inequality." *China Economic Review* 31,2014.p.367-378.
[880] G.R.G.Clarke,L.Colin Xu, and Heng-Fu Zou. "Finance and income inequality: what do the data tell us?." *Southern economic journal* 72.3,2006.p.578-596.
[881]A. Wahid,[et al.], "Does financial sector development increase income inequality? Some econometric evidence from Bangladesh." *Indian Economic Review*,2012.p.89-107.
[882]W.Chinnakum,"Impacts of financial inclusion on poverty and income inequality in developing Asia." *The Singapore Economic Review* 68.04,2023.p.1375-1391.
[883]G.R.G. Clarke L.Colin Xu, and Heng-Fu Zou. "Finance and income inequality: what do the data tell us?." *Southern economic journal* 72.3,2006.p.578-596.
[884]S.H. Law,H.Boon Tan, and W. N. W. Azman-Saini. "Financial development and income inequality at different levels of institutional quality." *Emerging Markets Finance and Trade* 50.sup1,2014.p.21-33.
[885]S.Claessens, and E.Perotti. "Finance and inequality: Channels and evidence." *Journal of comparative Economics* 35.4,2007.p.748-773.

industrialized countries. Similarly, another author provided empirical evidence for the financial Kuznets curve for five Asian countries, namely Indonesia, Malaysia, the Philippines, Singapore, and Thailand, between 1989 and 2013. Using the fixed-effect model indicates that the different financial development proxies have a positive and significant impact on income inequality in ASEAN-5 countries. In contrast, the squared term of financial development proxies has a negative and significant impact on income inequality. These findings confirm the presence of the financial Kuznets hypothesis in ASEAN-5 countries during the period under the study[886].

TRADE AND INCOME INEQUALITIES

Existing literature constitutes mixed evidence regarding the nexus between trade and income inequality[887]. It has been argued that the effect of trade on income distribution depends on each country's specific trade patterns by measuring the changes in the factor content of trade. Furthermore, they also argue that labor-intensive exports may increase income inequality in developing countries may seem counterintuitive[888]. Similarly, another author used a panel for 56 developing countries. His evidence suggests that the impact of openness on income distribution depends on the quality of human capital. Furthermore, primary education appeared to be a critical factor in determining export composition[889]. Likewise, Countries relatively well endowed with primary education tend to have higher shares of manufacturing exports and experience lower income inequality than countries with high shares of primary exports. Furthermore in another empirical analyzes the author analyzed, the impact of trade on income inequality using time series data from Bangladesh from 1975 to 2016. They used ARDL estimation and revealed that export was widening the income gap in the long run; the however impact of import is not significant[890]. Likewise, another author analyzed time-series data of India for the period 1980 to 2018 to investigate the impact of trade and technological progress on income inequality. They used the ARDL estimation technique. Their results

[886]M.Azam, and S.Ali Raza. "Financial sector development and income inequality in ASEAN-5 countries: does financial Kuznets curve exists?." *Global Business and Economics Review* 20.1,2018.p.88-114.
[887]W. Cline, *Trade and income distribution*. Peterson Institute, 1997.
[888] I.Bensidoun, S.Jean, and A.Sztulman. "International trade and income distribution: reconsidering the evidence." *Review of World Economics* 147,2011.p.593-619.
[889]C.Litwin,. "Trade and income distribution in developing countries." *rapport nr.: Working Papers in Economics* 1998.
[890]M. Chowdhury, H.Rahman Nijhum, and K.Mohammed Kamal Uddin. "Disintegrated impact of trade openness on income inequality: empirical evidence from Bangladesh." *Chowdhury, MA, Nijhum, HR, & Uddin, KMK (2021). Disintegrated Impact of Trade Openness on Income Inequality: Empirical Evidence from Bangladesh. Business and Economic Research* 11.3,2021.p.1-18.

indicate that technological progress, trade, and financial development, directly and indirectly, impact income inequality through economic growth and inflation[891]. Another author investigated the relationship between trade unions and income inequalities in the USA from 1947 to 2015 using time series data. His results indicate that inequality is caused by financial development, public sector retrenchment, and unemployment, but not necessarily by technological change[892].

Similarly in another empirical work, the author used an unbalanced panel for 34 developing and developed countries from 1965 to 1992. The panel OLS estimation technique suggests that trade openness reduces inequality in capital-abundant countries, whereas trade openness increases inequality in skill-abundant countries[893]. Another author used panel data for 64 developing countries from 1980 to 1999. They conclude that trade with high-income countries worsens income distribution in developing countries[894]. Another author examined the effect of trade on income inequality for 11 Sub-Saharan countries covering the period 1980 to 2008. They use a fractional regression model to estimate the model. Their results reveal that trade decreases income inequality in sample countries[895]. Similarly, it has been argued by other researcher in their research work that in emerging countries, trade openness leads to increases in wages that further increase income disparities. Trade openness in developing nations, combined with increased global economic integration, draws inward FDI, which primarily creates jobs for skilled employees, resulting in wage disparities between skilled and unskilled workers. The income distribution would be worsened if there was more pay inequality among workers[896]. Another author investigated the relationship between regional integration and income distribution for 15 West African countries. The research findings indicate that political integration reduces income inequalities, and

[891]A.K. Giri, Rajan Pandey, and Geetilaxmi Mohapatra. "Does Technological Progress, Trade, or Financial Globalization Stimulate Income Inequality in India?." *The Journal of Asian Finance, Economics and Business* 8.2,2021.p.111-122.
[892]C.Kollmeyer. "Trade union decline, deindustrialization, and rising income inequality in the United States, 1947 to 2015." *Research in Social Stratification and Mobility* 57,2018.p.1-10.
[893]A.Spilimbergo, J.Luis Londoño, and Miguel Székely. "Income distribution, factor endowments, and trade openness." *Journal of development Economics* 59.1,1999.p.77-101.
[894]E.Meschi, and M.Vivarelli. "Trade and income inequality in developing countries." *World development* 37.2,2009.p.287-302.
[895]K.Ogundari,. "Effect of Trade on Income Inequality in sub-Saharan Africa: A note." 2021.
[896]P.R. Krugman, and R.Z.Lawrence. "Trade, jobs, and wages." 1993.

on the other hand, economic openness and integration increase the income gap in sample countries[897].

INCOME INEQUALITIES AND INFLATION

High prices harm human well-being[898]. In developing countries, economic growth is stagnant; therefore, people usually have minimal income. Moreover, in developing countries concentration of population is extremely high; the increasing price effect of commodities is usually higher than the increases in their annual income. This phenomenon added more people below the poverty time[899]. Therefore, inflation causes income inequalities in developing. An author used data for 33 Asian countries from 1990 to 2013 for investigating the relationship between inflation and income distribution. By applying dynamic panel estimation, the finding reveals that inflation wider the income gap, thus increasing income distribution[900]. Another author used panel data for 46 Developing countries from 2000 to 2012 to investigate the relationship between income distribution and inflation. He used system-GMM panel estimation and found that higher inflation is associated with higher income inequality[901]. For 9 European countries, similar panel estimation was also done by other author and revealed a positive association between inflation and income distribution[902]. Other studies also indicate a positive association between income distribution and inflation[903] [904]. It has been argued that price stability lowers the GINI coefficient and thus income distribution[905].

5.4.3 RESEARCH FRAMEWORK - INCOME INEQUALITIES

This thesis work aims to explore the impact of sustainable economic growth on social and environmental pillars of sustainable development, which could helpful for

[897] M..Ametoglo, E.Silo, Ping Guo, and Kwami Ossadzifo Wonyra. "Regional integration and income inequality in ECOWAS zone." *Journal of Economic Integration* 33.3,2018.p.604-627.
[898]C. Hadley,[et al.], "Rapidly rising food prices and the experience of food insecurity in urban Ethiopia: impacts on health and well-being." *Social Science & Medicine* 75.12,2012.p. 2412-2419.
[899]L.Barrington, "Estimating earnings poverty in 1939: a comparison of Orshansky-method and price-indexed definitions of poverty." *Review of Economics and Statistics* 79.3,1997.p.406-414.
[900]N.P.Deyshappriya, "Impact of macroeconomic factors on income inequality and income distribution in Asian countries."2017.
[901]N.Nantob, "Income inequality and inflation in developing countries: An empirical investigation." *Economics Bulletin* 35.4,2015.p.2888-2902.
[902]E.Thalassinos, E.Ugurlu, and Y.Muratoglu. "Income Inequality and Inflation in the EU." (2012).
[903]F.Al-Marhubi, "A note on the link between income inequality and inflation." *Economics Letters* 55.3,1997.p.317-319.
[904]R.M. Desai, A.Olofsgård, and T.M. Yousef. "Inflation and inequality: does political structure matter?." *Economics Letters* 87.1,2005.p.41-46.
[905]A.Bulíř,. "Income inequality: does inflation matter?." *IMF Staff papers* 48.1,2001.p.139-159.

upper-middle-income countries to leave the middle-income trap. Furthermore, this research work also provides a comparative analysis regarding the impact of economic growth, external finance, trade, and financial development along with the governance of sub-income groups (upper-middle-lower and lower-middle-income countries) for a full sample of middle-income countries on different sustainable goals such as poverty, health , education and income distribution. Based on the research goals below, relevant research framework is mentioned in figure 8.

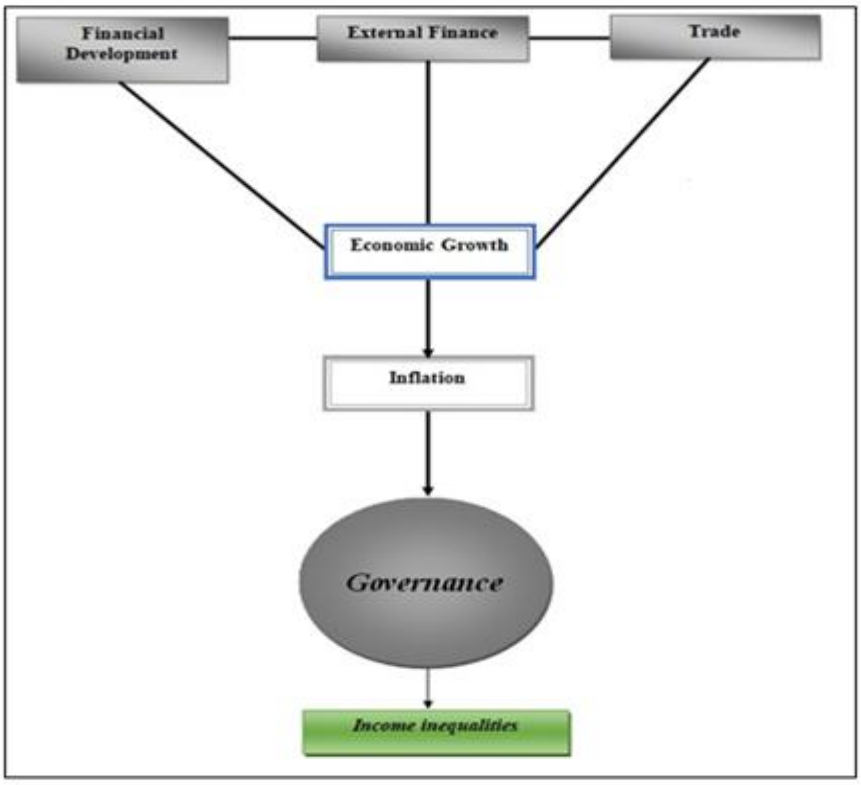


FIGURE 8. RESEARCH FRAMEWORK FOR THE MODEL OF INCOME INEQUALITIES

5.4.4 DATA, MODEL SPECIFICATION & METHODOLOGY

In this section I will discuss the data, sources of data, definition of variables, then specify the model based on literature review and according to the research hypothesis based on research question. This section also consist estimation of model according to relevant statistical and econometric estimation technique.

5.4.4.1 DATA

The present study investigates growth–finance-income inequality trilemma for middle-income and high-income countries[906] for the period covering from 2000 to 2015. For evaluating the impact of economic growth on social dimension more specifically on income inequality or income distribution, the GINI coefficient is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 8. The other endogenous variables are FDI which is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP and INF is the inflation thus consumer price index. Likewise, GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore the governance variables include, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. Table 77 contains a brief account regarding the abbreviation, definition of variable and source of the data utilized.

[906] Due to availability of GINI coefficient I used 18 countries.

TABLE 77. DATA SOURCES, ABBREVIATION AND DESCRIPTION - INCOME INEQUALITY

ABBREVIATION	VARIABLE DESCRIPTION	SOURCE	TYPE
GINI	GINI Coefficient	Lahotil et at (2016)	Endogenous
GDPPC	GDP per Capita (Constant USD 2015) –Economic growth	World Bank Development Indicator	Exogenous
FDI	Foreign direct inflow (% of GDP)	International Monetary Fund	Exogenous
REM	Remittance inflow (%of GDP)	World Bank Development Indicator	Exogenous
ODA	Official development assistance (%of GDP)	World Bank Development Indicator	Exogenous
T	Trade (% of GDP)	OECD	Exogenous
FD	Domestic credit to Private sector	World Bank Development Indicator	Exogenous
CH	Health Expenditure (% of GDP)	World Bank Development Indicator	Exogenous
HB	Hospital beds (per 1,000 people)	World Bank Development Indicator	Exogenous
INF	Inflation	World Bank Development Indicator	Exogenous
PS-PG	Political Satiability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
VA-PG	Voice and Accountability Index-(Political Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
GE-EG	Government Effectiveness Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RQ-EG	Regulatory Quality Index-(Economic Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
CC-IG	Corruption Control Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous
RL-IG	Rule of Law Index-(Institutional Governance, [-2.5 (weak) to 2.5 (strong)]	World Bank Governance Indicator	Exogenous

5.4.4.2 SUMMARY STATISTICS AND CORRELATION ANALYSIS

By limiting the discussion to the variable of interest, economic growth, international financeand per capita consumption expenditure growth the comparative statistics of variables are shown in table 78 for middle-income-countries and table 79 indicate correlation analysis among the variables. Likewise table 80 indicates comparative statistics of variables for high-income-countries and table 81 correlation analyses among the variables respectively.

TABLE 78. SUMMARY STATISTICS (MIC-FS, INCOME INEQUALITY

VARIABLE	MIDDLE-INCOME-COUNTRIES, FULL SAMPLE				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
GINI	895	0.509	0.078	0.238	0.851
FDI	896	4.120	4.959	-5.208	55.075
REM	896	5.622	6.500	0.000183	34.499
ODA	896	3.034	3.342	-0.616	21.436
GDPPC	896	3366.748	2272.059	485.860	11642.78
T	896	79.104	32.783	21.332	220.406
INF	896	6.616	6.494	-18.1	48.7
PSI	896	-0.473	0.754	-2.81	1.28
VAI	896	-0.381	0.591	-1.78	1.15
GEI	896	-0.383	0.512	-1.78	1.27
RQI	896	-0.297	0.515	-1.8	0.93
COC	896	-0.527	0.530	-1.52	1.28
ROL	896	-0.516	0.494	-1.66	0.73

As per middle-income-countries the average real GDP per capita income is 3366.748 (USD Constant, 2015), with Cambodia having the lowest at 485.86 (USD Constant, 2015) in 2000 and Cameroon showing the highest in 2015 with 6175.87 (USD Constant, 2015). The standard deviation appeared as 2272.059. The average foreign direct investment inflow percentage of GDP is 4.120%, with Angola having the lowest at -5.208% in 2013 and Azerbaijan showing the highest in 2003 with 55.07%. The standard deviation appeared to be 4.959. Similarly, the average remittance inflow percentage of GDP is 5.622%, with Angola having the lowest at 0.000183% in 2011 and Moldova showing the highest in 2006 with 34.49%, with a standard deviation of 6.500. Furthermore, the average official development assistance inflow percentage of GDP is 3.034%. Thailand had the lowest at -0.616% in 2003, and the Congo Republic showed the highest in 2005 with 21.43%, with a standard deviation of 3.342. In terms of GINI, the average GINI is 0.509, with Belarus having the lowest at 0.238 in 2003 and South Africa showing the highest in 2010 with 0.851 and the standard deviation is 0.078. Furthermore, according to the table 5.5.4 the correlation analysis among

exogenous and endogenous variables suggests that there is no multicollineraity exist among the variables.

TABLE 79. CORRELATION ANALYSIS (MIC-FS, INCOME INEQUALITY)

MIDDLE-INCOME-COUNTRIES, FULL SAMPLE													
VARIABLE	**GINI**	**FDI**	**REM**	**ODA**	**GDPPC**	**T**	**INF**	**PSI-PG**	**VAI-PG**	**GEI-EG**	**RQI-EG**	**COC-IG**	**ROL-IG**
GINI	1												
FDI	-0.102	1											
REM	-0.243	0.097	1										
ODA	0.071	0.057	0.144	1									
GDPPC	-0.077	0.096	-0.137	-0.507	1								
T	-0.144	0.334	0.044	-0.038	0.202	1							
INF	-0.115	0.043	-0.062	0.060	-0.075	0.149	1						
PSI-PG	0.062	0.119	-0.133	0.112	0.286	0.397	-0.065	1					
VAI-PG	0.111	-0.012	0.077	-0.074	0.211	-0.108	-0.068	0.241	1				
GEI-EG	0.005	0.038	-0.099	-0.176	0.399	0.280	-0.165	0.390	0.440	1			
RQI-EG	0.053	0.153	0.093	-0.189	0.400	0.173	-0.224	0.288	0.607	0.772	1		
COC-IG	0.057	-0.018	-0.045	-0.007	0.292	0.187	-0.152	0.492	0.492	0.775	0.585	1	
ROL-IG	0.099	0.045	-0.009	-0.063	0.319	0.240	-0.161	0.485	0.505	0.839	0.711	0.841	1

TABLE 80. SUMMARY STATISTICS (HIC, INCOME INEQUALITY)

VARIABLE	HIGH INCOME GRADUATED COUNTRIES				
	OBSERVATION	MEAN	STD. DEV.	MIN	MAX
GINI	288	0.381	0.095	0.244	0.586
FDI	288	11.443	30.619	-15.707	280.131
REM	288	0.824	1.075	2.89E-05	5.336
ODA	288	0.627	1.231	-0.249	8.305
FD	288	91.288	56.162	12.869	255.310
GDPPC	288	20162.09	10966.25	5533.977	61987.55
T	288	111.725	75.973	19.559	442.62
INF	288	3.179	3.860	-4.5	37
PSI	288	0.614	0.577	-1.63	1.59
VAI	288	0.882	0.319	-0.29	1.62
GEI	288	0.963	0.437	-0.02	1.91
RQI	288	0.964	0.536	-0.87	2.19

As per high-income countries the average real GDP per capita income is 20162.09 (USD Constant, 2015), with Mauritius having the lowest at 5533.97 (USD Constant, 2015) in 2000 and Ireland showing the highest in 2015 with 61987.55 (USD Constant, 2015). The standard deviation appeared as 10966.25. The average foreign direct investment inflow percentage of GDP is 11.443%, with Hungary having the lowest at -15.707% in 2015 and Cyprus showing the highest in 2012 with 280.131%. The standard deviation appeared to be 30.619. Similarly, the average remittance inflow percentage of GDP is 0.824%, with Uruguay having the lowest at 0.0000288917% in 2001 and Croatia showing the highest in 2015 with 5.336%, with a standard deviation of 1.075. Furthermore, the average official development assistance inflow percentage of GDP is 0.627%. Mauritius had the lowest at -0.2496% in 2003, and the Seychelle showed the highest in 2002 with 8.305%, with a standard deviation of 1.134. In terms of GINI, the average GINI is 0.381, with Slovakia having the lowest at 0.244 in 2000 and Seychelle showing the highest in 2006 with 0.586 and the standard deviation is 0.095. Furthermore, according to the table 82, the correlation analysis among exogenous and endogenous variables suggests that there is no multicollineraity exist among the variables.

TABLE 81. CORRELATION ANALYSIS (HIC, INCOME INEQUALITY

HIGH INCOME COUNTRIES GRADUATED COUNTRIES														
VARIABLE	**GINI**	**FDI**	**REM**	**ODA**	**FD**	**GDPPC**	**T**	**INF**	**PSI-PG**	**VAI-PG**	**GEI-IG**	**RQI-IG**	**COC-IG**	**ROL-IG**
GINI	1													
FDI	0.006	1												
REM	-0.218	0.148	1											
ODA	0.161	-0.068	-0.078	1										
FD	-0.030	0.423	-0.251	-0.137	1									
GDPPC	-0.168	0.182	-0.343	0.051	0.593	1								
T	0.292	0.233	0.011	-0.048	0.110	0.273	1							
INF	0.184	-0.061	-0.044	-0.002	-0.333	-0.297	0.039	1						
PSI-PG	-0.015	0.047	0.055	-0.387	-0.029	-0.114	0.316	0.083	1					
VAI-PG	-0.421	0.023	-0.307	-0.265	0.213	0.221	-0.357	-0.090	0.203	1				
GEI-EG	-0.080	0.213	-0.397	-0.027	0.678	0.737	0.251	-0.306	0.006	0.378	1			
RQI-EG	-0.177	0.159	-0.320	-0.201	0.508	0.581	0.274	-0.308	0.060	0.517	0.803	1		
COC-IG	0.206	0.185	-0.539	-0.074	0.524	0.618	0.209	-0.107	0.113	0.376	0.753	0.631	1	
ROL-IG	0.014	0.154	-0.590	-0.141	0.626	0.678	0.197	-0.224	0.131	0.553	0.791	0.807	0.805	1

5.4.4.3 MODEL SPECIFICATION

The hypotheses will be tested by estimating a series of panel data models. The models will explain the variables that measure the elements that characterize particular sustainability pillars. For evaluating the impact of economic dimension on social dimension more specifically on income inequality or income distribution, the GINI coefficient is used as endogenous variable. On the other hand, numerous exogenous variables are used along with economic growth for determining the nexus between economic prosperity and social sustainability for testing the formulated hypothesis in figure 7. Based on research hypothesis as mentioned in Figure 5.5.1 initially below model will be formed,

$$GINI_{it}=\alpha_o+\alpha_1 FDI_{it}+\alpha_2 REM_{it}+\alpha_3 ODA_{it}+\alpha_4 GDPPC_{it}+\alpha_5 T_{it}+\alpha_6 FD_{it}+\alpha_7 INF_{it}+e_{it}$$

(Equation 1)

Where GINI coefficient refer to income distribution, FDI is the foreign direct investment inflow percentage of GDP, REM is the remittance inflow percentage of GDP, ODA is the official development aid percentage of GDP, T is the total trade percentage of GDP, FD is the financial development refer to domestic credit to private sector percentage of GDP and INF is the inflation thus consumer price index. GDPPC refer to GDP per Capita (Constant USD 2015). Furthermore, α (where o, 1,2,3,…,7) are the parameters to be estimated , i are the countries (1,2,3,….N) and t are the time (1,2,3,…,T) and eit refer to the error term in above equation 1. The units of each variable and source of data are mentioned in Table 5.3.1. Similarly, all variables were measured by a natural logarithm to attain reliable results, therefore above equation above 1 will be ,

$$LNGINIit=\alpha o+\alpha 1 LNFDIit+\alpha 2 LNREMit+\alpha 3 LNODAit+\alpha 4 LNGDPPCit+\alpha 5 LNTit++\alpha 6 LNFDit+\alpha 7 LNINFit+eit$$

(Equation 2)

In above equation 2, ln refer to the natural logaithum as this logarithm form helped interpret the coefficients, as all coefficients could be expressed as elasticities, which provided a clear interpretation of the results. However, the primary goal of my research work is to analyze the impact of external finance, economic properity and governance indicators on sustainability. Therefore, below model will be estimated which incorporate the impact of political governance along with economic sustainability

and international financeon income distribution. By incorporating political governance index in equation 2 , given below model will estimated.

LNGINIit=αo+α1LNFDIit+ α2LNREMit +α3 LNODAit+α4LNGDPPCit+α5LNTit+ α6LNFDit +α7LNINFit + α8PSI-PG + α9VAI-PG + eit (Equation 3)

In above equation 3, PSI-PG and VAI-PG refer to the political stability index and voice & accountability index with dimension of political governance. Both variables are in the form of index valued between -2.5 to 2.5. -2.5 refer to weak and 2.5 refer to the strong political governance dimension. Furthermore, as both governance variables are in the index form therefore were measured by a natural logarithm. However, by incorporating economic and institutional governance in equation 2, the estimated equations will be written as,

$$LNGINI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_8 GEI\text{-}EG + \alpha_9 RQI\text{-}EG + e_{it} \quad \textit{(Equation 4)}$$

And,

$$LNGINI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPPC_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_9 COC\text{-}IG + \alpha_{10} ROL\text{-}IG + e_{it} \quad \textit{(Equation 5)}$$

In above equation 4, GEI-EG and RQI-EG are government effectiveness index and regulatory quality index refer to economic governance; whereas in equation 5, COC-IG and ROL-IG are control of corruption index and rule of low index refer to institutional governance. All index variables are valued between -2.5 to +2.5. Negative sign refer to weak governance whereas; positive sign refer to strong governance. Furthermore, to investigate the impact of all used governance indictor along with economic growth and international financeon poverty the below model will be estimated,

$$LNGINI_{it} = \alpha_o + \alpha_1 LNFDI_{it} + \alpha_2 LNREM_{it} + \alpha_3 LNODA_{it} + \alpha_4 LNGDPGR_{it} + \alpha_5 LNT_{it} + \alpha_6 LNFD_{it} + \alpha_7 LNINF_{it} + \alpha_8 PSI\text{-}PG_{it} + \alpha_9 VAI\text{-}PG_{it} + \alpha_{10} GEI\text{-}EG_{it} + \alpha_{11} RQI\text{-}EG_{it} + \alpha_{12} COC\text{-}IG_{it} + \alpha_{13} ROL\text{-}IG_{it} + e_{it} \quad \textit{(Equation 6)}$$

5.4.4.4 EMPIRICAL ESTIMATION

The estimation begins with fixed effect Driscoll-Kraay (main) of middle-income-countries for analysing the impact of economic growth and other exogenous variable on income inequality. Similarly System-GMM is used as robust estimation.[907]

TABLE 82. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, STATIC MODEL ESTIMATION, INCOME INEQUALITY)

FULL SAME					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.001 (0.004)	0.010 (0.005)	0.009 (0.004)**	0.001 (0.003)	0.007 (0.004)
LNREM	-0.034 (0.005)***	-0.039 (0.004)***	-0.040 (0.005)***	-0.033 (0.004)***	-0.042 (0.003)***
LNODA	0.019 (0.004)***	0.021 (0.005)***	0.020 (0.004)***	0.022 (0.003)***	0.019 (0.004)***
LNYPC	0.001 (0.006)	0.006 (0.005)	0.011 (0.006)	0.003 (0.006)	0.008 (0.007)
LNT	-0.062 (0.007)***	-0.038 (0.008)***	-0.050 (0.006)***	-0.068 (0.008)***	-0.035 (0.009)***
LNFD	0.016 (0.006)**	0.015 (0.007)**	0.016 (0.008)**	0.006 (0.003)*	0.017 (0.005)***
LNINF	0.026 (0.004)***	0.028 (0.005)***	0.020 (0.004)***	0.023 (0.003)***	0.025 (0.003)***
PSI-PG	-	-0.018 (0.005)***	-	-	-0.023 (0.005)**
VAI-PG	-	-0.050 (0.015)***	-	-	-0.021 (0.010)**
GEI-EG		-	-0.063 (0.020)***	-	-0.113 (0.028)***
RQI-EG		-	0.107 (0.031)	-	0.071 (0.028)
COC-IG		-	-	0.048 (0.011)***	0.020 (0.011)**
ROL-IG		-	-	0.095 (0.019)	0.108 (0.012)
Constant	-0.393 (0.053)***	-0.440 (0.062)***	-0.357 (0.039)***	-0.311 (0.041)***	-0.429 (0.068)***
R.Sq	0.358	0.385	0.398	0.384	0.422
Observations	807				
Groups	56				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 82 reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution, empirically

[907] The methodology of estimation is mentioned in Chapter 3 section 3.4.4 in detailed form.

investigated by fixed-effect Driscoll-Kraay estimation for a full sample of middle-income countries. Column (1) shows that among seven exogenous variables, LNREM and LNT improve income distribution; thus, 1 unit increase in LNREM and LNT improve income distribution by 0.034% and 0.062%, respectively. On the other hand, a 1 unit increase in LNODA, LNIND, and LNFD worsened income distribution by 0.019%, 0.026%, and 0.016%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNODA, LNT, LNFD, and LNINF; however, the magnitude of coefficients is slightly different. Similarly, the political stability index and voice and accountability index appeared to decrease income inequality; thus, a 1 unit increase in PSI-PG and VAI-PG index decreases income inequality by 0.018 and 0.050%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, GEI-EG indicates a negative association with income distribution. 1 unit increase in GEI-EG reduces income inequality by 0.063%. By incorporating the institutional governance indicator in Column (4), a 1 unit increase in COC-IG increases income inequality by 0.048%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNT, VAI-PG, and GEI-EG improve income distribution, whereas LNODA, LNFD, LNINF, and COC-IG increase income inequality. According to the results, a 1 unit increase in LNREM and LNT in a full sample of middle-income countries causes 0.042% and 0.035% improvement in income distribution. However, among external financial resources, LNODA tends to increase income inequality by 0.019%. Similarly, a 1 unit increase in LNFD and LNING also increases income inequality by 0.017% and 0.025%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG and GEI-EG index improved income distribution by 0.021% and 0.113%. Furthermore, COC-IG tends to increase income inequality by 0.020%.

TABLE 83. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC-FS, DYNAMIC MODEL ESTIMATION, INCOME INEQUALITY)

FULL SAMPLE					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNGINI	0.873 (0.048)***	0.866 (0.045)***	0.868 (0.047)***	0.873 (0.049)***	0.867 (0.047)***
LNFDI	0.003 (0.012)	0.002 (0.013)	0.001 (0.009)	0.005 (0.002)	0.001 (0.002)
LNREM	-0.004 (0.002)*	-0.005 (0.004)**	-0.004 (0.002)*	-0.004 (0.002)**	-0.005 (0.002)*
LNODA	0.023 (0.012)**	0.031 (0.022)*	0.004 (0.002)**	0.003 (0.002)**	0.003 (0.009)**
LNYPC	-0.008 (0.038)**	-0.003 (0.005)**	-0.005 (0.007)**	-0.004 (0.005)**	-0.003 (0.006)**
LNT	-0.075 (0.048)**	-0.077 (0.059)*	-0.081 (0.070)**	-0.088 (0.069)**	-0.080 (0.066)**
LNFD	0.012 (0.023)	0.009 (0.036)	0.011 (0.002)	0.016 (0.019)	0.011 (0.023)
LNINF	-0.018 (0.011)*	-0.013 (0.009)**	-0.012 (0.002)**	-0.015 (0.003)**	-0.013 (0.002)**
PSI-PG	-	-0.001 (0.002)**	-	-	0.001 (0.003)**
VAI-PG	-	-0.003 (0.005)	-	-	-0.002 (0.005)
GEI-EG	-	-	-0.004 (0.009)**	-	-0.004 (0.013)**
RQI-EG	-	-	0.051 (0.007)	-	0.020 (0.009)
COC-IG	-	-	-	0.003 (0.009)	0.010 (0.011)
ROL-IG	-	-	-	-0.004 (0.008)	-0.003 (0.010)
Constant	-0.497 (0.308)*	-0.087 (0.054)*	-0.090 (0.049)*	-0.085 (0.052)*	-0.082 (0.056)*
AR(2)	0.647	0.644	0.647	0.648	0.651
Hansen	0.125	0.131	0.173	0.135	0.133
Group	56	56	56	56	56
Observation	761	761	761	761	761
Instruments	28	30	30	30	34
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 83, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the lagged dependent variable coefficient lag.LNGINE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the infant mortality rate, which means that LNGINI has had a positive and significant impact on

the current value of income distribution in the past few years. Column (1) shows that among seven exogenous variables, LNREM, LNGDPPC, and LNT appear to improve income distribution in a full sample of middle-income countries. On the other hand, LNODA and LNINF increase income inequality in middle-income countries. According to the results, a 1 unit increase in LNREM, LNGDPPC, and LNT reduces income inequality by 0.004%, 0.008%, and 0.075%, respectively. Similarly, a 1 unit increase in LNODA and LNINF worsened income distribution by 0.023% and 0.018%.

In Column (2), by incorporating political governance and other seven exogenous variables, the estimated results indicate consistent signs of LNREM, LNODA, LNGDPPC, LNT, and LNING; however, the magnitude of coefficients are slightly different. Similarly, the VAI-PG index appears to significantly improve income distribution for a full sample of middle-income countries. Thus, a 1 unit increase in the PSI-PG index improves income distribution by 0.001%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results also indicate consistent signs of LNREM, LNODA, LNGDPPC, LNT, and LNINF. The estimated results indicate that. 1 unit increase in GEI-EG improves income distribution by 0.004%. Furthermore, the nexus between institutional indicators, income distribution, and the other seven exogenous are presented in Column (4). According to outcomes, COC-IG and ROL-IG appeared to be insignificant. However, other variables indicate consistent signs of LNREM, LNODA, LNODA, LNGDPPC, LNT, and LNINF as per Columns (1) to Column (3). Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNGDPPC, and LNT trade improve income distribution. 1 unit increase in LNREM, LNGDPPC, and LNT reduces income inequality by 0.005%, 0.003%, and 0.080%. Furthermore, the relationship between LNODA, LNINF, and income distribution is consistent with previous estimations. 1 unit increase in LNODA and LNINF worsens income distribution by 0.003% and 0.013%, respectively. Among the governance indicators, PSI-PG and GEI-PG appeared to contribute to improving income distribution significantly. As per results, a 1 unit increase in PSI-PG and GEI-PG improves income distribution by 0.001% and 0.004%.

In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences.

Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 82 with the estimated results system-GMM (robustness analysis) in table 83, the interpretation of the result will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDPPC, LNT, PSI-PG, and GEI-PG improve income distribution in a full sample of middle-income countries. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNODA and LNINF appear to have a positive coefficient across the entire models and are statistically significant, thus not helpful in reducing income inequality.

TABLE 84. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, STATIC MODEL ESTIMATION, INCOME INEQUALITY)

UPPER MIDDLE INCOME COUNTRIES (MIT)					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	-0.009 (0.006)**	-0.011 (0.007)**	-0.022 (0.003)**	-0.023 (0.005)**	-0.029 (0.005)**
LNREM	-0.056 (0.008)***	-0.063 (0.011)***	-0.053 (0.007)***	-0.045 (0.006)***	-0.055 (0.006)***
LNODA	0.026 (0.008)	0.030 (0.010)	0.031 (0.007)	0.025 (0.006)	0.029 (0.009)
LNGDPPC	-0.029 (0.011)**	-0.009 (0.009)*	-0.017 (0.009)*	-0.025 (0.008)***	-0.016 (0.008)**
LNT	-0.136 (0.029)***	-0.077 (0.031)**	-0.114 (0.026)***	-0.169 (0.037)***	-0.156 (0.035)***
LNFD	0.084 (0.008)***	0.068 (0.006)***	0.059 (0.008)***	0.045 (0.005)***	0.040 (0.009)***
LNINF	-0.019 (0.014)	-0.017 (0.014)	-0.008 (0.009)	-0.006 (0.011)	-0.003 (0.009)
PSI-PG	-	-0.042 (0.013)***	-	-	-0.091 (0.005)***
VAI-PG	-	-0.046 (0.020)**	-	-	-0.051 (0.014)**
GEI-EG	-	-	-0.008 (0.055)	-	-0.124 (0.056)
RQI-EG	-	-	0.083 (0.074)	-	0.019 (0.060)
COC-IG	-	-	-	-0.051 (0.045)	-0.008 (0.037)
ROL-IG	-	-	-	0.165 (0.068)	0.286 (0.064)
Constant	-0.073 (0.110)	-0.437 (0.146)***	-0.179 (0.169)	0.204 (0.156)	-0.161 (0.152)
R.Sq	0.464	0.483	0.497	0.441	0.416
Observations	360				
Groups	25				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 84, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that LNFDI, LNREM, LNT, and LNGDPPC improve income distribution among seven exogenous variables. Regarding external finance, a 1 unit increase in LNFDI and LNREM inflow improves income distribution by 0.009% and 0.056%, respectively. Similarly, a 1 unit increase in LNGDPPC and LNT trade also improves income distribution by 0.029% and

0.0136%, respectively. However, in upper-middle-income countries, a 1 unit increase in LNFD proxied by domestic credit to the private sector worsened income distribution by 0.084%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDPPC, LNT, and LNFD; however, the magnitude of coefficients is slightly different. Similarly, PSI-PG and VAI-PG appeared to decrease income inequality; thus, a 1 unit increase in PSI-PG and VAI-PG index decreases income inequality by 0.042% and 0.046%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, economic governance indicators appeared to be insignificant. By incorporating institutional governance indicators in Column (4), COC-IG appeared to worsen income distribution. Thus 1 unit increase in COC-IG worsens income distribution by 0.051%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNFDI, LNREM, LNGDPPC, LNT, and VAI-PG improve income distribution, whereas LNFD and COC-IG worsen income distribution. According to the results, a 1 unit increase in LNFDI and LNREM in upper-middle-income countries causes 0.029% and 0.055% improvement in income distribution. Furthermore, a 1 unit increase in LNGDPPC and LNT also improves income distribution by 0.016% and 0.156%. However, a 1 unit increase in LNFD worsens income distribution by 0.040% at a 1% significance level. Likewise, the estimated results also reveal that a 1 unit increase in the VAI-PG index decreases income inequality by 0.051%. Furthermore, COC-IG tends to increase income inequality by 0.008%.

TABLE 85. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (UMIC, DYNAMIC MODEL ESTIMATION, INCOME INEQUALITY)

UPPER MIDDLE INCOME COUNTRIES MIT					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNGINI	0.822 (0.052)***	0.820 (0.054)***	0.808 (0.055)***	0.781 (0.077)***	0.771 (0.081)***
LNFDI	-0.004 (0.004)**	-0.008 (0.007)**	-0.007 (0.005)**	-0.006 (0.005)**	-0.006 (0.006)**
LNREM	-0.011 (0.006)*	-0.010 (0.005)**	-0.012 (0.007)*	-0.010 (0.006)*	-0.012 (0.006)**
LNODA	0.007 (0.002)*	0.008 (0.002)*	0.010 (0.003)**	0.007 (0.003)**	0.008 (0.004)**
LNGDPPC	-0.007 (0.019)*	-0.001 (0.020)**	-0.006 (0.020)**	-0.006 (0.019)**	-0.003 (0.025)*
LNT	-0.009 (0.014)**	-0.001 (0.018)**	-0.006 0.017)*	-0.021 (0.017)*	-0.019 (0.032)*
LNFD	0.008 (0.009)	0.007 (0.010)	0.004 (0.011)	0.001 (0.012)	0.006 (0.011)
LNINF	-0.001 (0.005)	-0.002 (0.006)	-0.003 (0.005)	-0.002 (0004)	-0.004 (0.005)
PSI-PG	-	-0.007 (0.010)*	-	-	-0.014 (0.014)
VAI-PG	-	0.011 (0.014)**	-	-	-0.007 (0.019)**
GEI-EG	-	-	-0.005 (0.024)*	-	-0.026 (0.024)*
RQI-EG	-	-	0.021 (0.025)	-	0.007 (0.035)
COC-IG	-	-	-	0.009 (0.020)	0.014 (0.020)
ROL-IG	-	-	-	0.020 (0.021)	0.036 (0.041)
Constant	-0.041 (0.162)	-0.128 (0.184)	-0.053 (0.178)	0.013 (0.171)	-0.098 (0.250)
AR(2)	0.285	0.299	0.273	0.247	0.253
Hansen	0.075	0.093	0.101	0.088	0.084
Group	25	25	25	25	25
Observation	339	339	339	339	339
Instruments	18	20	20	20	24
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 85 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution. System-GMM estimation is a robust model compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNGINI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNGINI has had a positive and significant impact on

the current value of income distribution in the past few years. Column (1) shows that among seven exogenous variables, LNFDI, LNREM, LNGDPC, and LNT appear to reduce income inequality in upper-middle-income countries. On the other hand, LNODA tends to increase income inequality in sample countries. A 1 unit increase in LNFDI and LNREM reduces income inequality by 0.004% and 0.011%, respectively. Furthermore, a 1 unit increase in LNGDPPC and LNT improves income distribution by 0.007% and 0.009%, respectively. However, a 1 unit increase in LNODA worsens income distribution by 0.007% at a 10% significance level. In column (2), by incorporating political governance and other seven exogenous variables, the estimated results indicate consistent signs of LNFDI, LNREM LNGDPPC, LNT, and LNODA; however, the magnitude of coefficients are slightly different. Similarly, PSI-PG and VAI-PG appeared to be significant contributors to improving income distribution for upper-middle-income countries. Thus, a 1 unit increase in PSI-PG and VAI-PG improves income distribution by 0.007% and 0.011%.By incorporating the economic governance index in estimation, as mentioned in column (3), the results also indicate consistent signs of seven exogenous variables as per columns (1) and (2). Furthermore, the estimated results indicate that. 1 unit increase in GEI-EG improves income distribution by 0.005%. Furthermore, the nexus between institutional indicators, income distribution, and the other seven exogenous are mentioned in column (4). According to outcomes, COC-IG and ROL-IG appeared to be insignificant. However, other variables indicate consistent signs of LNFDI, LNREM, LNGDPPC, LNT, and LNODA from column (1) to column (3).

Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNFDI, LNREM, LNGDPPC, and LNT improve income distribution. 1 unit increase in LNFDI and LNREM inflow reduces income inequality by 0.006% and 0.012%. Likewise, a 1 unit increase in LNGDPPC and LNT reduces income inequality by 0.003% and 0.019%. Furthermore, a 1 unit increase in LNODA worsens income distribution by 0.008%. Among the governance indicators, VAI-PG and GEI-PG improve income distribution. A 1 unit increase in VAI-PG and GEI-PG improves income distribution by 0.007% and 0.026%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences.

Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 84 with the estimated results system-GMM (robustness analysis) in table 85, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNFDI, LNREM, LNGDPPC, LNT, and VAI-PG improve income distribution in full sample of middle-income countries. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNODA appears to have a positive coefficient across the entire model and is statistically significant, thus not helpful in the reduction of income inequality.

TABLE 86. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC , STATIC MODEL ESTIMATION, INCOME INEQUALITY)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.016 (0.006)**	0.017 (0.007)**	0.005 (0.003)*	0.009 (0.004)*	0.002 (0.002)**
LNREM	-0.009 (0.004)**	-0.013 (0.004)***	-0.018 (0.005)***	-0.010 (0.004)**	-0.019 (0.005)***
LNODA	0.023 (0.003)	0.025 (0.005)	0.023 (0.004)	0.030 (0.003)	0.022 (0.006)
LNGDPPC	0.049 (0.009)***	0.050 (0.010)***	0.054 (0.008)***	0.060 (0.008)***	0.056 (0.007)***
LNT	-0.030 (0.009)***	-0.027 (0.007)**	-0.021 (0.005)***	-0.016 (0.008)*	-0.020 (0.006)***
LNFD	0.040 (0.007)***	0.036 (0.007)***	0.031 (0.005)***	0.039 (0.007)***	0.028 (0.006)***
LNINF	0.024 (0.008)***	0.026 (0.007)***	0.022 (0.007)***	0.027 (0.008)***	0.023 (0.007)***
PSI-PG		-0.004 (0.005)	-	-	0.013 (0.008)
VAI-PG		-0.032 (0.013)**	-	-	-0.019 (0.015)**
GEI-EG		-	-0.092 (0.005)***	-	-0.096 (0.021)***
RQI-EG		-	0.114 (0.012)	-	0.090 (0.021)
COC-IG		-	-	-0.081 (0.019)*	-0.045 (0.022)*
ROL-IG		-	-	0.056 (0.021)	0.045 (0.024)
Constant	-0.761 (0.115)***	-0.774 (0.109)***	-0.837 (0.084)***	-0.914 (0.090)***	-0.860 (0.093)***
R.Sq	0.503	0.516	0.526	0.538	0.581
Observations	447				
Groups	31				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 86, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, LNREM and LNT improve income distribution; thus, 1 unit increase in LNREM and LNT trade improve income distribution by 0.009% and 0.030%, respectively. On the other hand, LNFDI, LNGDPPC, LNFD, and LNINF worsen income distribution for lower-middle-income countries. According to the results, a 1 unit increase in LNFDI and LNGDPPC increases income inequality by

0.016% and 0.049%. Similarly, a 1 unit increase in LNFD and LNINF also worsens income distribution by 0.040% and 0.024%.Similarly, in column (2), the estimated results indicate the statistical significance and consistent negative signs for LNREM and LNT. However, the magnitude of coefficients is slightly different. On the other hand, LNFDI, LNGDPPC, LNFD, and LNINF indicate statistical significance and consistent positive signs. Similarly, VAI-PG appeared to decrease income distribution; thus 1 unit increase in the VAI-PG index decreases income inequality by 0.050%. By incorporating economic governance in estimation, as mentioned in column (3), the results also indicate consistent signs of variables as mentioned in columns (1) and (2); however, GEI-EG indicates a negative association with income distribution. A 1 unit increase in GEI-EG reduces income inequality by 0.092%. By incorporating the institutional governance indicator in column (4), a 1 unit increase in COC-IG increases income inequality by 0.081%. Similarly, column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNT, VAI-PG, and GEI-EG improve income distribution, whereas LNFDI, LNGDPPC, LNFD, LNINF, and COC-IG increase income distribution. According to the results, a 1 unit increase in LNREM and LNT in lower-middle-income countries causes a 0.019% and 0.020% improvement in income distribution at a 1% level of significance. However, among external financial resources, LNFDI tends to increase income inequality by 0.002%. Similarly, a 1 unit increase in LNGDPPC, LNFD, and LNINF increases income inequality by 0.056%, 0.028%, and 0.023%, respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG and GEI-EG improved income distribution by 0.019% and 0.096%. Furthermore, COC-IG tends to increase income inequality by 0.045%.

TABLE 87. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (LMIC, DYNAMIC MODEL ESTIMATION, INCOME INEQUALITY)

LOWER MIDDLE INCOME COUNTRIES					
VARIABLE	**SYSTEM - GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNGINI	0.968 (0.041)***	0.966 (0.045)***	0.967 (0.054)***	0.969 (0.040)***	0.962 (0.048)***
LNFDI	0.002 (0.001)*	0.004 (0.009)*	0.001 (0.001)*	0.003 (0.002)*	0.005 (0.007)*
LNREM	-0.002 (0.001)**	-0.001 (0.001)**	-0.002 (0.002)**	-0.002 (0.001)**	-0.001 (0.008)**
LNODA	0.002 (0.001)	0.003 (0.002)	0.006 (0.004)	0.001 (0.003)	0.001 (0.002)
LNGDPPC	0.006 (0.003)**	0.007 (0.003)**	-0.006 (0.004)**	0.007 (0.004)**	0.005 (0.005)**
LNT	-0.007 (0.004)**	-0.011 (0.006)**	-0.016 (0.004)**	-0.018 (0.004)**	-0.010 (0.006)**
LNFD	-0.021 (0.002)	-0.031 (0.001)	-0.021 (0.002)	-0.033 (0.001)	-0.015 (0.022)
LNINF	0.012 (0.021)***	0.022 (0.022)***	0.024 (0.019)***	0.029 (0.021)***	0.017 (0.026)***
PSI-PG	-	-0.006 (0.004)**	-	-	-0.007 (0.003)***
VAI-PG	-	-0.019 (0.012)**	-	-	-0.004 (0.003)**
GEI-EG	-	-	-0.003 (0.004)**	-	-0.008 (0.007)**
RQI-EG	-	-	-0.004 (0.010)	-	-0.021 (0.094)
COC-IG	-	-	-	0.003 (0.006)**	0.082 (0.083)**
ROL-IG	-	-	-	-0.007 (0.014)	-0.019 (0.086)
Constant	-0.042 (0.041)	-0.007 (0.049)	-0.043 (0.049)	-0.052 (0.042)	-0.027 (0.051)
AR(2)	0.372	0.405	0.370	0.364	0.379
Hansen	0.442	0.555	0.325	0.422	0.367
Group	31	31	31	31	31
Observation	422	422	422	422	422
Instruments	18	20	20	20	24
Note: ***p<0.01 ,**p<0.05,*p<0.10.					

Table 87, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution. System-GMM estimation is a robust model compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNGINI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNGINI has had a positive and significant impact on

the current value of income distribution in the past few years. Column (1) shows that LNREM and LNT appeared to improve income distribution in lower-middle-income countries among seven exogenous variables. On the other hand, LNFDI, LNGDPPC, and LNINF worsen income distribution in sample countries. According to the results, a 1 unit increase in LNREM and LNT reduces income inequality by 0.002% and 0.007, respectively. Furthermore, 1 unit increase in LNFDI, LNGDPPC and ININF worsen income distribution by 0.002%, 0.006% and 0.012% respectively. In Column (2), by incorporating political governance and other seven exogenous variables, the estimated results indicate consistent signs of LNFDIN, LNREM, LNGDPPC, LNT, and LNINF; however, the magnitude of coefficients are slightly different. Similarly, PSI-PG and VAI-PG significantly improved income distribution for lower-middle-income countries. Thus, a 1 unit increase in PSI-PG and VAI-PG improves income distribution by 0.006% and 0.019%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results also indicate consistent signs of seven exogenous variables as per Columns (1) and (2). Furthermore, the estimated results indicate that. 1 unit increase in GEI-EG improves income distribution by 0.003%. Furthermore, the nexus between institutional indicators, income distribution and seven other exogenous are mentioned in Column (4). According to outcomes, COC-IG appeared to be significant and worsened income distribution. However, other variables indicate consistent signs of variables, but the magnitude of the coefficient is slightly different per Column (1) to Column (3). Column (5) presents the impact of seven exogenous variables and the governance index on income distribution. The estimated results of international financereveal that LNFDI worsens income distribution, whereas LNREM inflow improves income distribution. 1 unit increase in LNFDI worsens income distribution by 0.005% whereas; a 1 unit increase in LNREM improves income distribution by 0.001%. Likewise, a 1 unit increase in LNT also improves income distribution by 0.010%. On the other hand, LNGDPPC and LNINF also worsen income distribution by 0.005% and 0.017%. Among the governance indicators, PSI-PG, VAI-PG, and GEI-EG appeared to be significant contributors to improving income distribution. As 1 unit increase in PSI-PG, VAI-PG, and GEI-EG improves income distribution by 0.007%, 0.004%, and 0.008%. However, for lower-middle-income countries, COC-IG worsens income distribution; thus, a 1 unit increase in COC-IG worsens income distribution by 0.082%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which

implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 86 with the estimated results system-GMM (robustness analysis) in table 87, the interpretation of the result will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNT, VAI-PG, and GEI-EG are favorable in improving income distribution in lower-middle-income countries. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNFDI, LNGDPC, and LNINF appear to have a positive coefficient across the entire models and are statistically significant, thus worsening the income distribution.

TABLE 88. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, STATIC MODEL ESTIMATION, INCOME INEQUALITY)

MIDDLE INCOME COUNTRIES WITH PORTS					
VARIABLE	**FIXED EFFECT-DRISCOLL-KRAAY**				
	1	**2**	**3**	**4**	**5**
LNFDI	0.163 (0.024)***	0.159 (0.025)***	0.160 (0.022)***	0.162 (0.022)***	0.159 (0.023)***
LNREM	-0.108 (0.047)**	-0.083 (0.044)*	-0.099 (0.055)*	-0.104 (0.048)**	-0.084 (0.056)**
LNODA	0.006 (0.045)	0.003 (0.047)	0.016 (0.047)	0.008 (0.050)	0.014 (0.052)
LNGDPPC	0.364 (0.062)***	0.347 (0.065)***	0.362 (0.062)***	0.365 (0.063)***	0.346 (0.065)***
LNT	-0.389 (0.258)**	-0.476 (0.229)*	-0.377 (0.025)*	-0.405 (0.257)*	-0.444 (0.240)*
LNFD	-0.157 (0.053)**	-0.209 (0.071)**	-0.196 (0.067)***	-0.181 (0.072)**	-0.222 (0.080)**
LNINF	0.093 (0.053)*	-0.083 (0.054)*	0.086 (0.053)*	0.083 (0.053)**	0.078 (0.054)**
PSI-PG	-	0.222 (0.095)**	-	-	0.172 (0.105)**
VAI-PG	-	0.168 (0.222)	-	-	0.098 (0.287)
GEI-EG	-	-	0.108 (0.212)	-	0.017 (0.319)
RQI-EG	-	-	0.040 (0.142)**	-	0.315 (0.159)**
COC-IG	-	-	-	0.225 (0.148)	0.464 (0.154)
ROL-IG	-	-	-	-0.282 (0.200)	-0.045 (0.285)
Constant	-0.579 (1.211)	-0.598 (1.158)	-0.268 (1.268)	-0.317 (1.311)	-0.327 (1.243)
R.Sq	0.412	0.422	0.328	0.368	0.428
Observations	670				
Groups	46				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 88, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on the income distribution of middle-income countries with seaports, empirically investigated by fixed-effect Driscoll-Kraay estimation. Column (1) shows that among seven exogenous variables, LNREM, LNT, and LNT improve income distribution in middle-income-countries with seaports. However, on the other hand, LNFDI, LNGDPPCM, and LNINF worsen income distribution. As per results regarding external finance, a 1 unit increase in LNFDI worsens income distribution by 0.024%. Similarly, a 1 unit increase in LNREM

improves income distribution by 0.108%. Furthermore, a 1 unit increase in LNGDPPC and LNINF worsens income distribution by 0.364% and 0.093% respectively. Due to seaport, LNT and LNFD improve income distribution by 0.389% and 0.157%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNFDI, LNREM, LNGDPPC, LNT LNFD, and LNING column (1). However, a 1 unit increase in PSI-PG worsens income distribution by 0.022%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, for economic governance indicator, RQI-EG appears to be significant. Thus, a 1 unit increases in RQI-EG worse income distribution by 0.040%. By incorporating institutional governance indicators in Column (4), COC-IG and ROL-IG appeared insignificant. COC-IG appeared to worsen income distribution. Thus 1 unit increase in COC-IG worsens income distribution by 0.051%. Furthermore, results also indicate consistent signs of variables as mentioned in Columns (1) to Column (3). Similarly, Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNT, and LNFD improve income distribution. According to the results, a 1 unit increase in LNREM, LNFD, and LNT in middle-income countries with seaports improved income distribution by 0.084%, 0.444%, and 0.222%. Furthermore, 1 unit increase in LNFD, LNGDPPC, and LNINF worsens income distribution by 0.159%, 0.346%, and 0.078%. Likewise, the estimated results also reveal that a 1 unit increase in PSI-PG and RQI-EG also worsened income distribution by 0.172% and 0.315%.

TABLE 89. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (MIC WITH SEAPORTS, DYNAMIC MODEL ESTIMATION, INCOME INEQUALITY)

MIDDLE INCOME COUNTRIES WITH SEAPORTS					
VARIABLES	**SYSTEM GMM**				
	1	**2**	**3**	**4**	**5**
Lag.LNGINI	0.406 (0.174)**	0.216 (0.880)**	0.192 (0.110)**	0.197 (0.113)*	0.201 (0.110)**
LNFDI	0.166 (0.095)*	0.026 (0.133)**	0.097 (0.057)*	0.096 (0.051)*	0.099 (0.057)**
LNREM	-0.026 (0.078)**	-0.023 (0.081)**	-0.037 (0.033)**	-0.038 (0.030)**	-0.026 (0.034)**
LNODA	0.066 (0.073)	0.047 (0.099)	0.034 (0.040)	0.038 (0.036)	0.043 (0.038)
LNGDPPC	0.540 (0.247)**	0.365 (0.148)***	0.302 (0.113)***	0.290 (0.114)**	0.292 (0.115)**
LNT	-0.450 (0.289)***	-0.128 (0.559)**	-0.221 (0.341)**	-0.288 (0.106)***	-0.250 (0.138)*
LNFD	-0.010 (0.131)**	-0.251 (0.229)**	-0.365 (0.396)**	-0.078 (0.065)**	-0.090 (0.066)**
LNINF	0.030 (0.088)*	0.088 (0.141)*	0.015 (0.044)*	0.018 (0.042)*	0.015 (0.043)*
PSI-PG	-	0.175 (0.108)**	-	-	0.086 (0.081)**
VAI-PG	-	0.134 (0.156)	-	-	0.035 (0.159)
GEI-EG	-	-	0.011 (0.204)	-	0.061 (0.217)
RQI-EG	-	-	0.070 (0.176)	-	0.104 (0.214)
COC-IG	-	-	-	-0.203 (0.159)	-0.253 (0.186)
ROL-IG	-	-	-	0.282 (0.152)	0.253 (0.191)
Constant	-1.417 (1.086)	-0.095 (1.011)	-0.605 (0.510)	-0.577 (0.438)	-0.369 (0.613)
AR(2)	0.144	0.163	0.113	0.107	0.117
Hansen	0.104	0.189	0.282	0.385	0.423
Group	46	46	46	46	46
Observation	567	567	567	567	567
Instruments	20	22	22	22	26

Table 89 reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution. System-GMM estimation is a robust model compared to fixed-effect Driscoll-Kraay Estimation (main model). The results indicate that the lagged dependent variable coefficient lag.LNGINI is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value positively impacts the infant mortality rate, which means that LNGINI has had a positive and significant impact on

the current value of income distribution in the past few years. Column (1) shows that among seven exogenous variables, LNREM, LNT, and LNFD appeared to improve income distribution in middle-income countries with seaports. Thus, a 1 unit increase in LNREM, LNFD, and LNT improves income distribution by 0.026%, 0.090%, and 0.250%, respectively. On the other hand, LNFDI, LNGDPPC, and LNINF tend to worsen income distribution in sample countries. According to the results, 1 unit increase in LNFDI, LNGDPPC, and LNINF worsens income distribution by 0.099%, 0.292%, and 0.015%, respectively. In Column (2), the estimated results indicate consistent signs of LNFDI, LNREM, LNGDPPC, LNFD, LNINF, and seven other exogenous variables; by incorporating political governance, the magnitude of coefficients are slightly different. Similarly, PSI-PG appeared to be a significant contributor to worsening middle-income countries' income distribution with seaports. Thus, a 1 unit increase in PSI-PG worsens income distribution by 0.175%. By incorporating the economic governance index in estimation, as mentioned in Column (3), the results also indicate consistent signs of seven exogenous variables as per Columns (1) and (2). However, economic governance appeared to be insignificant. Furthermore, the nexus between institutional indicators, income distribution, and the other seven exogenous are mentioned in Column (4). According to outcomes, COC-IG appeared to be significant and worsened income distribution. However, other variables indicate consistent signs of variables, but the magnitude of the coefficient is slightly different per Column (1) to Column (3). As per results, a 1 unit increase in COC-IG worsens income distribution by 0.253%.Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results of international financereveal that LNFDI inflow worsens income distribution, whereas LNREM improves income distribution. 1 unit increase in LNFDI worsens income distribution by 0.099% at a 5% level of significance, whereas; a 1 unit increase in LNREM improves income distribution by 0.026%. Likewise, a 1 unit increase in LNT and LNFD improves income distribution by 0.250% and 0.090%. On the other hand, LNGDPPC and LNINF worsen income distribution by 0.005% and 0.017%. Among the governance indicators, PSI-PG and COC-IG appeared to be significant. A 1 unit increase in PSI-PG and COC-IG worsens income distribution by 0.086% and 0.253%. In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect

Driscoll-Kraay Estimation (main analysis), which are mentioned in table 88 with the estimated results system-GMM (robustness analysis) in table 89, the interpretation of the results will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNT, and LNFD improve income distribution in middle-income countries with seaports. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNFDI, LNGDPPC, and LNINF appear to have positive coefficients across the entire models and are statistically significant, thus worsening the income distribution. Furthermore, among governance indicators, PSI-PG appears to worsen income distribution in sample countries.

TABLE 90. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, INCOME INEQUALITY)

HIGH INCOME COUNTRIES					
VARIABLE	**FIXED EFFECT**				
	1	**2**	**3**	**4**	**5**
FDI	0.015 (0.014)	0.033 (0.018)*	0.024 (0.013)*	0.018 (0.015)	0.009 (0.011)
REM	-0.069 (0.018)***	-0.080 (0.022)***	-0.080 (0.018)***	-0.065 (0.027)**	-0.030 (0.015)*
ODA	0.003 (0.001)	-0.001 (0.002)	0.002 (0.007)	0.003 (0.006)	0.006 (0.004)
YPC	-0.112 (0.041)**	-0.082 (0.037)**	-0.082 (0.034)**	-0.155 (0.062)**	-0.230 (0.032)***
T	0.061 (0.011)***	-0.050 (0.029)*	0.084 (0.010)***	0.137 (0.013)***	0.038 (0.024)
DC	0.019 (0.033)	0.042 (0.039)	0.076 (0.040)*	0.101 (0.027)***	0.010 (0.026)***
INF	0.010 (0.022)	0.070 (0.090)	-0.090 (0.023)	-0.007 (0.019)	-0.002 (0.015)
PSI-PG	-	0.018 (0.017)	-	-	-0.046 (0.029)
VAI-PG	-	-0.417 (0.043)***	-	-	-0.430 (0.020)***
GEI-EG	-	-	0.105 (0.055)*	-	-0.203 (0.039)***
RQI-EG	-	-	-0.275 (0.054)***	-	-0.118 (0.039)***
COC-IG	-	-	-	0.315 (0.038)	0.030 (0.031)
ROL-IG	-	-	-	-0.402 (0.075)***	-0.221 (0.054)**
Constant	-0.360 (0.310)	0.078 (0.621)	-0.840 (0.261)***	-0.458 (0.529)	0.914 (0.639)
R.Sq	0.496	0.509	0.435	0.444	0.685
Observations	238				
Groups	18				
Note: ***p<0.01 ,**p<0.05,*p<0.10. Driscoll-Kraay Standard error are indicated in parenthesis and are robust to disturbances being heteroscedastic , auto correlated and cross-sectionally dependent.					

Table 90, reports the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution, empirically investigated by fixed-effect Driscoll-Kraay estimation for high-income countries. Column (1) shows that among seven exogenous variables, LNREM and LNGDP improve income distribution; thus, 1 unit increase in LNREM and LNGDP improve income distribution by 0.069% and 0.112%, respectively. On the other hand, a 1 unit increase in LNT worsened income distribution by 0.061%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM,

LNGDP, and LNT; however, the magnitude of coefficients is slightly different. Similarly, the voice and accountability index appeared to decrease income inequality; thus, a 1 unit increase VAI-PG index decreases income inequality by 0.417%. Likewise, 1 unit increase in LNFDI worsens income distribution by 0.033%.

By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, GEI-EG and RQI-EG indicates a negative association with income distribution. 1 unit increase in GEI-EG and RQI-EG reduces income inequality by 0.105% and 0.275%. Furthermore results indicate 1 unit increase in LNFD increases income inequality by 0.076%. By incorporating the institutional governance indicator in Column (4), a 1 unit increase in ROL-IG decreases income inequality by 0.402%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNGDP, VAI-PG, GEI-EG, RQI-EG and ROL-IG improve income distribution, whereas LNFD increase income inequality. According to the results, a 1 unit increase in LNREM and LNGDP in high-income countries causes 0.030% and 0.230% improvement in income distribution. Similarly, a 1 unit increase in LNFD increases income inequality by 0.010% respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG, GEI-EG, RQI-EG and ROL-IG index improved income distribution by 0.043%, 0.203%, 0.118% and 0.221%.

TABLE 91. ECONOMIC GROWTH AND SOCIAL SUSTAINABILITY (HIC, STATIC MODEL ESTIMATION, INCOME INEQUALITY)

HIGH INCOME COUNTRIES					
VARIABLES	**SYSTEM - GMMM**				
	1	**2**	**3**	**4**	**5**
Lag.logGINI	1.014 (0.112)***	0.139 (0.308)***	0.093 (0.192)***	0.097 (0.447)***	0.360 (0.274)***
FDI	0.001 (0.010)	0.026 (0.015)*	0.016 (0.011)	0.060 (0.090)	0.010 (0.011)
REM	-0.004 (0.060)**	-0.075 (0.025)***	-0.055 (0.014)***	-0.047 (0.029)*	-0.034 (0.017)**
ODA	-0.005 (0.051)	-0.002 (0.074)	-0.003 (0.080)	-0.002 (0.012)	-0.010 (0.012)
YPC	-0.012 (0.055)**	-0.079 (0.085)***	-0.077 (0.076)***	-0.133 (0.116)***	-0.291 (0.112)***
T	0.005 (0.015)	0.026 (0.068)	0.086 (0.053)*	0.139 (0.082)*	0.009 (0.074)*
FD	0.012 (0.011)*	0.042 (0.072)*	0.061 (0.052)*	0.078 (0.082)**	0.107 (0.075)*
INF	-0.019 (0.044)	-0.042 (0.015)	-0.010 (0.013)	-0.009 (0.010)	-0.008 0.012)
PSI-PG	-	-0.035 (0.039)	-	-	-0.031 (0.041)
VAI-PG	-	-0.424 (0.158)***	-	-	-0.546 (0.166)***
GEI-EG	-	-	-0.109 (0.055)*	-	-0.155 (0.101)
RQI-EG	-	-	-0.210 (0.072)***	-	-0.141 (0.066)**
COC-IG	-	-	-	0.250 (0.158)	0.366 (0.132)
ROL-IG	-	-	-	-0.319 (0.214)*	0.220 (0.125)*
Constant	0.042 (0.101)**	-0.159 (0.552)	-0.771 (0.640)	-0.472 (0.785)	1.293 (0.688)
AR(2)	0.369	0.385	0.556	0.461	0.761
Hansen	0.649	0.614	0.616	0.589	0.659
Group	18	18	18	18	18
Observation	223	223	223	223	223
Instruments	10	12	12	12	16

Table 91, reports dynamic system-GMM results of the impact of economic growth and other exogenous variables under the shadow of governance indicators on income distribution. System-GMM estimation is used as a robust model compared to fixed-effect Driscoll-Kraay Estimation. The results indicate that the lagged dependent variable coefficient lag.ENGINE is significant and positive for all estimated equations, as indicated in columns (1) to (5). The lag value has a positive impact on the infant mortality rate, which means that LNGINI has had a positive and significant impact on

the current value of income distribution in the past few years. Column (1) shows that among seven exogenous variables, LNREM and LNGDP improve income distribution; thus, 1 unit increase in LNREM and LNGDP improve income distribution by 0.004% and 0.012%, respectively. On the other hand, a 1 unit increase in LNFD worsened income distribution by 0.012%. Similarly, in Column (2), the estimated results indicate the statistical significance and consistent signs of LNREM, LNGDP, and LNFD; however, the magnitude of coefficients is slightly different. Similarly, the voice and accountability index appeared to decrease income inequality; thus, a 1 unit increase VAI-PG index decreases income inequality by 0.424%. By incorporating economic governance in estimation, as mentioned in Column (3), the results also indicate consistent signs of variables as mentioned in Columns (1) and (2); however, GEI-EG and RQI-EG indicates a negative association with income distribution. 1 unit increase in GEI-EG and RQI-EG reduces income inequality by 0.109% and 0.210%. Furthermore results indicate 1 unit increase in LNT increases income inequality by 0.086%. By incorporating the institutional governance indicator in Column (4), a 1 unit increase in ROL-IG decreases income inequality by 0.319%. Similarly, Column (5) presents the impact of seven exogenous variables and governance index on income distribution. The estimated results reveal that LNREM, LNGDP, VAI-PG, RQI-EG and ROL-IG improve income distribution, whereas LNT and LNFD increase income inequality. According to the results, a 1 unit increase in LNREM and LNGDPPC in high-income countries causes 0.034% and 0.291% improvement in income distribution. Similarly, a 1 unit increase in LNT and LNFD increases income inequality by 0.009% and 0.107% respectively. Likewise, the estimated results also reveal that a 1 unit increase in VAI-PG, RQI-EG and ROL-IG index improved income distribution by 0.546%, 0.141%, and 0.220%.

In system-GMM, post estimation diagnosis shows that AR (2) and Hansen test, the probability values are insignificant, which implies that there are no correlations, and similarly; instruments are reliable, consistent, and suitable for drawing inferences. Compared to the results of fixed effect Driscoll-Kraay Estimation (main analysis), which are mentioned in table 90 with the estimated results system-GMM (robustness analysis) in table 90, the interpretation of the result will emphasize the consistency of the sign of the coefficient and their statistical significance if any. Therefore, the results indicate that LNREM, LNGDPPC, LNFD, VAI-PG, RQI-EG and ROL-IG improve

income distribution in high-income countries. The coefficients are negative and have statistical significance across all the entire models. Similarly, LNFD appear to have a positive coefficient across the entire models and are statistically significant, thus not helpful in reducing income inequality.

5.4.5 DISCUSSION

This research work questions the growth-finance-income inequality trilemma by presenting empirical evidences from middle-income-countries and high-income-countries which fill the lacuna in the literature. Likewise this empirical work also highlighted the essence of governance to achieve social sustainability by reducing income inequalities sample countries. The estimated results revels, the positive and significant relations depict that incremental effect in FDI inflow improved income distribution in upper-middle-income countries and middle-income-countries with sea post. The reveal relationship between FDI inflow and income distribution is because of ongoing phase of economic development in upper-middle-income countries. FDI inflow increases the amount of exiting capital in the host country which further lead to a rise in the marginal physical product of labour and this will increase wages; thus this phenomenon confirms Mundell hypothesis. On the other hands FDI inflow higher in those countries which possess sea port rather than land lock countries ; therefore FDI inflow along with trade openness create more jobs and increases individual wages thus reduces income inequalities. These findings are in the line of previous studies; which also found similar relationship between FDI inflow and income distribution[908] [909] [910]. They highlighted that FDI inflow improve income distribution by injecting in traditional agricultural sector which further enable to employ low skill worker and also high number of agro-based industries provided employment to un skilled workers thus improve their income. On the other hand, remittance inflow improves income distribution in middle-income countries, its sub group and high-income countries. The estimated results revels, the negative and significant relations depict that incremental effect in remittance inflow decreases income distribution in middle-income, high-

[908]B.Sharma, and J.Abekah. "Foreign direct investment, foreign aid and incomes inequality: Empirical insights from African and South American countries." *Transnational Corporations Review* 9.1,2017.p.1-7.

[909]T.Kaulihowa, and C.Adjasi. "FDI and income inequality in Africa." *Oxford Development Studies* 46.2,2018.p.250-265.

[910]C.Xu,[et al]. "Trade openness, FDI, and income inequality: Evidence from sub-Saharan Africa." *African Development Review* 33.1,2021.p.193-203.

income, upper-middle-income, lower-middle-income countries and middle-income-countries with sea. It is because remittance inflow from overseas increases purchasing power of family member of immigrants. Improved purchasing power address issues related with poverty and enhances their well-being thus reduces the income inequalities. Several studies also found similar relationship between remittance inflow and income distribution, that the remittance inflow from abroad reduces income inequalities by increasing income basket for individual and family member of immigrants workers[911] [912] [913].

Among the other external financial variables ODA inflow worsen income distribution in middle-income countries and upper-middle-income countries. Other authors also found positive relationship between ODA inflow and income distribution[914] [915]. It is because it might be possible donors countries may have other motivations such strategic; retribution of allies and either donation for specific group of peoples or community which eventually increases the income distribution. Furthermore, aid also worsens income distribution due to the ineffective aid programs, lack of adequate monitoring, and regulatory framework. The empirical results reveal the different impact of economic growth on income equality across the various income groups. In upper-middle-income group, middle-income countries with sea port and high-income economic growth economic growth improve income inequality. It is because upper-middle-income counties and high-income countries achieve adequate level of development; therefore economic growth economic growth reduces the income distribution in both income groups. Furthermore the outcome also suggests that, the economic development has spread not only in the urban cities but also in the rural areas. Similarly; the sea port facility also induces more job creates and openness to trade. Thus overall economic cycle creates more jobs under the shadow economic development which tends to reduce unemployment rate; increase the individual income and well-being thus reduces the income distribution. Other author also found the similar

[911]V.Koechlin, and G.Leon. "International remittances and income inequality: An empirical investigation." *Journal of Economic Policy Reform* 10.2,2007.p.123-141.
[912]E. Akobeng,. "Out of inequality and poverty: Evidence for the effectiveness of remittances in Sub-Saharan Africa." *The quarterly review of economics and finance* 60,2016.p.207-223.
[913]H. Mallick, M.Kumar Mahalik, and H.Padhan. "Does globalization exacerbate income inequality in two largest emerging economies? The role of FDI and remittances inflows." *International Review of Economics* 67,2020.p.443-480.
[914]D.Herzer, and P.Nunnenkamp. "The effect of foreign aid on income inequality: Evidence from panel cointegration." *Structural Change and Economic Dynamics* 23.3,2012.p. 245-255.
[915]T. Pham,. "Income inequality and foreign aid." 2015.

relationship between income-distribution and economic growth for those countries which holds sustained economic growth[916]. In lower-middle-income countries economic growth and income distribution have positive association; thus economic growth worsens the income distribution. The result indicates that in lower-income countries economic structure usually based on agriculture and comparatively manufacturing and industrial sector is highly vulnerable. Therefore it limit the employment opportunities in lower-middle-income group thus restricts access to the income sources for individuals. Moreover lower-middle income countries also experience the high population growth which unevenly spread over the urban-rural area which also increases income inequality. Several studies also found similar relationship between economic growth and income distribution for low-income countries in different region which reinforce the finds of this study[917] [918] [919].

In terms of financial development, middle-income-countries with port indicate negative association between financial development and income distribution; thus financial development improved income distribution in middle-income countries with ports. The outcomes indicate that; due to the fact middle income countries with sea ports have greater degree of openness in trade which further improve the urban-rural income distribution. Financial development increases the trade activity in particularly those areas which are open to ports and on the other hand ; financial development via domestic credit facility to private sector increases capital facility for production sector in rural areas which create more opportunities ; thus individual income increases which further reduces income inequalities. Other studies also found similar relationship between financial development and income distribution for those areas which are more open trade and finance[920] [921]. Similarly for high-income countries the financial development worsens the income distribution. The outcomes indicate that domestic credit to private sector increase the access to the financial sector ; which increases the more investment opportunities in stock market , banks and other financial institutions

[916]T.B.Kavya, and S.Shijin. "Economic development, financial development, and income inequality nexus." *Borsa Istanbul Review* 20.1,2020.p.80-93.
[917]F.Nielsen, and A.S. Alderson. "Income inequality, development, and dualism: Results from an unbalanced cross-national panel." *American sociological review*,1995.p.674-701.
[918]N.P. Deyshappriya, "Impact of macroeconomic factors on income inequality and income distribution in Asian countries." 2017.
[919] M.Jäntti, and S.P. Jenkins. "Income mobility." *Handbook of income distribution*. Vol. 2. Elsevier, 2015,p.807-935.
[920]S-J, Wei, and Y.Wu. "Globalization and inequality: Evidence from within China."2001.
[921]Y.Altunbaş, and J.Thornton. "Does inflation targeting increase income inequality?." *Journal of Post Keynesian Economics* 45.4,2022.p.558-580.

therefore it fail to ensure the financial stability among the people and worsen income distribution. Similar relationship also highlighted by other authors[922] [923]. Furthermore; in high income countries people have easy access to the financial sector and having more opportunity for credit facility therefore income inequalities can be observed widely in rural and urban areas. The other finding of this study illustrate that trade reduces income inequalities in middle-income-group and its sub income group except high-income countries. It is because that middle-income country possesses comparative advantages due to high human and natural resources which induce more economic growth. Similarly , due to comparative advantage of factor of production in terms of human capital and land resources , international trade provides augmenting incomes to the economy ; and which further increases individual incomes and improve income distribution. Other authors also found negative relationship between trade and income distribution in different regions for various middle-income and low -income countries[924] [925] [926] [927]. Similarly in terms of inflation, this study indicates that inflation worsens the impact of income distribution in lower-middle-income countries and middle-income-countries with sea ports. Inflation increases the income inequality due to the fact that high prices directly impact on the purchasing power of consumer; thus which furthermore it reduces the saving and negatively impact on well-being. Therefore; inflation wider the income gap and worsen income distribution. These results are corroborated with the work of other empirical findings[928] [929] [930]. Political stability index indicate negative association with income distribution thus political stability improves income distribution in middle-income countries and its sub group; upper-middle-income countries and middle-income countries with sea port. It is because political stability brings sustained economic and financial policies which eventually create economic activities and reduces income distribution. Several other studies also indicate similar

[922]T.B.Kavya, and S.Shijin. "Economic development, financial development, and income inequality nexus." *Borsa Istanbul Review* 20.1,2020.p.80-93.
[923]F.Bourguignon, and T.Verdier. "Oligarchy, democracy, inequality and growth." *Journal of development Economics* 62.2,2000,p.285-313.
[924]P.R. Krugman, and R.Z. Lawrence. "Trade, jobs, and wages." 1993.
[925]R.Reuveny, and Q.Li. "Economic openness, democracy, and income inequality: An empirical analysis." *Comparative Political Studies* 36.5.2003.p.575-601.
[926]C.Choi,. "Does foreign direct investment affect domestic income inequality?." *Applied Economics Letters* 13.12,2006.p.811-814.
[927]O.Osode, E.Chimere O. Iheonu, and R.Dauda. "On the relationship between globalization and income inequality: Does institution matter?." *Journal of Public Affairs* 22.2,2022.p.e2433.
[928]S.Albanesi,. "Inflation and inequality." *Journal of monetary Economics* 54.4,2007,.p.1088-1114.
[929]E.Thalassinos, E.Ugurlu, and Y.Muratoglu. "Income Inequality and Inflation in the EU." 2012.
[930]N.P. Deyshappriya, "Impact of macroeconomic factors on income inequality and income distribution in Asian countries."2017.

results thus negative relationship between political stability index and income distribution[931]; as political stability positively impact economic growth by increase trade and business activities. Furthermore it also creates employment opportunities which increases individual wages and improve income distribution. The empirical results also reveal that, voice and accountability also reduces income distribution by providing freedom of choice of selection of government and freedom of expression in the presence of free media. Considering the fact the in upper-middle-income countries and high-income-countries the independent media act opposing force to the selected government and continuously monitor economic and social progress based on government's policy. Effective media plays positive role in economic prosperity by becoming the voice of every individual in the society[932]. Therefore in long-run it is helpful in improvement of income distribution. These findings are in the line of several other studies which also highlighted similar relationship between voice and accountability and income distribution[933].

Among economic governance; the government effectiveness index indicates negative association with income distribution for middle-income-countries, upper-middle-income countries and for high-income countries. It is because the overall quality of civil services and relevant policies along its implementation appeared to play effective role in economic growth process. Other authors also found in that government effectiveness induces economic growth[934] [935]. Therefore the outcome of this research work reveals once government play significant role in civil services and implement it effectively it increases economic activity which reduces income distribution. Similar kind of argument also indicated by other author in his research work that, if government effectively implement its policies along with adequate rules and regulation it reduces income gap thus improve income distribution[936]. Similarly, RQI appear to increase income distribution thus worsen inequality in middle-income countries and middle-

[931]R.H.Prasetiya,"Do economic complexity and strong institutions affect income inequality." *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning* 5.3,2021.p.296-316.
[932]K.Shapkova Kocevska,. "Is freedom of expression associated with economic prosperity? Evidences from 21st century." *Годишник на Правниот факултетет „Јустинијан Први "-Скопје*,2018.
[933]R.H. Prasetiya,. "Do economic complexity and strong institutions affect income inequality." *Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning* 5.3,2021.p.296-316.
[934]N.Van Phuc, and N.Thuc Duy Anh. "Foreign direct investment, financial development and economic growth in Asian developing countries." *HO CHI MINH CITY OPEN UNIVERSITY JOURNAL OF SCIENCE-ECONOMICS AND BUSINESS ADMINISTRATION* 2.1,2012.p. 3-17.
[935]M.Tshepo, "The Nexus between corruption and governance since the dispensation of democracy in South Africa: A time series analysis." *Retrieved from March* 1,2015.2021.
[936]F.L.Pryor,. *The future of US capitalism*. Cambridge University Press, 2002.

income-countries with port. It is because due to excessive rules and regulation very limited individuals and business entities able to survive in private sector furthermore these entities then further created monopoly in the private sector which eventually increase income inequality. On the other hand, in high income countries increase in RQI reduces income inequality. It is because in high income countries private sector is quite stable and allows other entities to enter in private sector quite easily. Furthermore government also allow special incentives schemes for newly created business; which increase income and reduces inequalities. Similar, negative relationship between regulatory quality index and income inequality also affirmed by other author that in high-income countries regulatory quality index improve income distribution[937].

Corruption appears to increase income inequality in lower-middle-income countries and middle-income-countries with sea ports. That means that corruption plays a "grabbing hand" role in inequality reduction, and hence a high level of corruption seems to bear some responsibility on the lack of adequate accountability in most of regulatory institutions in low-middle-income countries and middle-income countries with sea. Considering the fact that; middle income countries with sea possess massive intuitions' which either directly or indirectly involves in trade activity. Therefore for lack of monitory induces private interest of individual which holds authority and involve in corrupt practice. Other study also found similar relationship between corruption and income distribution; thus corruption worse income distribution due to lack adequate monitoring and corrupt practices[938]. Furthermore, rule of law index approves income distribution by reducing the income inequality in middle-income countries, upper-middle-income countries and high-income countries. It is because during catching up economic growth process in middle income countries and stable economic structure in high income countries , the enforcement agents exercise legislative authority comprehensively which further positively impact economic activities and improve income distribution. Several other studies also found negative association between rule of law index and income inequality for developing and high income countries which reinforce the findings of this study[939] [940].

[937]T.C.Nguyen,"Financial crises and income inequality." *Available at SSRN 3879483*,2021.
[938]M.Younsi, H.Khemili, and M.Bechtini. "Does foreign aid help alleviate income inequality? New evidence from African countries." *International Journal of Social Economics* 46.4,2019.p.549-561.
[939]M.E. Kunawotor, G.A. Bokpin, and C.Barnor. "Drivers of income inequality in Africa: Does institutional quality matter?." *African Development Review* 32.4,2020.p.718-729.
[940]T.C.Nguyen. "Financial crises and income inequality." *Available at SSRN 3879483*,2021.

5.4.6 SUMMARY OF RESEARCH FINDINGS - INCOME INEQUALITIES

The research objective by empircally investigating the impact of economic growth, macro-economic variable and governance indicators on income inequalities is conducted in this part for middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. The findings reveal that economic growth is crucial to reducing income inequalities in upper-middle income countries, middle-income countries with seaports and high-income countries. Based on the magnitude economic growth improved income distribution by highest magnitude (0.346) in middle-income countries with seaports and then follow by high-income countries. In upper-middle-income countries, economic growth positively improve income distributes income distribution along with remittance inflow and trade. However these factors also require strong political stability, voice and accountability, government effectiveness and rule of law. Likewise, in lower-middle-income countries, economic growth increases income inequalities along with high level of corruption and regulation; whereas remittance inflow and trade reduces income inequalities. However, in middle-income countries with seaports, income inequalities is reduced by economic growth, foreign direct investment, remittance inflow, financial development , trade under the condition of strong political stability. Lastly, in high-income countries, economic growth, remittance inflow, voice and accountability, regulatory quality and rule of law are key determent for improving income distribution. Official development assistance increases income distribution in middle-income countries full sample and upper-middle income countries.

CHAPTER. 6 CONCLUSION

6.1 OVERALL REVIEW OF THE STUDY

The study's main contribution is to the answer the question of to what extent economic growth impacts the environmental and social pillar of sustainable development. Furthermore, investigating the impact of economic growth on sustainable development pillars for upper-middle-income countries could lead them to escape the middle-income trap. Likewise, this research also explores the impact of certain macroeconomic variables that directly impact economic growth, such as international financeas foreign direct investment inflow, remittance inflow, foreign official development aid, trade, and financial development. Moreover, this research work also covers the impact of specific conditional governance indicators, which potentially impact economic growth and then further on each sustainable development goal. The study adopts panel data analysis for 56 middle-income and high-income countries from 2000 to 2019. Furthermore, this study also highlights the impact of different macroeconomic variables and conditional governance indicators by incorporating the geographical factors of seaports for middle-income- countries in the analysis.

6.2 SUMMARY OF MAIN FINDINGS AND CONTRIBUTION OF STUDY

In this section initially I will discuss the factors which effecting sustainable economic growth in all the sample panels and comparatively analysis each factors based on income-group of sample panel.

TABLE 92. FACTORS AND CONDITIONS REQUIRE FOR SUSTAINABLE ECONOMIC GROWTH FACTORS

ECONOMIC GROWTH					
CONDITION	**MIC**	**UPPER-MIC (MIT)**	**LOWER-MIC**	**MIC WITH SEAPORTS**	**HIC**
FDI	**Positive impact / increasing (0.075)**	**Positive impact / increasing (0.108)**	**Positive impact / increasing (0.068)**	**Positive impact / increasing (0.105)**	**Positive impact / increasing (0.011)**
Remittance	Positive impact/ No influence	Negative /No influence	Positive/No influence	Positive/No influence	Positive/No influence
ODA	**Positive impact / increasing (0.064)**	Positive/No influence	**Positive impact / increasing (0.071)**	**Positive impact / increasing (0.036)**	Positive/No influence
Trade	Positive impact/ No influence	**Positive impact / increasing (0.602)**	Positive impact/ No influence	**Positive impact / increasing (0.162)**	**Positive impact / increasing (0.318)**
FD	Negative impact/ No influence	Negative Impact/decreasing (0.360)	Negative Impact /decreasing (0.160)	Negative impact/ No influence	Negative Impact /decreasing (0.258)
PSI-PG	Positive impact/ No influence	Positive impact/ No influence	Positive impact/ No influence	Positive impact/ No influence	Positive impact/ No influence
VAI-PG	Negative /No influence	Positive impact/ No influence	Negative /No influence	Negative /No influence	Positive impact/ No influence
GEI-EG	Positive impact/ No influence	Negative /No influence	**Positive impact / increasing (0.107)**	Negative /No influence	Negative /No influence
RQI-EG	Positive impact/ No influence	Positive impact/ No influence	Positive impact/ No influence	Positive impact/ No influence	**Positive impact / increasing (0.332)**
COC-IG	**Positive impact / increasing (0.279)**	**Positive impact / increasing (0.404)**	**Positive impact / increasing (0.201)**	**Positive impact / increasing (0.321)**	Positive impact/ No influence
ROL-IG	Negative /No influence	Negative /No influence	Negative /No influence	Positive impact/ No influence	**Positive impact / increasing (0.027)**

Table 92 indicates various macroeconomic variables and conditional governance indicators that directly impact the economic growth of middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries. The research reveals that, among international financevariable, foreign direct investment inflow impact economic growth in all the investigated panels (i-e, middle-income countries, their sub-income group, middle-income countries with seaports, and high-income countries). Based on the magnitude, it is found that FDI inflow holds a more significant positive magnitude (0.108) in upper-middle-income

countries, then followed by middle-income countries with seaports (0.105) than middle-income countries full sample (0.075), then lower-middle-income countries (0.068) and lastly fallow by high-income countries (0.011). Similarly, official development fosters economic growth in middle-income countries full sample, lower-middle-income countries, and middle-income countries with seaports. Similarly, based on the magnitude, it is found that official development aid influences economic growth with a more significant positive magnitude (0.071) in lower-middle-income countries under the shadow of government effectiveness with a magnitude (0.107), then followed by middle-income countries full sample (0.064) and last in middle-income countries with seaports (0.036). Furthermore, regarding trade, the results reveal its positive influence on economic growth in upper-middle-income countries with the most significant positive magnitude (0.602) then, followed by high-income countries with a magnitude (0.318) under the shadow of regulatory quality with a significant positive magnitude (0.332) and the rule of law with significant positive magnitude (0.021). Lastly, in middle-income countries with seaports, the magnitude of trade is significant and positive (0.162). The results also indicate that a higher magnitude of foreign direct investment in upper-middle-income countries leads to a higher trade impact on economic growth under the strong control of corruption policies, as it is found that control of corruption holds a more significant positive magnitude (0.404) in upper-middle-income countries. Then control of corruption followed by (0.321) in middle-countries with seaport and significantly impact economic growth positive, foreign direct investment, official development assistance, and trade.

TABLE 93. FACTORS AND CONDITIONS AFFECTING SOCIAL AND ENVIRONMENTAL SUSTAINABLE IN MIC-FS

MIDDLE INCOME COUNTRIES					
CONDITION	**ENVIRONMENT**	**POVERTY**	**INFANT MORTALITY RATE**	**SECONDARY SCHOOL ENROLMENT**	**INCOME INEQUALITY**
Economic growth	Positive impact/worsen (0.674)	Positive impact/decreasing (0.404)	Negative impact/ decreasing (0.057)	Positive impact/increasing (0.192)	Negative /No influence
Foreign direct investment	Positive impact/worsen (0.022)	Positive impact/decreasing (0.121)	Negative /No influence	Negative /No influence	Positive/No influence
Remittance	Positive impact/worsen (0.065)	Negative /No influence	Negative impact/ decreasing (0.018)	Positive impact/ increasing (0.111)	Negative impact/decreasing (0.042)
Official development assistance	Positive impact/worsen (0.023)	Negative /No influence	Positive impact/Increasing (0.145)	Negative impact/decreasing (0.096)	Positive impact/increasing (0.019)
Trade	Positive impact/worsen (0.105)	Positive impact/ decreasing (0.445)	Negative impact/ decreasing (0.331)	Positive impact/ increasing (0.168)	Negative impact/ decreasing (0.035)
Financial development	Negative /No influence	Negative Impact/increasing (0.212)	Negative /No influence	Positive/No influence	Positive/No influence
PSI-PG	Positive impact/worsen (0.063)	Positive/No influence	Negative /No influence	Positive impact/ increasing (0.074)	Negative impact/ decreasing (0.023)
VAI-PG	Positive/No influence	Positive/No influence	Negative impact/ decreasing (0.045)	Positive/No influence	Negative /No influence
GEI-EG	Negative /No influence	Negative /No influence	Negative impact/ decreasing (0.127)	Positive impact/ increasing (0.035)	Negative impact/ decreasing (0.113)
RQI-EG	Positive/No influence	Negative /No influence	Negative /No influence	Negative /No influence	Positive impact/ worsen (0.071)
COC-IG	Positive/No influence	Positive impact/ decreasing (0.428)	Negative impact/ decreasing (0.141)	Positive/No influence	Negative /No influence
ROL-IG	Negative Impact/ improving (0.176)	Negative /No influence	Negative /No influence	Positive impact/ increasing (0.059)	Negative impact/improving (0.108)

A)Negative impact indicate negative coefficient sign , thus reducing infant mortality rate
B) No influence refers to insignificance of probability.
C)Positive refer to worsen increasing / inequality ; Negative refer to improved /decreasing inequalities

According to table 93, economic growth appears to be improving social sustainability by improving the health & education sector and alleviating poverty. However, economic growth appears to harm the environment by causing more emissions of greenhouse gases. Economic growth is favourable in poverty reduction when the condition of foreign direct investment inflow is met along with trade and under anti-corruption solid policies. Furthermore, economic growth also reduces the infant mortality rate when there is remittance inflow in the economy along with trade. Also, there is strong government effectiveness, and voice & accountability exist under anti-corruption solid policies. Likewise, economic growth increases the secondary school enrolment ratio once foreign remittances are received along with trade. However, the economy's effectiveness in boosting the secondary school enrolment ratio requires strong political stability and government effectiveness. Lastly, economic growth does not appear to affect income inequalities in middle-income countries; however, remittance inflow, trade, political stability, government effectiveness, and the rule of law improve income distribution. Based on the magnitude of economic growth on environmental sustainability and each goal of social sustainability, it is found that economic growth harm the environment with a more significant positive magnitude (0.674), followed by improving education (0.192) and then reduces poverty by (0.404) and in last follow by health outcomes (0.057).

TABLE 94. FACTORS AND CONDITIONS AFFECTING SOCIAL AND ENVIRONMENTAL SUSTAINABLE IN UMIC

UPPER-MIDDLE INCOME COUNTRIES (MIT)					
CONDITION	**ENVIRONMENT**	**POVERTY**	**INFANT MORTALITY RATE**	**SECONDARY SCHOOL ENROLMENT**	**INCOME INEQUALITY**
Economic growth	Positive impact/ worsen (0.049)	Positive impact/ decreasing (0.387)	Negative impact/ decreasing (0.192)	Positive impact / increasing (0.119)	Negative impact/decreasing (0.016)
Foreign direct investment	Negative /No influence	Positive/No influence	Negative /No influence	Positive impact/ increasing (0.023)	Negative /No influence
Remittance	Negative /No influence	Positive/No influence	Negative impact/ decreasing (0.279)	Positive/No influence	Negative impact/ decreasing (0.055)
Official development assistance	Positive/No influence	Positive impact/ decreasing (0.215)	Positive/No influence	Negative impact / decreasing (0.056)	Positive impact/increasing (0.029)
Trade	Positive impact/worsen (0.055)	Positive impact/ decreasing (0.630)	Negative Impact / decreasing (0.220)	Positive/No influence	Negative impact/ decreasing (0.156)
Financial development	Positive/No influence	Negative Impact/increasing (0.179)	Negative Impact / decreasing (0.091)	Positive/No influence	Positive/No influence
PSI-PG	Negative /No influence	Positive/No influence	Positive/No influence	Positive impact/ increasing (0.148)	Negative impact/ decreasing (0.091)
VAI-PG	Positive impact/worsen (0.200)	Positive impact/decreasing (0.627)	Negative impact/ decreasing (0.084)	Positive/No influence	Negative impact/ decreasing (0.051)
GEI-EG	Negative /No influence	Positive/No influence	Negative /No influence	Positive impact/ increasing (0.110)	Negative impact/ decreasing (0.124)
RQI-EG	Positive/No influence	Positive/No influence	Negative /No influence	Positive/No influence	Positive/No influence
COC-IG	Positive/No influence	Positive impact/ decreasing (0.289)	Negative /No influence	Positive/No influence	Negative /No influence
ROL-IG	Negative /No influence	Positive/No influence	Negative impact/ decreasing (0.230)	Negative /No influence	Negative impact/ decreasing (0.286)

A)Negative impact indicate negative coefficient sign , thus reducing infant mortality rate
B) No influence refers to insignificance of probability.
C)Positive refer to worsen increasing / inequality ; Negative refer to improved /decreasing inequalities

According to table 94, economic growth appears to be improving social sustainability by improving the health, education, and reduces poverty & income inequalities. However, economic growth appears to harm the environment by causing more emissions of greenhouse gases same as like middle-income countries full sample. Economic growth is favourable in poverty reduction foreign aid is provided to upper-middle-income countries and international trade exist. However the effectiveness of economic growth on poverty reduction depends on voice & accountability and strong anti corruption polices. Furthermore, economic growth also reduces the infant mortality rate when there is remittance inflow in the economy with existence of trade and financial development. However effectiveness of economic growth for reducing infant mortality rate requires voice and accountability and rule of law. Likewise, economic growth increases the secondary school enrolment ratio once there is foreign direct investment, which requires political stability and government effectiveness. Lastly, economic growth appears to affect income inequalities in upper-middle-income countries along with remittance inflow and trade. However economic growth improves income distribution when condition of strong political stability, voice & accountability, government effectiveness and the rule of law are present in the upper-middle income countries. Based on the magnitude of economic growth on environmental sustainability and each goal of social sustainability, it is found that economic growth decreases poverty with a more significant positive magnitude (0.387), followed by improving infant mortality rate (0.192) , then improve secondary school enrolment by (0.119) and harm environment by (0.049) and in last follow by improving income distribution by (0.016).

TABLE 95. FACTORS AND CONDITIONS AFFECTING SOCIAL AND ENVIRONMENTAL SUSTAINABLE IN LMIC

LOWER-MIDDLE INCOME COUNTRIES					
CONDITION	**ENVIRONMENT**	**POVERTY**	**INFANT MORTALITY RATE**	**SECONDARY SCHOOL ENROLMENT**	**INCOME INEQUALITY**
Economic growth	Positive impact/worsen (0.682)	Positive impact/ decreasing (0.662)	Negative impact/decreasing (0.008)	Positive impact/increasing (0.270)	Positive impact / increasing (0.056)
Foreign direct investment	Positive impact/ worsen (0.027)	Positive/No influence	Negative /No influence	Negative impact/decreasing (0.070)	Positive/No influence
Remittance	Positive impact/ worsen (0.090)	Positive impact/ decreasing (0.138)	Negative impact/decreasing (0.103)	Positive impact/increasing (0.118)	Negative impact/decreasing (0.019)
Official development assistance	Positive impact/ worsen (0.045)	Positive impact/ decreasing (0.196)	Positive impact/increasing (0.110)	Negative /No influence	Positive/No influence
Trade	Positive impact/ worsen (0.135)	Positive/No influence	Negative Impact /decreasing(0.314)	Positive impact/increasing (0.371)	Negative impact/ decreasing (0.020)
Financial development	Negative /No influence	Negative Impact /increasing (0.126)	Negative /No influence	Positive/No influence	Negative /No influence
PSI-PG	Positive impact/ worsen (0.097)	Positive/No influence	Negative /No influence	Positive impact/increasing (0.061)	Negative /No influence
VAI-PG	Negative /No influence	Positive/No influence	Negative /No influence	Positive/No influence	Negative /No influence
GEI-EG	Positive/No influence	Positive/No influence	Negative /No influence	Positive/No influence	Negative /No influence
RQI-EG	Negative /No influence	Positive/No influence	Negative /No influence	Negative /No influence	Positive impact/increasing (0.090)
COC-IG	Positive/No influence	Positive/No influence	Positive/No influence	Negative /No influence	Positive impact/increasing (0.045)
ROL-IG	Negative /No influence	Negative /No influence	Negative /No influence	Positive impact/increasing (0.445)	Negative /No influence

A)Negative impact indicate negative coefficient sign , thus reducing infant mortality rate
B) No influence refers to insignificance of probability.
C)Positive refer to worsen increasing / inequality ; Negative refer to improved /decreasing inequalities

According to table 95, economic growth appears to be improving social sustainability by improving the health, education, and reduces poverty. However, economic growth appears to harm the environment by causing more emissions of greenhouse gases same as like middle-income countries full sample and upper-middle-income countries. Furthermore economic growth also increases income inequalities in lower-middle income countries. Economic growth is favourable in poverty reduction when foreign aid is provided to lower-middle-income countries and also there is flow of foreign remittances. Furthermore, economic growth also reduces the infant mortality

rate when there is remittance inflow in the economy with existence of trade. Likewise, economic growth increases the secondary school enrolment ratio once there is remittance inflow and trade, which further requires political stability and rule of law. Lastly, economic growth appears to increase income inequalities in lower-middle-income countries along with corruption and regulatory quality. Despite that fact economic growth increases income inequality however trade appear to decrease income inequalities however the magnitude of remittance inflow (0.019) and trade (0.020) is less than the economic growth (0.056). Based on the magnitude of economic growth on environmental sustainability and each goal of social sustainability, it is found that economic growth harm environment with a more significant positive magnitude (0.682), followed by reducing poverty (0.066), then improve secondary school enrolment by (0.270) and improving infant mortality rate (0.008).

TABLE 96. FACTORS AND CONDITIONS AFFECTING SOCIAL AND ENVIRONMENTAL SUSTAINABLE IN MIC WITH SEAPORTS

MIDDLE INCOME COUNTRIES WITH SEA PORTS					
CONDITION	**ENVIRONMENT**	**POVERTY**	**INFANT MORTALITY RATE**	**SECONDARY SCHOOL ENROLMENT**	**INCOME INEQUALITIES**
Economic growth	Positive impact/worsen (0.445)	Positive impact/ decreasing (0.346)	Negative impact/ decreasing (0.101)	Positive impact/ increasing (0.151)	Negative impact/decreasing (0.346)
Foreign direct investment	Negative /No influence	Positive impact/ decreasing (0.159)	Negative impact/ decreasing (0.030)	Positive/No influence	Negative impact/ decreasing (0.159)
Remittance	Positive impact/worsen (0.029)	Positive impact/ decreasing (0.084)	Negative impact/ decreasing (0.158)	Positive impact/ increasing (0.098)	Negative impact/ decreasing (0.084)
Official development assistance	Positive/No influence	Positive/No influence	Positive/No influence	Negative impact/increasing (0.131)	Positive/No influence
Trade	Positive impact/worsen (0.098)	Positive impact/ decreasing (0.444)	Negative Impact/ decreasing (0.304)	Positive impact/ increasing (0.175)	Negative impact/ decreasing (0.444)
Financial development	Positive/No influence	Negative Impact/ increasing (0.222)	Negative /No influence	Positive/No influence	Negative impact/ decreasing (0.222)
PSI-PG	Positive impact/worsen (0.123)	Positive impact/ decreasing (0.172)	Negative /No influence	Positive impact/ increasing (0.047)	Negative impact/ decreasing (0.172)
VAI-PG	Positive/No influence	Positive/No influence	Negative Impact / decreasing (0.084)	Positive/No influence	Positive/No influence
GEI-EG	Positive/No influence	Positive/No influence	Negative /No influence	Positive/No influence	Positive/No influence
RQI-EG	Negative /No influence	Positive impact/ decreasing (0.315)	Negative Impact / decreasing (0.162)	Positive/No influence	Positive impact/increasing (0.015)
COC-IG	Negative /No influence	Negative /No influence	Negative /No influence	Negative /No influence	Positive impact/increasing (0.064)
ROL-IG	Positive/No influence	Positive/No influence	Positive/No influence	Positive impact/ increasing (0.105)	Negative /No influence

A)Negative impact indicate negative coefficient sign , thus reducing infant mortality rate
B) No influence refers to insignificance of probability.
C)Positive refer to worsen increasing / inequality ; Negative refer to improved /decreasing inequalities

According to table 96, economic growth appears to be improving social sustainability by improving the health, education, reduces poverty and improves income distribution. However, economic growth appears to harm the environment by causing more emissions of greenhouse gases. Economic growth is favourable in poverty reduction when there is inflow of foreign direct investment and remittance inflow along with trade. Furthermore, economic growth appears to be effective for poverty reduction under strong political stability and regulatory quality.In terms of infant mortality rate, same as like poverty; economic growth is favourable when there are foreign direct investment, remittances and trade. However; economic growth effectiveness requires

the condition of strong voice & accountability and regulatory quality. Nevertheless, economic growth increases the secondary school enrolment ratio once there is remittance inflow and trade, which further requires political stability and rule of law.Lastly, economic growth appears to decrease income inequalities in middle-income countries with seaports under the condition of inflow of foreign direct investment, remittance inflow, trade and financial development. However, political stability decreases income inequality whereas; regulatory quality and corruption worsen income distribution.Based on the magnitude of economic growth on environmental sustainability and each goal of social sustainability, it is found that economic growth harm environment with a more significant positive magnitude (0.445), followed by reducing poverty and income inequalities (0.346), then improve secondary school enrolment by (0.151) and improving infant mortality rate (0.101).

TABLE 97. FACTORS AND CONDITIONS AFFECTING SOCIAL AND ENVIRONMENTAL SUSTAINABLE IN HIC

HIGH-INCOME COUNTRIES					
CONDITION	**ENVIRONMENT**	**POVERTY**	**INFANT MORTALITY RATE**	**SECONDARY SCHOOL ENROLMENT**	**INCOME INEQUALITIES**
Economic growth	Positive impact /worsen (0.150)	Positive impact /decreasing (0.547)	Negative impact /decreasing (0.462)	Positive impact/increasing (0.091)	Negative impact/decreasing (0.230)
Foreign direct investment	Positive impact /worsen (0.010)	Positive/No influence	Negative impact/decreasing (0.028)	Positive impact/increasing (0.032)	Positive/No influence
Remittance	Negative /No influence	Positive/No influence	Negative impact/decreasing (0.059)	Positive impact/increasing (0.024)	Negative impact/decreasing (0.030)
Official development assistance	Positive/No influence	Positive/No influence	Negative /No influence	Negative /No influence	Positive/No influence
Trade	Negative /No influence	Positive impact /decreasing (0.632)	Negative /No influence	Positive impact/increasing (0.015)	Positive/No influence
Financial development	Negative Impact / improve(0.131)	Negative /No influence	Negative /No influence	Positive/No influence	Positive impact/increasing (0.010)
PSI-PG	Negative /No influence	Positive/No influence	Negative /No influence	Positive impact/increasing (0.013)	Negative /No influence
VAI-PG	Positive/No influence	Positive/No influence	Negative Impact/decreasing (0.169)	Positive impact/increasing (0.139)	Negative impact/decreasing (0.430)
GEI-EG	Negative Impact / improve (0.108)	Positive/No influence	Negative /No influence	Positive/No influence	Negative /No influence
RQI-EG	Positive/No influence	Negative /No influence	Negative /No influence	Positive impact/increasing (0.078)	Negative impact/decreasing (0.118)
COC-IG	Positive/No influence	Positive/No influence	Negative /No influence	Positive/No influence	Positive/No influence
ROL-IG	Negative /No influence	Positive/No influence	Negative /No influence	Positive impact/increasing (0.046)	Negative impact/decreasing (0.221)

A)Negative impact indicate negative coefficient sign , thus reducing infant mortality rate
B) No influence refers to insignificance of probability.
C)Positive refer to worsen increasing / inequality ; Negative refer to improved /decreasing inequalities

According to table 97, economic growth appears to be improving social sustainability by improving the health, education, reduces poverty and improves income distribution in high-income countries. However, economic growth appears to harm the environment by causing more emissions of greenhouse gases in high-income countries along with foreign direct investment inflow. However; financial development and government effectiveness improve environmental sustainability. Economic growth is favourable in poverty reduction when there is trade. In terms of infant mortality rate, economic growth is favourable when there are foreign direct investment and remittances inflow. However; economic growth effectiveness requires the condition of strong voice

& accountability. Nevertheless, economic growth increases the secondary school enrolment ratio once there is injection of international financeas foreign direct investment and remittance inflow. Furthermore trade also appear to improve secondary school enrolment. Economic growth and all other macro economic factors are effective when there is strong political stability, voice & accountability, regulatory quality and rule of law. Lastly, economic growth appears to decrease income inequalities in high-income under the condition remittance inflow in the presence of voice & accountability, regulatory quality and rule of law. Based on the magnitude of economic growth on environmental sustainability and each goal of social sustainability, it is found that economic growth increases per capita consumption expenditure and reduces poverty with a more significant positive magnitude (0.547), followed by reducing infant mortality rate (0.462), income inequalities (0.230), then harm environment by causing more greenhouse gases emission and lastly , economic growth improve secondary schooling with positive magnitude (0.091).

6.3 POLICY IMPLICATIONS

6.3.1 ECONOMIC SUSTAINABILITY POLICIES

1. Government should encourage tax holiday schemes for newly formed businesses and MNC which transferred via FDI.
2. The government should encourage SMI (small-medium industries) as it employs those moving from formal employment sectors such as agriculture.
3. The government should open and increase technical learning center involvement in the education sector.
4. Government should focus on the building infrastructure (transportation, hospital, schools, railways, and airports) as it increases the employment sector.
5. The government should discourage urban expansion as it creates social issues in urban areas and enhances employment in rural areas.
6. Government should encourage the import of machinery in contrast to luxury items.
7. Government should increase industrialization by expanding the export processing zone as it creates jobs.
8. Government should increase scholarships for technical education as it improves technology. It also improves human capital.

9. Government should encourage saving schemes as it improves financial stability.
10. Government should improve internal revenue via productivity increases, as it promotes employment rather than external borrowing in case of deficit budgets.
11. Government should give zero import duty on renewable energy production machinery, as it reduces the burden of import of petrol-related products.

6.3.2 ENVIRONMENTAL SUSTAINABILITY POLICIES

POLICY RECOMMENDATION FOR GOVERNMENTS

1. Consumption patterns and production should be more sustainable and environmental-friendly.
2. Government should raise awareness regarding the harmfulness of high carbon emissions and greenhouse gases.
3. Government should impose extra taxes on those industries which cause high carbon dioxide.
4. The government should criminalize any activity which harms the environment (see EU AML directive 6).
5. Government should impose restrictions on industries that involve a high density of carbon emission.
6. Financing should be discouraged for nonenvironmental friendly industries or with high-interest rates.
7. Strict environmental regulatory laws should be imposing industries that cause air pollution.
8. Government should make an environmental regulatory authority, which provides license and approval for setting up new business units regarding their impact on the environment.
9. Government should increase the mechanism of voice and accountability regarding environmental issues by strict punishments and fines.

POLICY RECOMMENDATION FOR URBAN FLOW AND CARBON EMISSION

1. Awareness regarding living in Smart cities should be raised; therefore, urbanization becomes beneficial for reducing carbon emission.
2. The use of environmental-friendly means of transportation should be increased.
3. Discourage or impose fines on the usage of fossil fuels in the city and urban areas.
4. Increase awareness in urban areas for investment in green park areas.
5. Urban local government should discourage unplanned urban flow, which potentially causes more greenhouse gases by using more energy resources if it is non-renewable.
6. Urban local government should ban those vehicles which emit more carbon dioxide than threshold figures in urban areas.
7. Urban local government should encourage the use of biofuels consumption by a public-private partnership.
8. Urban local government should restrict the cutting of trees and green plantations in the inner and outer crest of cities.

POLICY RECOMMENDATION FOR EXTERNAL FINANCE

1. Governments in upper-middle and lower-middle-income should restrict the import of those technologies via foreign direct investment, which is harmful to the environment.
2. Upper- and lower-income countries should make concrete environmental regulations and enforce their compliance via environmental regulatory bodies.
3. In case of non-compliance with the environmental regulator, the business license should be cancelled or imposed high penalties.
4. For lower-middle-income countries, remittance inflow appears to be more harmful to the environment via increased aggregate demand. Therefore, the government should increase the use of more renewable resources and impose more taxes on fossil energy, which eventually decreases carbon emissions in the long run.

5. Government should launch eco-friendly investment products and encourage people to invest, which further reduces the investment cost of the government.
6. Government should give more tax incentives for machinery used for renewable energy generation to the private sector via foreign direct investment.

POLICY RECOMMENDATION FOR TRADE

1. Government should provide tax incentives on the import of hybrids vehicles.
2. Government should discourage the import of fossil fuels and encourage the usage of renewable energy resources.
3. Government should lower the import duty on environmentally environmental-friendly home appliances and commercial machinery.
4. Every government in middle-income countries should encourage the usage of renewable energy resources for international trade.
5. Government should provide low duty on importing hybrid machinery and vehicle for the agriculture sector.

POLICY RECOMMENDATION FOR USE RENEWABLE ENERGY RESOURCES

1. Government should encourage the private sector to invest in the production of renewable energy resources.
2. Government should also give tax incentives for those productions unit or industries that use the most renewable energy resources in their energy consumption mix.
3. Besides urban areas, the government should create awareness for the benefit of using renewable energy resources in rural areas, especially in the agriculture sector.
4. Government should increase awareness of using renewable energy resources for domestic users, such as solar panels.

6.3.3 SOCIAL SUSTAINABILITY POLICES.

POVERTY

1. The government should provide income support to people below the poverty line (such as the Ehsas income support program in Pakistan).

2. Government should increase the progressive tax as it improves the purchasing power capability.
3. Government should provide essential health and education services or facilities without any cost.
4. By using AID in infrastructure directly improves employment and increases individual income.
5. Government should create employment opportunities.
6. Government should encourage the use of renewable energy resources (such as solar panels) to reduce the cost of living and improve purchasing capacity.
7. The government should encourage improving agriculture productivity, as it impacts the employment sector of industrial and agriculture sectors.
8. Saving schemes based on tax networks could also be helpful in poverty reduction, such as the different rates for tax filers vs. non-tax filers.

HEALTH

1. The government should promote primary health education for all women and females as it directly improves infant health.
2. The government should discourage pre-mature marriage as it directly impacts the woman's health and causes health issues.
3. Government should build maternity homes based on population concentration.
4. Increasing the number of small hospitals in rural villages reduces the infant mortality rate.
5. Government should encourage health programs related to the education of midwives.
6. Government should encourage public-private partnerships in the health sector.
7. Providing special import duty on medicines and health equipment also improves infant mortality.
8. Implementing strict pro-health policies, rules, and regulations in hospitals and care centers also reduces infant mortality.
9. Government should increase health spending by increasing the budget.

EDUCATION

1. Government should promote public-private partnerships in education.

2. The government should increase scholarship programs in secondary school education to improve educational outcomes.
3. Government should discourage child labor and implement strict rules and regulations against it.
4. Government should invest more in education-related infrastructures such as schools and hostels.
5. Government should encourage technical education in secondary school, as it provides skills.
6. Government should provide primary free education.
7. Government should promote education in rural areas by implementing policies and then implementing those policies via local law enforcement agencies.
8. Government should strictly use health aid without; by removing the corruption (encourage progressive monitoring).

INCOME INEQUALITIES

1. Government should maintain minimum wage criteria according to the inflation rate.
2. By creating more employment opportunities, inequalities can be reduced.
3. Government should implement a progressive tax.
4. Providing equal health and education standards to all populations could be helpful in poverty reduction.

REFERENCES

A,Jalil, and M.Feridun. "Energy-driven economic growth: Energy consumption—economic growth nexus revisited for China." Emerging Markets Finance and Trade 50.5,2014.p.159-168.

A. Akinlo, and I.A. Odusanya. "Effects of food prices on under-five and infant mortality rates in Sub-Saharan Africa." African Journal of Economic Review 4.1,2016.p.101-112.

A. Amiri, and Ulf-G. Gerdtham. "Impact of maternal and child health on economic growth: New evidence based granger causality and DEA analysis." Newborn and child health, study commissioned by the partnership for maternal, Lund University, Sweden 2013.

A. Arapi-Gjini, J.Möllers, and T.Herzfeld. "Measuring dynamic effects of remittances on poverty and inequality with evidence from Kosovo." Eastern European Economics 58.4,2020.p.283-308.

A. Arneth,[et al.], "Post-2020 biodiversity targets need to embrace climate change." Proceedings of the National Academy of Sciences 117.49, 2020.p30882-30891.

A. Dhrifi, "Health-care expenditures, economic growth and infant mortality: evidence from developed and developing countries." CEPAL Rev. No. 125, August 2018 69,2019).

A. Foster, and M.R. Rosenzweig. "Learning by doing and learning from others: Human capital and technical change in agriculture." Journal of political Economy 103.6,1995.p.1176-1209.

A. Giovannini, M.Iacopetta 1, and R.Minetti. "Financial markets, banks, and growth: disentangling the links." Revue de l'OFCE 5,2013.p.105-147.

A. Hayat, "FDI and economic growth: the role of natural resources?." Journal of Economic Studies 45.2,2018.p.283-295.

A. Islam, "Foreign aid and economic growth: an econometric study of Bangladesh." Applied Economics 24.5,1992,p.541-544.

A. Khan,[et al.], "The impression of technological innovations and natural resources in energy-growth-environment nexus: a new look into BRICS economies." Science of the Total Environment 727,2020.p.138265.

A. Rahman,[et al.] "Factors Influencing Farmers' Awareness and Risk Perception of Environmental Degradation in Bangladesh." Polish Journal of Environmental Studies 31.2,2022.

A. Raikes,[et al.], "Children, Youth and Developmental Science in the 2015-2030 Global Sustainable Development Goals. Social Policy Report. Volume 30, Number 3." Society for Research in Child Development,2017.

A. Riddell, and M.Niño-Zarazúa. "The effectiveness of foreign aid to education: What can be learned?." International Journal of Educational Development 48,2016.p.23-36.

A. Silverstein,[et al.], "Global community of practice: A means for capacity and community strengthening for health professionals in low-and middle-income countries." Journal of Global Health 12,2022.

A. Wahid,[et al.], "Does financial sector development increase income inequality? Some econometric evidence from Bangladesh." Indian Economic Review,2012.p.89-107.

A. Weiss, "Human capital vs. signalling explanations of wages." Journal of Economic perspectives 9.4,1995.p.133-154.

A. Wuermli, A.Von Suchodoletz, and A.Abubakar. "Advancing the sustainable development goal for education through developmentally informed approaches to measurement." Developmental science and sustainable development goals for children and youth .2018.p.297-312.

A.A. Shah,[et al.], "Nexus of renewable energy consumption, economic growth, population growth, FDI, and environmental degradation in south asian countries: New evidence from Driscoll-Kraay standard error approach." iRASD Journal of Economics 3.2,2021.p.200-211.

A.Abubakar, S.HJ Kassim, and M.B. Yusoff. "Financial development, human capital accumulation and economic growth: empirical evidence from the Economic Community of West African States (ECOWAS)." Procedia-Social and Behavioral Sciences 172,2015.p. 96-103.

A.Afrooz,[et al.]., "Human capital and labor productivity in food industries of Iran." International Journal of Economics and Finance 2.4,2010,p.47-51.

A.Alesina, and R.Perotti. "Income distribution, political instability, and investment." European economic review 40.6,1996.p.1203-1228.

A.Andreoni, and F.Tregenna. "Escaping the middle-income technology trap: a comparative analysis of industrial policies in China, Brazil and South Africa." Structural Change and Economic Dynamics 54,2020.p.324-340.

A.Ang, S.Jha, and G.Sugiyarto. "Remittances and household behavior in the Philippines." Asian Development Bank Economics Working Paper 188,2009.

A.B.Hernández-Lara, J.P, Gonzales-Bustos, and A.Alarcón-Alarcón. "Social sustainability on corporate boards: The effects of female family members on R&D." Sustainability 13.4,2021,p. 1982.

A.Banerjee, and E.Duflo. "Inequality and growth: What can the data say?." Journal of economic growth 8,2003.p.267-299.

A.Bulíř,. "Income inequality: does inflation matter?." IMF Staff papers 48.1,2001.p.139-159.

A.C. Edwards, , and M.Ureta. "International migration, remittances, and schooling: evidence from El Salvador." Journal of development economics 72.2,2003.p.429-461.

A.C.CAMBA Jr, and A.L. CAMBA. "The dynamic relationship of domestic credit and stock market liquidity on the economic growth of the Philippines." The Journal of Asian Finance, Economics and Business 7.1,2020,p.37-46.

A.C.Marques, and R.Caetano. "The impact of foreign direct investment on emission reduction targets: Evidence from high-and middle-income countries." Structural Change and Economic Dynamics 55.2020.p.107-118.

A.Cuesta, P.Glewwe, and B.Krause. "School infrastructure and educational outcomes: a literature review, with special reference to Latin America." Economia 17.1,2016.p.95-130.

A.D.Foster, and M.R.Rosenzweig. "Learning by doing and learning from others: Human capital and technical change in agriculture." Journal of political Economy 103.6,1995,p.1176-1209.

A.De Vaal, and W.Ebben. "Institutions and the relation between corruption and economic growth." Review of Development Economics 15.1,2011.p.108-123.

A.Drabo, and C.Hubert Ebeke. "Remittances, public health spending and foreign aid in the access to health care services in developing countries." 2011.

A.Dreher, Axel, P.Nunnenkamp, and Rainer Thiele. "Does aid for education educate children? Evidence from panel data." The World Bank Economic Review 22.2,2008.p.291-314.

A.E.Akinlo, and A.O. Sulola. "Health care expenditure and infant mortality in sub-Saharan Africa." Journal of Policy Modeling 41.1,2019.p.168-178.

A.Egawa,. Will Income Inequality Cause a Middle-income Trap in Asia?. Vol. 797. Bruegel, 2013.

A.Elbadawy, and R.Roushdy. "Impact of international migration and remittances on child schooling and child work: The case of Egypt." Population Council Working Papers 454 2009.

A.Gani,. "The relationship between good governance and carbon dioxide emissions: evidence from developing economies." Journal of Economic Development 37.1,2012.p.77.

A.Gjini, "The role of remittances on economic growth: An empirical investigation of 12 CEE countries." International Business & Economics Research Journal (IBER) 12.2,2013,p.193-204.

A.H, Arıç,. "The effects of financial development on economic growth in the European Union: a panel data analysis." International journal of economic practices and theories 4.4,2014.p.466-471.

A.Hunjra,[et al.], "Role of financial development for sustainable economic development in low middle income countries." Finance Research Letters 47,2022,p.102793.

A.Hunjra,[et al.], "Role of financial development for sustainable economic development in low middle income countries." Finance Research Letters 47,2022.p.102793.

A.Iqbal,[et al.], "The dynamic nexus between air transport, technological innovation, FDI, and economic growth: evidence from BRICS-MT countries." Environmental Science and Pollution Research 29.45,2022.p.68161-68178.

A.J Makin, and Allan Layton. "The global fiscal response to COVID-19: Risks and repercussions." Economic Analysis and Policy 69,2021,p.340-349.

A.Jaffri,M. Sana, and R. Iqbal. "Workers' Remittances Inflows And Per Capita Income: Does U-Shaped Relationship Exist In Case Of Pakistan?." Journal of Positive School Psychology 7.6.2023.p.395-406.

A.Johansson., and Xun Wang. "Financial sector policies and income inequality." China Economic Review 31,2014.p.367-378.

A.Jorgenson, "Foreign direct investment and the environment, the mitigating influence of institutional and civil society factors, and relationships between industrial pollution and human health: A panel study of less-developed countries." Organization & Environment 22.2 2009.p.135-157.

A.K. Fosu,. "Growth, inequality, and poverty reduction in developing countries: Recent global evidence." Research in Economics 71.2,2017.p.306-336.

A.K. Giri, Rajan Pandey, and Geetilaxmi Mohapatra. "Does Technological Progress, Trade, or Financial Globalization Stimulate Income Inequality in India?." The Journal of Asian Finance, Economics and Business 8.2,2021.p.111-122.

A.K. Jorgenson, and T.J. Burns. "Globalization, the environment, and infant mortality: a cross national study." Humboldt Journal of Social Relations,2004.p.7-52.

A.Kotsadam, [et al.], "Development aid and infant mortality. Micro-level evidence from Nigeria." World Development 105,2018,p. 59-69.

A.L. Owen, and S.Wu. "Is trade good for your health?." Review of International Economics 15.4,2007.p.660-682.

A.L. Winters,. Trade liberalisation and poverty. No. 07. Poverty Research Unit at Sussex, University of Sussex, 2000.

A.Lasbrey,[et al.], "Foreign direct investment and economic growth: Literature from 1980 to 2018." International Journal of Economics and Financial Issues 8.5,2018,p.309-318.

A.M. Awan,[et al.] "Does globalization and financial sector development affect environmental quality? A panel data investigation for the Middle East and North African countries." Environmental Science and Pollution Research 27,2020,p. 45405-45418.

A.McKay, and P.Deshingkar. "Internal remittances and poverty: Further evidence from Africa and Asia." 2014.

A.O. Israel,. "Impact of foreign direct investment on poverty reduction in Nigeria (1980–2009)." Journal of Economics and Sustainable Development 5.20,2014.p.34-45.

A.O.Acheampong,. "Economic growth, CO2 emissions and energy consumption: what causes what and where?." Energy Economics 74,2018.p.677-692.

A.O.Krueger, "Trade policy and economic development: how we learn." 1997.

A.Omri, [et al.], "Financial development, environmental quality, trade and economic growth: What causes what in MENA countries." Energy economics 48,2015.p.242-252.

A.Onakoya, B.Johnson, and G.Ogundajo. "Poverty and trade liberalization: empirical evidence from 21 African countries." Economic research-Ekonomska istraživanja 32.1,2019.p.635-656.

A.Owen,. "International trade and the accumulation of human capital." Southern Economic Journal 66.1,1999.p.61-81.

A.Ozpolat,[et al.], "Does rule of law affect economic growth positively." Research in World Economy 7.1,2016.p.107.

A.Purcel,. "Does political stability hinder pollution? Evidence from developing states." Economic Research Guardian 9.2,2019.p.75-98.

A.Razmjoo,[et al.], "A Technical analysis investigating energy sustainability utilizing reliable renewable energy sources to reduce CO2 emissions in a high potential area." Renewable Energy 164,2021.p.46-57.

A.Repkine, and D.Min. "Foreign-funded enterprises and pollution halo hypothesis: A spatial econometric analysis of thirty Chinese regions." Sustainability 12.12,2020.p.5048.

A.Riddell, and M. Niño-Zarazúa. "The effectiveness of foreign aid to education: What can be learned?." International Journal of Educational Development 48,2016,p.23-36.

A.Shamim, P.Azeem, and S.M. Muddassir Abbas Naqvi. "Impact of foreign direct investment on poverty reduction in Pakistan." International Journal of Academic Research in Business and Social Sciences 4.10,2014.p.465.

A.Sohail, et al. "The nonlinearity and nonlinear convergence of CO2 emissions: Evidence from top 20 highest emitting countries." Environmental Science and Pollution Research 29.39,2022.p.59466-59482.

A.Spilimbergo, J.Luis Londoño, and Miguel Székely. "Income distribution, factor endowments, and trade openness." Journal of development Economics 59.1,1999.p.77-101.

A.Sukar, S. Ahmed, and S.Hassan. "The effects of foreign direct investment on economic growth: The case of Sub-Sahara Africa." Southwestern Economic Review 34,2007.p.61-73.

A.T, Okwu, I.Olasunkanmi Oseni, and Rowland Tochukwu Obiakor. "Does foreign direct investment enhance economic growth? Evidence from 30 leading global economies." Global Journal of Emerging Market Economies 12.2,2020.p.217-230.

A.Tamazian,J.P.Chousa, and K.C. Vadlamannati. "Does higher economic and financial development lead to environmental degradation: evidence from BRIC countries." Energy policy 37.1.2009,p.246-253.

A.Tansel, and P. Yaşar. "Macroeconomic impact of remittances on output growth: Evidence from Turkey." Migration Letters 7.2,2010,p.132-143.

A.Teixeira, AC, and A.Sofia Loureiro. "FDI, income inequality and poverty: a time series analysis of Portugal, 1973–2016." Portuguese Economic Journal 18.3,2019.p.203-249.

A.V. Mollick, R.Ramos-Duran, and E.Silva-Ochoa. "Infrastructure and FDI inflows into Mexico: A panel data approach." Global Economy Journal 6.1,2006.p.1850078.

A.Van Zon, and J.Muysken. "Health and endogenous growth." Journal of Health economics 20.2, 2001,p. 169-185.

A.Vetterlein,. "Economic growth, poverty reduction, and the role of social policies: The evolution of the World Bank's social development approach." Global Governance 13,2007,p. 513.

A.Weiss, "Human capital vs. signalling explanations of wages." Journal of Economic perspectives 9.4,1995.p.133-154.

A.Weiss,. "Human capital vs. signalling explanations of wages." Journal of Economic perspectives 9.4,1995,p.133-154.

A.Y. Nsiah, [et al.], "The effect of financial inclusion on poverty reduction in Sub-Sahara Africa: Does threshold matter?." Cogent Social Sciences 7.1,2021,p.1903138.

A.Zardoub, and F. Sboui. "Impact of foreign direct investment, remittances and official development assistance on economic growth: panel data approach." PSU Research Review 7.2,2023,p 73-89.

AL.M.Fazaalloh, "Is foreign direct investment helpful to reduce income inequality in Indonesia?." Economics & Sociology 12.3,2019.p.25-36.

A-M.Teodorescu,"LINKS BETWEEN THE PILLARS OF SUSTAINABLE DEVELOPMENT." Annals of the University of Craiova, Economic Sciences Series 1,2012).

B. Eichengreen,D. Park, and K.Shin. Growth slowdowns redux: New evidence on the middle-income trap. No. w18673. National Bureau of Economic Research, 2013.

B. Friedman,. "The moral consequences of economic growth." Markets, morals, and religion. Routledge, 2017.p.29-42.

B. Kumar, "Remittances, poverty and welfare: Evidence from Cumilla, Bangladesh." American Journal of Data Mining and Knowledge Discovery 4.1,2019.p.46-52.

B. Wolfe, and J.R. Behrman. "Women's schooling and children's health: Are the effects robust with adult sibling control for the women's childhood background?." Journal of health Economics 6.3,1987.p.239-254.

B.Adeleye,[et al.], "Comparative investigation of the growth-poverty-inequality trilemma in Sub-Saharan Africa and Latin American and Caribbean Countries." Heliyon 6.12,2020.

B.B.Rao, and G.M.Hassan. "Are the direct and indirect growth effects of remittances significant?." The World Economy 35.3,2012,p.351-372.

B.Baltagi, ed. Panel data econometrics: Theoretical contributions and empirical applications. Emerald Group Publishing, 2006.

B.Baltagi,and M.H. Pesaran. "Heterogeneity and cross section dependence in panel data models: theory and applications introduction." Journal of Applied Econometrics 22.2,2007,p. 229-232.

B.Barham, and S.Boucher. "Migration, remittances, and inequality: estimating the net effects of migration on income distribution." Journal of development economics 55.2,1998.p.307-331.

B.Chezum, C.Bansak, and A.Giri. "Are remittances good for your health? Remittances and Nepal’s national healthcare policy." Eastern Economic Journal 44,2018.p.594-615.

B.Cournède, and O.Denk. "Finance and economic growth in OECD and G20 countries." Available at SSRN 2649935,2015.

B.D.Bernheim, A.Shleifer, and L.H. Summers. "The strategic bequest motive." Journal of labor Economics 4.3, Part 2,1986,p. S151-S182.

B.Fayissa, and C.Nsiah. "The impact of remittances on economic growth and development in Africa." The American Economist 55.2,2010.p.92-103.

B.Fayissa, and C.Nsiah. "The impact of remittances on economic growth and development in Africa." The American Economist 55.2,2010,p. 92-103.

B.Fowowe, and M.Shuaibu. "Impact of international remittance inflows on poverty in Nigeria." The Journal of Developing Areas 55.1,2021.

B.Kumar,. "Remittances, poverty and welfare: Evidence from Cumilla, Bangladesh." American Journal of Data Mining and Knowledge Discovery 4.1,2019.p.46-52.

B.Milanovic, "Remittances and income distribution." Journal of Economic Studies 14.5,1987.p. 24-37.

B.Muhammad,and M.K.Khan. "Foreign direct investment inflow, economic growth, energy consumption, globalization, and carbon dioxide emission around the world." Environmental Science and Pollution Research 28.39,2021,p. 55643-55654.

B.N.Arvin, and F.Barillas. "Foreign aid, poverty reduction, and democracy." Applied Economics 34.17,2002.p.2151-2156.

B.O.Kolawole, "Foreign assistance and economic growth in Nigeria: The two-gap model framework." American international journal of contemporary research 3.10,2013,p.153-160.

B.R.Copeland, "The pollution haven hypothesis." Handbook on Trade and the Environment 2.7 2008.

B.S.Javorcik, "Does FDI bring good jobs to host countries?." The World Bank Research Observer 30.1,2015,p.74-94.

B.Sharma and A.Gani. "The effects of foreign direct investment on human development." Global economy journal 4.2,2004.p.1850025.

B.Sharma, and J.Abekah. "Foreign direct investment, foreign aid and incomes inequality: Empirical insights from African and South American countries." Transnational Corporations Review 9.1,2017.p.1-7.

B.Thierry,[et al.], "Causality relationship between bank credit and economic growth: Evidence from a time series analysis on a vector error correction model in Cameroon." Procedia-Social and Behavioral Sciences 235,2016,p.664-671.

Borensztein [et al.,], "How does foreign direct investment affect economic growth?." Journal of international Economics 45.1,1998,p.115-135.

C. Arndt, S.Jones, and F.Tarp. "Assessing foreign aid’s long-run contribution to growth and development." World Development 69,2015.p.6-18.

C. Bansak, and B.Chezum. "How do remittances affect human capital formation of school-age boys and girls?." American Economic Review 99.2,2009.p.145-148.

C. Hadley,[et al.], "Rapidly rising food prices and the experience of food insecurity in urban Ethiopia: impacts on health and well-being." Social Science & Medicine 75.12,2012.p. 2412-2419.

C. Hulten,R. "Infrastructure capital and economic growth: How well you use it may be more important than how much you have." 1996.

C. Mulligan, and X.Sala-i-Martin. "A labor income-based measure of the value of human capital: An application to the states of the United States." Japan and the World Economy 9.2,1997,p. 159-191.

C.Amuedo-Dorantes, and S.Pozo. "Remittances and income smoothing." American Economic Review 101.3,2011.p.582-587..

C.Brunnschweiler, "Cursing the blessings? Natural resource abundance, institutions, and economic growth." World development 36.3,2008,p. 399-419.

C.C.Calvo, and M.A.Hernandez. "Foreign direct investment and poverty in Latin America." Prepared to be Delivered at the Globalisation and Economic Policy Fifth Annual Postgraduate Conference Leverhulme Centre for Research on Globalisation and Economic Policy University of Nottingham. 2006.

C.Calero, A.S. Bedi, and R.Sparrow. "Remittances, liquidity constraints and human capital investments in Ecuador." World Development 37.6,2009.p.1143-1154.

C.Choi,. "Does foreign direct investment affect domestic income inequality?." Applied Economics Letters 13.12,2006.p.811-814.

C.Colclough, and A.De. "The impact of aid on education policy in India." International Journal of Educational Development 30.5,2010.p. 497-507.

C.Constantine, "The rise of income inequality in Guyana." Social and Economic Studies,2017.p.65-95.

C.K.Choong, and K-P,Lim. "Foreign direct investment, financial development, and economic growth: the case of Malaysia." Macroeconomics and Finance in Emerging Market Economies 2.1.2009.p.13-30.

C.Kessides,. The urban transition in Sub-Saharan Africa: Implications for economic growth and poverty reduction. Washington, DC: Cities Alliance, 2006.

C.Kirkpatrick, and C.Green. "Finance and development: an overview of the issues." Journal of International Development 14.2,2002.p.207.

C.Kollmeyer. "Trade union decline, deindustrialization, and rising income inequality in the United States, 1947 to 2015." Research in Social Stratification and Mobility 57,2018.p.1-10.

C.L.Erickson, Environmental justice as social work practice. Oxford University Press, 2018.

C.Li,Y.Yu, and Qinghai Li. "Top-income data and income inequality correction in China." Economic Modelling 97 (2021): 210-219.

C.Litwin,. "Trade and income distribution in developing countries." rapport nr.: Working Papers in Economics 1998.

C.Manu, "Effect of globalization on income inequality in Ghana." International Journal of Economics and Finance 13.2,2021.p.15-24.

C.Piñeiro, J.A.Tamazian, and K.C Vadlamannati. "Does higher economic and financial development lead to environmental degradation: evidence from BRIC countries." Energy Policy 37.1,2017,p.2009.

C.Wang [et al.], "The impact of regional financial development on economic growth in Beijing–Tianjin–Hebei region: A spatial econometric analysis." Physica A: Statistical Mechanics and its Applications 521,2019,p.635-648.

C.Wood,. "The political economy of infant mortality in Sao Paulo, Brazil." International Journal of Health Services 12.2,1982.p.215-229.

C.Xia, Md Qamruzzaman, and A.Hamadelneel Adow. "An asymmetric nexus: Remittance-led human capital development in the top 10 remittance-receiving countries: Are FDI and gross capital formation critical for a road to sustainability?." Sustainability 14.6,2022.p.3703.

C.Xu, [et al.], "Trade openness, FDI, and income inequality: Evidence from sub-Saharan Africa." African Development Review 33.1,2021.p.193-203.

C-H, Huang, K-F Teng, and P-L Tsai. "Inward and outward foreign direct investment and poverty: East Asia vs. Latin America." Review of World Economics 146,2010.p.763-779.

C-H. Huang, Kai-Fang Teng, and Pan-Long Tsai. "Inward and outward foreign direct investment and poverty: East Asia vs. Latin America." Review of World Economics 146,2010.p.763-779.

Chapter 3

D. Adamchak., and P.Gabo Ntseane. "Gender, education, and fertility: A cross-national analysis of sub-Saharan African nations." Sociological spectrum 12.2,1992.p.167-182.

D. Asteriou. "Foreign aid and economic growth: New evidence from a panel data approach for five South Asian countries." Journal of policy modeling 31.1,2009,p.155-161.

D. Bloom, [et al.], "Higher education and economic growth in Africa." International Journal of African Higher Education 1.1,2014.p.22-57.

D. Burns, Darren[et al.], "Is foreign direct investment good for health in low and middle income countries? An instrumental variable approach." Social Science & Medicine 181,2017.p.74-82.

D. Dey, and S.Mishra. "A study on FDI in education sector and its impact on gross enrolment ratio in higher education in India. An econometric approach." International Journal of Management Studies 3.6,2018.p.2231-2528.

D. Gujarati. "Basic econometrics 4th Edition." 2012.

D. Hoechle. "Robust standard errors for panel regressions with cross-sectional dependence." The stata journal 7.3,2007.p.281-312.

D. Levine, and D.Rothman. "Does trade affect child health?." Journal of health Economics 25.3,2006.p.538-554.

D. Mitra,. "Trade, poverty, and inequality." The World Trade System: Trends and Challenges,2016,p.55-90.

D. Ray, Debraj. "Nonpaternalistic intergenerational altruism." Journal of Economic Theory 41.1,1987,p.112-132.

D. Rosenberg, . "Political economy of infant mortality rate: role of democracy versus good governance." International Journal of Health Services 48.3,2018.p.435-460.

D.Ahlstrom, "Innovation and growth: How business contributes to society." Academy of management perspectives 24.3,2010.p.11-24.

D.B, Osei, Y.Awudu Sare, and M.Ibrahim. "On the determinants of trade openness in low-and lower–middle-income countries in Africa: how important is economic growth?." Future Business Journal 5.1,2019.p.2.

D.Bloom, D.Canning, and P.N. Malaney. "Population dynamics and economic growth in Asia." Population and development review 26,2000.p.257-290.

D.Boztosun, A.Semra , and Z. Ulucak. "The role of human capital in economic growth." Economics World 4.3 2016,p.101-110.

D.Castells-Quintana, and J.María Larrú. "Does aid reduce inequality? Evidence for Latin America." The European Journal of Development Research 27,2015.p.826-849.

D.Cho, B.M. Kim, and D-E, Rhee. "Inequality and growth: nonlinear evidence from heterogeneous panel data." KIEP Research Paper No. Working Papers-14-01,2014.

D.Coburn,. "Income inequality, social cohesion and the health status of populations: the role of neo-liberalism." Social science & medicine 51.1,2000.p.135-146.

D.E.Vacaflores, "Are remittances helping lower poverty and inequality levels in Latin America?." The Quarterly Review of Economics and Finance 68,2018.p.254-265.

D.Flower, and J. Sanjayan. "Green house gas emissions due to concrete manufacture." The international Journal of life cycle assessment 12,2007,p. 282-288.

D.Foot, and S.Ross. "Social sustainability." Teaching business sustainability.2017.p.107-125.

D.Herzer, and P.Nunnenkamp. "The effect of foreign aid on income inequality: Evidence from panel cointegration." Structural Change and Economic Dynamics 23.3,2012.p. 245-255.

D.Herzer,and S. Klasen. "In search of FDI-led growth in developing countries: The way forward." Economic Modelling 25.5,2008,793-810.

D.Hojman. "Economic and other determinants of infant and child mortality in small developing countries: the case of Central America and the Caribbean." Applied economics 28.3,1996.p. 281-290.

D.I. Godil[et al.], "The dynamic nonlinear influence of ICT, financial development, and institutional quality on CO2 emission in Pakistan: new insights from

QARDL approach." Environmental Science and Pollution Research 27,2020,p.24190-24200.

D.Kennedy,. "The Internaitonal Anti-Corruption Campaign." Conn. J. Int'l L. 14,1999.p.455.

D.Meyer, and A.Shera. "The impact of remittances on economic growth: An econometric model." EconomiA 18.2,2017,p.147-155.

D.Meyer, and A.Shera. "The impact of remittances on economic growth: An econometric model." EconomiA 18.2,2017,p.147-155.

D.Mitra,. "Trade liberalization and poverty reduction." IZA World of Labor 2016.

D.O.Olayungbo, and A.Quadri. "Remittances, financial development and economic growth in sub-Saharan African countries: evidence from a PMG-ARDL approach." Financial Innovation 5.1,2019,p. 9.

D.Rodrik, "What do trade agreements really do?." Journal of economic perspectives 32.2,2018.p.73-90.

D.Rodrik, A.Subramanian, and F.Trebbi. "Institutions rule: the primacy of institutions over geography and integration in economic development." Journal of economic growth 9,2004.p.131-165.

D.Röttgers, and B.Anderson. "Power struggle: Decarbonising the electricity sector-Effects of climate policies, policy misalignments and political economy factors on decarbonisation." OECD Environment Working Papers 139,2018,p.1-51.

D.Ruck, A.Bentley, and D.J. Lawson. "Cultural prerequisites of socioeconomic development." Royal Society open science 7.2,2020.p.190725.

D.Sakyi, "Trade openness, foreign aid and economic growth in post-liberalisation Ghana: An application of ARDL bounds test." Journal of Economics and International Finance 3.3,2011,p. 146.

D.Sinha,. "Patents, innovations and economic growth in Japan and South Korea: evidence from individual country and panel data." Applied Econometrics and International Development 8.1,2008.

D.Uprety, "The impact of remittances on economic growth in Nepal." Journal of Development Innovations 1.1,2017.p.114-134.

D.Wangdi, and P.Wangdi. "A study on impact of foreign direct investment (FDI) on poverty reduction in Bhutan." Sherub Doenme: The Research Journal of Sherubtse College 14.1,2021.

E. Akobeng,. "Out of inequality and poverty: Evidence for the effectiveness of remittances in Sub-Saharan Africa." The quarterly review of economics and finance 60,2016.p.207-223.

E. Hanushek, and L.Woessmann. "The economic impacts of learning losses." 2020.

E. Hanushek, and L.Wößmann. "The role of education quality for economic growth." World Bank policy research working paper 4122 2007.

E. Hertz, J.R. Hebert, and J.Landon. "Social and environmental factors and life expectancy, infant mortality, and maternal mortality rates: results of a cross-national comparison." Social science & medicine 39.1,1994.p.105-114.

E. Nwude,Chuke[et al.] "Official development assistance, income per capita and health outcomes in developing countries: Is Africa different?." Cogent Economics & Finance 8.1,2020.p.1774970.

E. Ramoutar,. "The Investment Cost of Currency Crises in Emerging Markets: An Empirical Treatment from 1994-2015.",2017.

E.Alvi, and A.Senbeta. "Does foreign aid reduce poverty?." Journal of International Development 24.8,2012.p.955-976.

E.Alvi, and A.Senbeta. "Does foreign aid reduce poverty?." Journal of International Development 24.8,2012.p.955-976.

E.Anoruo, and Y.Ahmad. "Causal relationship between domestic savings and economic growth: Evidence from seven African countries." African development review 13.2,2001.p.238-249.

E.Asiedu, "Does foreign aid in education promote economic growth? Evidence from Sub-Saharan Africa." Journal of African Development 16.1,2014.p.37-59.

E.Asiedu, "Policy reform and foreign direct investment in Africa: Absolute progress but relative decline." Development Policy Review 22.1,2004,p. 41-48.

E.Dewan and S. Hussein. Determinants of economic growth (Panel data approach). Suva Fiji: Economics Department, Reserve Bank of Fiji, 2001.

E.Dogan, and F.Seker. "The influence of real output, renewable and non-renewable energy, trade and financial development on carbon emissions in the top renewable energy countries." Renewable and Sustainable Energy Reviews 60,2016.p.1074-1085.

E.Giovannini, J.Hall, and M.Mira d'Ercole. "Measuring well-being and societal progress." Conference Beyond GDP-Measuring progress, true wealth, and the well-being of nations, European Parliament, Brussels. 2007.

E.Helpman, Globalization and wage inequality. No. w22944. National Bureau of Economic Research, 2016.

E.Hendrawaty,[et al.], "Economic growth, financial development, energy consumption and life expectancy: fresh evidence from ASEAN countries." Economic Growth, Financial Development, Energy Consumption and Life Expectancy: Fresh Evidence from ASEAN Countries 12.2,2022.p.444-448.

E.Ifinedo and M.Kankaanranta. "Understanding the influence of context in technology integration from teacher educators' perspective." Technology, Pedagogy and education 30.2,2021.p.201-215.

E.Jimenez, and Y.Sawada. "Public for private: The relationship between public and private school enrollment in the Philippines." Economics of Education Review 20.4,2001.p.389-399.

E.M.Ekanayake, and D.Chatrna. "The effect of foreign aid on economic growth in developing countries." Journal of International Business and cultural studies 3,2010,p.1.

E.Mahembe, and N. M. Odhiambo. "Foreign direct investment and economic growth: A theoretical framework." Journal of Governance and Regulation 3.2,2014.

E.Mahembe, and N.M. Odhiambo. "On the link between foreign aid and poverty reduction in developing countries." Revista Galega de Economia 26.2,2017.p.113-128.

E.Mahembe,. "Does foreign aid reduce poverty in Sub-Saharan Africa? A dynamic panel-data analysis." 2018.

E.Meschi, and M.Vivarelli. "Trade and income inequality in developing countries." World development 37.2,2009.p.287-302.

E.Moral-Benito, P.Allison, and R.Williams. "Dynamic panel data modelling using maximum likelihood: an alternative to Arellano-Bond." Applied Economics 51.20,2019.p.2221-2232.

E.Padilla,."Intergenerational equity and sustainability." Ecological economics 41.1,2002,p.69-83.

E.Pelinescu,. "The impact of human capital on economic growth." Procedia Economics and Finance 22.2015,p.184-190.

E.Tebaldi, and R.Mohan. "Institutions and poverty." The journal of development studies 46.6,2010.p.1047-1066.

E.Thalassinos, E.Ugurlu, and Y.Muratoglu. "Income Inequality and Inflation in the EU." (2012).

E.Thalassinos, E.Ugurlu, and Y.Muratoglu. "Income Inequality and Inflation in the EU." 2012.

Eltayib, Rawaa Abubakr Abuelgassim, Mohammed Al-Azri, and Moon Fai Chan. "The Impact of Sociodemographic, Macroeconomic, and Health Status and Resources on Infant Mortality Rates in Oman: Evidence from 1980 to 2022." European Journal of Investigation in Health, Psychology and Education 13.6,2023.p.986-999.

F. Abbasi, and K.Riaz. "CO2 emissions and financial development in an emerging economy: an augmented VAR approach." Energy policy 90,2016.p.102-114.

F. Ahmed, J.Ama Dzator, and J.Xiaohe Zhang. "Remittances, income inequality and investment in Bangladesh." The Journal of Developing Areas 55.1,2021.

F. Amlinger, S.Peyr, and C.Cuhls. "Green house gas emissions from composting and mechanical biological treatment." Waste Management & Research 26.1,2008,p.47-60.

F. Baum, "Social capital: is it good for your health? Issues for a public health agenda." Journal of Epidemiology and Community Health 53.4,1999.195.

F. Bourguignon,. "The pace of economic growth and poverty reduction." Delta 2000.

F. Docquier, H.Rapoport, and Sara Salomone. "Remittances, migrants' education and immigration policy:Theory and evidence from bilateral data." Regional Science and Urban Economics 42.5,2012.p.817-828.

F. Gubert, T.Lassourd, and S.Mesplé-Somps. "Do remittances affect poverty and inequality? Evidence from Mali." 2010.

F. Halicioglu,. "An econometric study of CO2 emissions, energy consumption, income and foreign trade in Turkey." Energy policy 37.3,2009,p.1156-1164.

F. Khembo, and B.Tchereni. "The impact of human capital on economic growth in the SADC region." Developing Country Studies 3.4,2013,p.144-152.

F. Noorbakhsh, A.Paloni, and A.Youssef. "Human capital and FDI inflows to developing countries: New empirical evidence." World development 29.9,2001,p.1593-1610.

F.Abbasi, and K.Riaz. "CO2 emissions and financial development in an emerging economy: an augmented VAR approach." Energy policy 90,2016.p.102-114.

F.Ahmed, and M. Hakim. "The relationship between remittances and economic growth in Togo: A vector equilibrium correction mechanism." Global Economy and Finance Journal 10.1.2017.p. 1-11.

F.Allen, [et al.] "The African financial development and financial inclusion gaps." Journal of African economies 23.5,2014,p.614-642.

F.Al-Marhubi, "A note on the link between income inequality and inflation." Economics Letters 55.3,1997.p.317-319.

F.Bourguignon, and T.Verdier. "Oligarchy, democracy, inequality and growth." Journal of development Economics 62.2,2000,p.285-313.

F.Buera., J.P. Kaboski, and Yongseok Shin. "Finance and development: A tale of two sectors." American economic review 101.5,2011,p.1964-2002.

F.Clementi,M. Fabiani, and V. Molini. "The devil is in the detail: growth, inequality and poverty reduction in Africa in the last two decades." Journal of African Economies 28.4,2019,p.408-434.

F.Donou-Adonsou, and K.Sylwester. "Financial development and poverty reduction in developing countries: New evidence from banks and microfinance institutions." Review of development finance 6.1.p.2016.p.82-90.

F.H, Wandera,[et al.]"Learning from global suppliers: the diffusion of small wind in low-and middle-income countries." International Journal of Technological Learning, Innovation and Development 13.1,2021,p 24-49.

F.Haile, and M.Niño-Zarazúa. "Does social spending improve welfare in low-income and middle-income countries?." Journal of International Development 30.3,2018.p. 367-398.

F.L.Pryor,. The future of US capitalism. Cambridge University Press, 2002.

F.Makhlouf, and A. Naamane. "The impact of remittances on economic growth: the evidence from Morocco." 2013.

F.Nielsen, and A.S. Alderson. "Income inequality, development, and dualism: Results from an unbalanced cross-national panel." American sociological review,1995.p.674-701.

F.O. Anetor, E.Esho, and G.Verhoef. "The impact of foreign direct investment, foreign aid and trade on poverty reduction: Evidence from Sub-Saharan African countries." Cogent Economics & Finance 8.1,2020,1737347.

F.Rabbani,[et al.], "Schools of public health in low and middle-income countries: an imperative investment for improving the health of populations?." BMC public health 16.1,2016,p.1-12.

F.Sarracino, "When does economic growth improve well-being?." The economics of happiness: How the Easterlin Paradox transformed our understanding of well-being and progress,2019.p.355-370.

G. Firebaugh, and F.D. Beck. "Does economic growth benefit the masses? Growth, dependence, and welfare in the third world." American Sociological Review,1994.p.631-653.

G.Ali, [et al.], "Environmental impacts of shifts in energy, emissions, and urban heat island during the COVID-19 lockdown across Pakistan." Journal of Cleaner Production 291,2021,p. 125806.

G.B.Estrada, D.Park, and A.Ramayandi. "Financial development, financial openness, and economic growth." Asian Development Bank Economics Working Paper Series 442,2015.

G.Becker, and N. Tomes. "An equilibrium theory of the distribution of income and intergenerational mobility." Journal of political Economy 87.6,1979,p.1153-1189.

G.Bird, and Y.Choi. "The effects of remittances, foreign direct investment, and foreign aid on economic growth: An empirical analysis." Review of Development Economics 24.1,2020,p.1-30.

G.Blalock, and P.J. Gertler. "Welfare gains from foreign direct investment through technology transfer to local suppliers." Journal of international Economics 74.2,2008.p.402-421.

G.Burford,[et al.], "Bringing the “missing pillar” into sustainable development goals: Towards intersubjective values-based indicators." Sustainability 5.7,2013,p.3035-3059.

G.Fields, "The dynamics of poverty, inequality and economic well-being: African economic growth in comparative perspective." Journal of African Economies 9.Supplement_1,2000,p.p45-78.

G.Firebaugh, and F.D. Beck. "Does economic growth benefit the masses? Growth, dependence, and welfare in the third world." American Sociological Review,1994.p.631-653.

G.Flore, T.Lassourd, and S.Mesplé-Somps. "Do remittances affect poverty and inequality? Evidence from Mali." 2010.

G.Gohou, and I.Soumaré. "Does foreign direct investment reduce poverty in Africa and are there regional differences?." World development 40.1,2012.p.75-95.

G.Gozgor, "Causal relation between economic growth and domestic credit in the economic globalization: Evidence from the Hatemi-J's test." The Journal of International Trade & Economic Development 24.3,2015,p.395-408.

G.Halkos, and N.G. Tzeremes. "Renewable energy consumption and economic efficiency: Evidence from European countries." Journal of Renewable and Sustainable Energy 5.4,2013.

G.Kaplan, and S.Schulhofer-Wohl. "Understanding the long-run decline in interstate migration." International Economic Review 58.1,2017.p.57-94.

G.Karras, "Foreign aid and long-run economic growth: empirical evidence for a panel of developing countries." Journal of International Development: The Journal of the Development Studies Association 18.1,2006,p.15-28.

G.Kaya, A. Kaya, and J-H.Saurat. "Clinical and histopathological features and potential pathological mechanisms of skin lesions in COVID-19: review of the literature." Dermatopathology 7.1,2020.p.3-16.

G.Le, Maëlan, and R.Jan Singh. "Does trade reduce poverty? A view from Africa." Journal of African Trade 1.1,2014,p. 5-14.

G.Liobikienė, and M.Butkus. "Scale, composition, and technique effects through which the economic growth, foreign direct investment, urbanization, and trade affect greenhouse gas emissions." Renewable energy 132,2019.p.1310-1322.

G.Mallik, "Foreign Aid and Economic Growth: A Cointegration Analysis of the Six Poorest African Countries." Economic Analysis & Policy 38.2,2008.

G.Niu, and B.Melenberg. "Trends in mortality decrease and economic growth." Demography 51.5,2014.p.1755-1773.

G.Quaglio,[et al.], "Information and communications technologies in low and middle-income countries: Survey results on economic development and health." Health Policy and Technology 5.4.2016,p.318-329.

G.R.G. Clarke L.Colin Xu, and Heng-Fu Zou. "Finance and income inequality: what do the data tell us?." Southern economic journal 72.3,2006.p.578-596.

G.R.G.Clarke,L.Colin Xu, and Heng-Fu Zou. "Finance and income inequality: what do the data tell us?." Southern economic journal 72.3,2006.p.578-596.

G.Ranis, F.Stewart, and A.Ramirez. "Economic growth and human development." World development 28.2,2000.p.197-219.

G.Ranis, The evolution of development thinking: theory and policy. Washington^ eD. CDC: World Bank, 2004.

G.Ranis,. "Human development and economic growth." Available at SSRN 551662,2004.

H. Kasuga, and Y.Morita. "Does aid affect inequality?." Applied Economics 50.58,2018.p.6249-6262.

H. Mallick, M.Kumar Mahalik, and H.Padhan. "Does globalization exacerbate income inequality in two largest emerging economies? The role of FDI and remittances inflows." International Review of Economics 67,2020.p.443-480.

H. Moore, and N.Mintchev. "What is prosperity." London, UK. doi 10.000,2021.

H. Paranavithana,"Do workers' remittances cushion economic growth in Sri Lanka." International Journal of Business and Social Science 5.10,2014,p.44-56.

H. Ragoubi, and Z.Mighri. "Spillover effects of trade openness on CO2 emissions in middle-income countries: A spatial panel data approach." Regional Science Policy & Practice 13.3,2021.p.835-877.

H.A. Abd el, "Foreign aid and economic growth in Egypt: A cointegration analysis." International Journal of Economics and Financial Issues 3.3,2013,p.743-751.

H.Berg,and J.R. Schmidt. "Foreign trade and economic growth: time series evidence from Latin America." Journal of International Trade & Economic Development 3.3,1994,p.249-268.

H.Bhorat. "The impact of trade and structural changes on sectoral employment in South Africa." Development Southern Africa 17.3,2000.p.437-466.

H.C. Schönfeldt, N. Gibson, and H. Vermeulen. "News and views: The possible impact of inflation on nutritionally vulnerable households in a developing country using South Africa as a case study.",2010.p.254-267.

H.Chenery, and A.M. Strout. "Foreign assistance and economic development: Reply." The American Economic Review 58.4,1968,p912-916.

H.D.Karunaratne,. "International labour migration, remittances and income inequality in a developing country: The case of Sri Lanka.",2012.

H.Kang, and J.Martinez-Vazquez. "When does foreign direct investment lead to inclusive growth?." The World Economy 45.8,2022.p.2394-2427.

H.Kharas and H.Kohli. "What is the middle income trap, why do countries fall into it, and how can it be avoided?." Global Journal of Emerging Market Economies 3.3,2011.p.281-289.

H.Liu, W. Wu, and P. Yao. "Assessing the financial efficiency of healthcare services and its influencing factors of financial development: fresh evidences from three-stage DEA model based on Chinese provincial level data." Environmental Science and Pollution Research,2022.p.1-13.

H.M, Ortiz-Villajos. "PATENTS AND ECONOMIC GROWTH IN THE LONG TERM. A QUANTITATIVE APPROACH." Brussels Economic Review 52,2009.

H.Njangang,[et al.], "The long-run and short-run effects of foreign direct investment, foreign aid and remittances on economic growth in African countries.",2018.

H.Osano, and P.Koine. "Role of foreign direct investment on technology transfer and economic growth in Kenya: a case of the energy sector." Journal of Innovation and Entrepreneurship 5,2016,p.1-25.B.Sternfels,[et al.], "Our future lives and livelihoods: Sustainable and inclusive and growing." McKinsey Quarterly 26,2021.

H.S.M.Abbas, X.Xu, and C.Sun. "Role of foreign direct investment interaction to energy consumption and institutional governance in sustainable GHG emission reduction." Environmental Science and Pollution Research 28.40,2021.p.56808-56821.

H.W.Singer, "The distribution of gains between investing and borrowing countries." Milestones and Turning Points in Development Thinking. London: Palgrave Macmillan UK, 1950,p.p265-277.

H-A,Al-Malkawi, H.A. Marashdeh, and N.Abdullah. "Financial development and economic growth in the UAE: Empirical assessment using ARDL approach to co-integration." International Journal of Economics and Finance 4.5,2012.p.105-115.

H-H, Lee,[et al], "Effects of food price inflation on infant and child mortality in developing countries." The European journal of health economics 17,2016.p.535-551.

H-H,Lee,[et al.], "Effects of food price inflation on infant and child mortality in developing countries." The European journal of health economics 17,2016.p.535-551.

H-H,Lee,[et al.], "Effects of food price inflation on infant and child mortality in developing countries." The European journal of health economics 17,2016.p.535-551.

H-J,Rhee,. "Effects of health care expenditure on the infant mortality rate and life expectancy at birth in Korea." International Journal of Contents 8.3,2012.p.52-56.

H-T.Pao and C-M Tsai. "Modeling and forecasting the CO2 emissions, energy consumption, and economic growth in Brazil." Energy 36.5,2011,p.2450-2458.

https://www.un.org/sustainabledevelopment/poverty/

I, Ruiz, E.Shukralla, and C.Vargas-Silva. "Remittances, institutions and growth: a semiparametric study." International Economic Journal 23.1,2009,p.111-119.

I. Mara, Surveying Romanian migrants in Italy before and after the EU Accession: migration plans, labour market features and social inclusion. No. 378. wiiw Research Report, 2012.

I.Bensidoun, S.Jean, and A.Sztulman. "International trade and income distribution: reconsidering the evidence." Review of World Economics 147,2011.p.593-619.

I.Chowdhury. "Impacts of remittance on the socioeconomic condition of Bangladesh: an analysis." Innovative Issues and Approaches in Social Sciences 7.3,2014,p.23-43.

I.DO, [et al.], "Descriptive and Analytical Statistics of Particular Predictors of Infant Mortality." International Journal of Pharmaceutical Research (09752366) 11.1,2019.

I.G.Yumusak, A. Yildiz, and D.Ç.Yildirim. "The relationship between woman education and health." Philippine Social Sciences and Humanities Review 4.1 ,2015.

I.Ghosh,. "The Relation between Trade and FDI in Developing Countries--A Panel Data Approach." Global Economy Journal 7.3,2007.

I.Kaya, and O.Kaya. "Foreign aid, institutional quality and government fiscal behavior in emerging economies: An empirical investigation." The Quarterly Review of Economics and Finance 76,2020.p.59-67.

I.Khan, and F.Hou. "The impact of socio-economic and environmental sustainability on CO 2 emissions: a novel framework for thirty IEA countries." Social Indicators Research 155,2021.p. 1045-1076.

I.Khan, and Z.Nawaz. "Trade, FDI and income inequality: empirical evidence from CIS." International Journal of Development Issues 18.1,2019.p.88-108.

I.Mara,[et al.], "Analysis of literature on the effects of remittances on education and health of family members left behind." Regional Research Promotion programme/western Balkans 2012.

I.Nwaka,[et al.], "Agricultural production and CO2 emissions from two sources in the ECOWAS region: New insights from quantile regression and decomposition analysis." Science of the Total Environment 748,2020.p.141329.

I.Omann, and J.H. Spangenberg. "Assessing social sustainability." Biennial conference of the international society for ecological economics. Vol. 7. 2002.

I.Ozturk,and A.Acaravci. "The long-run and causal analysis of energy, growth, openness and financial development on carbon emissions in Turkey." Energy economics 36,2013.p.262-267.

I.Reychav, Iris, and J.Weisberg. "Good for workers, good for companies: How knowledge sharing benefits individual employees." Knowledge and process Management 16.4,2009.p.186-197.

I.S.Gill, and H.Kharas. "The middle-income trap turns ten." World Bank Policy Research Working Paper 7403,2015.

I.Shin, "Income inequality and economic growth."2008.

J. Berrill,M.O'Hagan-Luff, and A. Stel. "The moderating role of education in the relationship between FDI and entrepreneurial activity." Small Business Economics 54,2020,p1041-1059.

J. Brown,[et al.], "Energetic limits to economic growth." BioScience 61.1,2011.p.19-26.

J. Córdova, Ernesto López. Globalization, migration and development: the role of Mexican migrant remittances (Working Paper ITD= Documento de Trabajo ITD; n. 20). Vol. 20. BID-INTAL, 2006.

J. Joshi, N.N. Dalei, and P.Mehta. "Estimation of gross refining margin of Indian petroleum refineries using Driscoll-Kraay standard error estimator." Energy Policy 150,2021.p.112148.

J. Oreiro, K.Da Silva, and M. Dávila-Fernández. "A New Developmentalist model of structural change, economic growth and middle-income traps." Structural Change and Economic Dynamics 55,2020,p.26-38.

J. Simpson,and S.Abraham. "Financial convergence or decoupling in electricity and energy markets? A dynamic study of OECD, Latin America and Asian countries." International Journal of Economics and Finance 4.12,2012.p.1-14.

J. Spiteri. Educating for Sustainability in a Small Island Nation: Voices from Early Childhood Education. Vol. 11. Springer Nature, 2023.

J. Vandenbussche, P. Aghion, and C. Meghir. "Growth, distance to frontier and composition of human capital." Journal of economic growth 11,2006,p.97-127.

J. Wen, [et al.] "Does globalization matter for environmental degradation? Nexus among energy consumption, economic growth, and carbon dioxide emission." Energy policy 153.2021,p. 112230.

J.A.Schumpeter and O. Redvers. The Theory of Economic Development... Translated by Redvers Opie.[A Reduced Photographic Reprint of the Edition of 1934.]. Oxford University Press, 1961.

J.Acharyya, "FDI, growth and the environment: Evidence from India on CO2 emission during the last two decades." Journal of economic development 34.1,2009,p.43.

J.Anyanwu,. "Factors affecting economic growth in Africa: are there any lessons from China?." African Development Review 26.3,2014,p.468-493.

J.B.Fitzgerald,. "Working time, inequality and carbon emissions in the United States: A multi-dividend approach to climate change mitigation." Energy Research & Social Science 84,2022,p. 102385.

J.Bena, and P.Ondko. "Financial development and the allocation of external finance." Journal of Empirical Finance 19.1,2012,p.1-25.

J.Botev, B.Égert, and F.Jawadi. "The nonlinear relationship between economic growth and financial development: Evidence from developing, emerging and advanced economies." International Economics 160,2019,p.3-13.

J.Boukhatem,. "Assessing the direct effect of financial development on poverty reduction in a panel of low-and middle-income countries." Research in International Business and Finance 37,2016.p. 214-230.

J.Bouoiyour, and A.Miftah. "The effects of remittances on poverty and inequality: Evidence from rural southern Morocco."2014.

J.C. Anyanwu,. "Accounting for gender equality in secondary school enrollment in Africa." African Development Review 28.2,2016.p.170-191.

J.C.Anyanwu,. "International remittances and income inequality in Africa." 2011.

J.Chaaban and W.Mansour. "The Social-Economic Situation of Middle East Youth on the Eve of the Arab Spring." 2012.

J.Chireshe, and M.K. Ocran. "Financial development and health outcomes in sub-Saharan African countries." The Journal of Developing Areas 54.3,2020.

J.Corfee-Morlot,[et al.] "Towards a green investment policy framework: The case of low-carbon, climate-resilient infrastructure."2012.

J.Devkota,. "Impact of migrants' remittances on poverty and inequality in Nepal." Forum of International Development Studies. Vol. 44. 2014.

J.Felipe,A. Abdon, and U. Kumar. "Tracking the middle-income trap: What is it, who is in it, and why?." Levy Economics Institute, Working Paper 715 ,2012.

J.Frankel, D.H.Romer, and T.Cyrus. "Trade and growth in East Asian countries: cause and effect?." 1996.

J.Garza-Rodriguez,. "Poverty and economic growth in Mexico." Social Sciences 7.10,2018,p. 183.

J.Germer, and J.Sauerborn. "Estimation of the impact of oil palm plantation establishment on greenhouse gas balance." Environment, Development and Sustainability 10 2008,p. 697-716.

J.Glasson, and G.Wood. "Urban regeneration and impact assessment for social sustainability." Impact Assessment and Project Appraisal 27.4,2009,p.283-290.

J.Glennie,"The role of aid to middle-income countries: a contribution to evolving EU development policy." London: Overseas Development Institute 2011.

J.Hainmueller, and M.J. Hiscox. "Learning to love globalization: Education and individual attitudes toward international trade." International Organization 60.2,2006.p.469-498.

J.Hur, M.Raj, and Y.E. Riyanto. "Finance and trade: A cross-country empirical analysis on the impact of financial development and asset tangibility on international trade." World Development 34.10,2006,p. 1728-1741.

J.I,Haidar,. "The impact of business regulatory reforms on economic growth." Journal of the Japanese and international economies 26.3,2012.p.285-307.

J.J. Lewer, and H.Van den Berg. "Does immigration stimulate international trade? Measuring the channels of influence." The International Trade Journal 23.2,2009.p.187-230.

J.J.Heckman,. "Policies to foster human capital." Research in economics 54.1,2000,p.3-56.

J.Jongwanich,. Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries. No. WP/07/01. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2007.

J.Jongwanich. Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries. No. WP/07/01. United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 2007.

J.Kentor,. Capital and coercion: The economic and military processes that have shaped the world economy, 1800-1990. Routledge, 2014.

J.Kim, and J.Park. "The role of total factor productivity growth in middle-income countries." Emerging Markets Finance and Trade 54.6,2018,p.1264-1284.

J.Lewis, "Green industrial policy after Paris: renewable energy policy measures and climate goals." Global Environmental Politics 21.4,2021,p.42-63.

J.M. Balogh, and A.Jámbor. "Determinants of CO." Int J Energy Econ Policy 7.5 ,2017,p.217-226.

J.Macinko[et al.], "Private health insurance, healthcare spending and utilization among older adults: Results from the Brazilian Longitudinal Study of Aging." The Journal of the Economics of Ageing 23,2022.p.100397.

J.Meadowcroft, and R.Steurer. "Assessment practices in the policy and politics cycles: a contribution to reflexive governance for sustainable development?." Journal of Environmental Policy & Planning 20.6,2018.p.734-751.

J.Murphy, Governing technology for sustainability. Routledge, 2012.

J.Negin, and R. Cumming. "HIV infection in older adults in sub-Saharan Africa: extrapolating prevalence from existing data." Bulletin of the World Health Organization 88.11,2010,p.847-853.

J.OMOJOLAIBI, C.YAMEOGO, and O.J. OGUNBUSOLA. "CARBON DIOXIDE EMISSIONS CONVERGENCE AND INSTITUTIONAL QUALITY IN ECOWAS." Journal of Academic Research in Economics 12.1,2020.

J.R. Behrman, and B.L. Wolfe. "Investments in schooling in two generations in pre-revolutionary Nicaragua: the roles of family background and school supply." Journal of Development Economics 27.1-2,1987,p.395-419.

J.R. Winitzky-Stephens, Foreign direct investment and well-being, 1985-2010: A structural approach. The University of Utah, 2016.

J.Rewilak, "The role of financial development in poverty reduction." Review of development finance 7.2,2017.p.169-176.

J.Rewilak, "The role of financial development in poverty reduction." Review of development finance 7.2,2017.p.169-176.

J.Roby,L.Erickson, and C.Nagaishi. "Education for children in sub-Saharan Africa: Predictors impacting school attendance." Children and Youth Services Review 64,2016.p.110-116.

J.Sachs,. The age of sustainable development. Columbia University Press, 2015.

J.Sachs,."From millennium development goals to sustainable development goals." The lancet 379.9832,2012.p.2206-2211.

J.Shan, and Q.Jianhong. "Does Financial DevelopmentLead'Economic Growth? The Case of China." Annals of economics and finance 7.1,2006,p. 197.

J.Shang,[et al.], "The relationship between population growth and capital allocation in urbanization." Technological Forecasting and Social Change 135,2018.p.249-256.

J.Somé, S.Pasali, and M.Kaboine. "Exploring the impact of healthcare on economic growth in Africa." Applied Economics and Finance 6.3,2019.p.45-57.

J.Ward, and R.M. Viner. "The impact of income inequality and national wealth on child and adolescent mortality in low and middle-income countries." BMC public health 17,2017.p.1-8.

J.Ward, and R.Viner. "The impact of income inequality and national wealth on child and adolescent mortality in low and middle-income countries." BMC public health 17.2017.p.1-8.

J.Wooldridge, Econometric analysis of cross section and panel data. MIT press, 2010.

J.Yi, [et al.], "Spillover effects of foreign direct investment: how do region-specific institutions matter?." Management International Review 55,2015,p. 539-561.

J-C.Yeh, and C-H Liao. "Impact of population and economic growth on carbon emissions in Taiwan using an analytic tool STIRPAT." Sustainable Environment Research 27.1,2017,p.41-48.

J-F, Arvis,[et al.], "Connecting to compete 2018: trade logistics in the global economy." 2018.

Ji, Xiuping, et al. "The influences of international trade on sustainable economic growth: An economic policy perspective." Sustainability 14.5 (2022): 2781.

Jun, Wen, et al. "Working women and per capita household consumption expenditures; an untouched reality." Zbornik Radova Ekonomski Fakultet u Rijeka 38.1 (2020): 285-319.

Jun, Wen, et al. "Working women and per capita household consumption expenditures; an untouched reality." Zbornik Radova Ekonomski Fakultet u Rijeka 38.1 (2020): 285-319.

K, Khaizran, M. Usman, and M.A Mehdi. "The determinants of environmental quality in the SAARC region: a spatial heterogeneous panel data approach." Environmental Science and Pollution Research 28,2021,p.6422-6436.

K. Ambler, D.Aycinena, and D.Yang. "Channeling remittances to education: A field experiment among migrants from El Salvador." American Economic Journal: Applied Economics 7.2,2015.p.207-232.

K. Datta, and B.Sarkar. "Relationship between remittances and economic growth in Bangladesh: an econometric study." Available at SSRN 2375991,2014.

K. Forbes,. "A reassessment of the relationship between inequality and growth." American economic review 90.4,2000,p.869-887.

K. Hyde, Sub-Saharan Africa. Baltimore, Maryland: Johns Hopkins University Press, 1993.

K. Idris. "A Power Tool for Economic Growth." WIPO publication 888 (2003).

K. Keller, RI. "Investment in primary, secondary, and higher education and the effects on economic growth." Contemporary Economic Policy 24.1,2006.p.18-34.

K. Lehnert, M.Benmamoun, and H.Zhao. "FDI inflow and human development: analysis of FDI's impact on host countries' social welfare and infrastructure." Thunderbird International Business Review 55.3,2013.p.285-298.

K. Michaelowa, and A.Weber. "Chapter 18 aid effectiveness in the education sector: A dynamic panel analysis." Theory and practice of foreign aid. Emerald Group Publishing Limited, 2006.p.357-385.

K. Nagel, D.Herzer, and Peter Nunnenkamp. "How does FDI affect health?." International Economic Journal 29.4,2015.p.655-679.

K.Amega, "Remittances, education and health in Sub-Saharan Africa." Cogent Economics & Finance 6.1,2018.p.1516488.

K.B.Jedidia, T.Boujelbène, and K.Helali. "Financial development and economic growth: New evidence from Tunisia." Journal of Policy Modeling 36.5,2014,p.883-898.

K.Bakhsh,[et al.], "Economic growth, CO2 emissions, renewable waste and FDI relation in Pakistan: New evidences from 3SLS." Journal of environmental management 196,2017.p.627-632.

K.Dupuy, J. Ron, and A.Prakash. "Hands off my regime! Governments' restrictions on foreign aid to non-governmental organizations in poor and middle-income countries." World Development 84,2016,p. 299-311.

K.Ebire, Kolawole,[et al.], "Effect of capital flows on financial stability in middle-income countries." Journal of Financial Regulation and Compliance 29.5,2021,p.491-513.

K.Gökmenoğlu, and N.Taspinar. "The relationship between CO2 emissions, energy consumption, economic growth and FDI: the case of Turkey." The Journal of International Trade & Economic Development 25.5,2016,p.706-723.

K.Gomanee,S.Girma, and O.Morrissey. "Aid and growth in Sub-Saharan Africa: accounting for transmission mechanisms." Journal of International Development 17.8,2005,p.1055-1075.

K.Gyimah-Brempong, "Aid and economic growth in LDCS: Evidence from Sub-Saharan Africa." The Review of Black Political Economy 20.3,1992.p.31-52.

K.Gyimah-Brempong, O.Paddison, and W.Mitiku. "Higher education and economic growth in Africa." The Journal of Development Studies 42.3,2006.p.509-529.

K.H. Zhang,. "How does foreign direct investment affect economic growth in China?." Economics of transition 9.3,2001.p.679-693.

K.H.Zhang, "How does foreign direct investment affect economic growth in China?." Economics of transition 9.3,2001,p.679-693.

K.Hamilton,. "Sustainable development, the Hartwick rule and optimal growth." Environmental and Resource Economics 5,1995,p.393-411.

K.Huang, N.Sim, and H.Zhao. "Does FDI actually affect income inequality? Insights from 25 years of research." Journal of Economic Surveys 34.3,2020.p.630-659.

K.Jamil,[et al.], "Do remittance and renewable energy affect CO2 emissions? An empirical evidence from selected G-20 countries." Energy & Environment 33.5,2022,p.916-932.

K.Matsuyama, "Poverty traps." Economic Growth. London: Palgrave Macmillan UK, 2008.p.215-221.

K.Munir, and A.Ameer. "Assessing nonlinear impact of urbanization, economic growth, technology, and trade on environment: evidence from African and Asian emerging economies." GeoJournal 87.3,2022,p.2195-2208.

K.Neusser, and M.Kugler. "Manufacturing growth and financial development: evidence from OECD countries." Review of economics and statistics 80.4,1998,p. 638-646.

K.Ogundari,. "Effect of Trade on Income Inequality in sub-Saharan Africa: A note." 2021.

K.Roy, and S.Ziemek. On the economics of volunteering. No. 31. ZEF Discussion Papers on Development Policy, 2000.

K.Saidi, and A.Omri. "Reducing CO2 emissions in OECD countries: do renewable and nuclear energy matter?." Progress in Nuclear Energy 126,2020.p.103425.

K.Shams, and A.Kadow. "Income inequality, remittances and economic wellbeing in rural Pakistan: linkages and empirical evidence." Asia-Pacific Journal of Regional Science 4,2020.p.499-519.

K.Shapkova Kocevska,. "Is freedom of expression associated with economic prosperity? Evidences from 21st century." Годишник на Правниот факултетет „Јустинијан Први "-Скопје,2018.

K.Sharma,B.Bhattarai, and S.Ahmed. "Aid, growth, remittances and carbon emissions in Nepal." The Energy Journal 40.1,2019,p.129-142.

K.Tsaurai, "Is the complementarity between remittances and human capital development a panacea for income inequality reduction?." International Journal of Services, Economics and Management 9.1,2018.p.1-17.

King, Robert G., and Ross Levine. "Financial intermediation and economic development." Capital markets and financial intermediation (1993): 156-189.

K-K, Lee, and T.V. Vu. "Economic complexity, human capital and income inequality: a cross-country analysis." The Japanese Economic Review 71,2020.p.695-718.

L. Asandului, M.Roman, and P.Fatulescu. "The efficiency of healthcare systems in Europe: A data envelopment analysis approach." Procedia Economics and Finance 10,2014.p.261-268.

L. Brainard, and D.Chollet, eds. Too poor for peace?: global poverty, conflict, and security in the 21st century. Rowman & Littlefield, 2007.

L. Katusiime, "Private sector credit and inflation volatility." Economies 6.2,2018.p.28.

L. Niessen, and N.MP Bocken. "Sustainable Production and Consumption." 2021.

L.A,Winters, . "Trade and Poverty: Is there a connection?." Trade Policy, Growth and Poverty in Asian developing Countries. Routledge, 2003.p.38-74.

L.Asandului, C.Popescu, and I.Puiu Fătulescu. "Identifying and explaining the efficiency of the public health systems in European countries." Analele stiintifice ale Universitatii "Al. I. Cuza" din Iasi. Stiinte economice/Scientific Annals of the" Al. I. Cuza" (2015).

L.B.Ponce de, Diego, and J.D.Marshall. "Relationship between urbanization and CO2 emissions depends on income level and policy." Environmental science & technology 48.7.2014.p.3632-3639.

L.Barrington, "Estimating earnings poverty in 1939: a comparison of Orshansky-method and price-indexed definitions of poverty." Review of Economics and Statistics 79.3,1997.p.406-414.

L.Cingolani,K.Thomsson, and D.De Crombrugghe. "Minding Weber more than ever? The impacts of state capacity and bureaucratic autonomy on development goals." World Development 72,2015.p.191-207.

L.Dauda [et al.], "The effects of economic growth and innovation on CO 2 emissions in different regions." Environmental Science and Pollution Research 26,2019,p.15028-15038.

L.De Mello. "Foreign direct investment in developing countries and growth: A selective survey." The journal of development studies 34.1,1997,p.1-34.

L.Dogaru, "The importance of environmental protection and sustainable development." Procedia-Social and Behavioral Sciences 93,2013,p1344-1348.

L.G.Sandberg, "Ignorance, Poverty and Economic Backwardness in the Early Stage of European Industrialization. Variations on Alexander Gerschenkron's Grand Theme." Journal of European Economic History 11.3,1982.p.675.

L.Glawe, and H.Wagner. The People's Republic of China in the middle-income trap?. No. 749. ADBI working paper, 2017.

L.H.Phong, "Globalization, financial development, and environmental degradation in the presence of environmental Kuznets curve: evidence from ASEAN-5 countries." International Journal of Energy Economics and Policy,2019.

L.Heras Recuero and G.P.Roberto, "Economic growth, institutional quality and financial development in middle-income countries.",2019.

L.Jiang, [et al.] "Effects of warming on carbon emission and microbial abundances across different soil depths of a peatland in the permafrost region under anaerobic condition." Applied Soil Ecology 156,2020.p.103712.

L.K Chu,[et al.], "The influence of shadow economy, environmental policies and geopolitical risk on renewable energy: A comparison of high-and middle-income countries." Journal of Environmental Management 342,2023.p.118122.

L.Li, [et al.], "Does outward FDI generate higher productivity for emerging economy MNEs?–Micro-level evidence from Chinese manufacturing firms." International Business Review 26.5,2017.p.839-854.

L.R.Janjua,. "Financial flows and environmental degradation: empirical evidence from algeria using auto regressive distributed lag estimation (ARDL)." International Journal of Circular Economy and Waste Management (IJCEWM) 1.2,2021,p.1-15.

L.Rivera-Batiz, and P.Romer. "Economic integration and endogenous growth." The Quarterly Journal of Economics 106.2,1991,p.531-555.

L.San Vincente Portes,. "Remittances, poverty and inequality." Journal of Economic Development 34.1,2009.p.127.

L.Wang, "Determinants of child mortality in LDCs: empirical findings from demographic and health surveys." Health policy 65.3,2003.p.277-299.

M,Almfraji, M.K Almsafir, and L.Yao. "Economic growth and foreign direct investment inflows: The case of Qatar." Procedia-Social and Behavioral Sciences 109,2014,p.1040-1045.

M. Arafat, W. M. [et al.], "The causal nexus among energy consumption, environmental degradation, financial development and health outcome: Empirical study for Pakistan." Energies 15.5,2022.p.1859.

M. Benli, and A. C. A. R. Yasin. "Foreign Direct Investment and Pollution in Middle Income and OECD Member Countries." Balkan Sosyal Bilimler Dergisi 11.21,2022.p.54-62.

M. Blejer, "Economic growth and the stability and efficiency of the financial sector." Journal of Banking & Finance 30.12,2006.p.3429-3432.

M. Bombardini, and B.Li. "Trade, pollution and mortality in China." Journal of International Economics 125,2020.p.103321.

M. Bruno, M. Ravallion, and L. Squire. "Equity and growth in developing countries: old and new perspectives on the policy issues." ,1996).

M. Carkovic, and R.Levine. "Does foreign direct investment accelerate economic growth." Does foreign direct investment promote development 195,2005,p. 220.

M. Chowdhury, H.Rahman Nijhum, and K.Mohammed Kamal Uddin. "Disintegrated impact of trade openness on income inequality: empirical evidence from Bangladesh." Chowdhury, MA, Nijhum, HR, & Uddin, KMK (2021). Disintegrated Impact of Trade Openness on Income Inequality: Empirical Evidence from Bangladesh. Business and Economic Research 11.3,2021.p.1-18.

M. Funke, and H. Strulik. "On endogenous growth with physical capital, human capital and product variety." European Economic Review 44.3,2000, 491-515.

M. Hailemariam,[et al.], "Developing a mental health care plan in a low resource setting: the theory of change approach." BMC health services research 15,2015.p.1-11.

M. Haq, and M.Luqman. "The contribution of international trade to economic growth through human capital accumulation: Evidence from nine Asian countries." Cogent Economics & Finance 2.1,2014.p.947000.

M. Hoff,. Sustainable community development: Studies in economic, environmental, and cultural revitalization. CRC Press, 1998.

M. Immurana, "How does FDI influence health outcomes in Africa?." African Journal of Science, Technology, Innovation and Development 13.5,2021.p.583-593.

M. Irandoust, and J.Ericsson. "Foreign aid, domestic savings, and growth in LDCs: An application of likelihood-based panel cointegration." Economic Modelling 22.4,2005.p.616-627.

M. Moore. Saving globalization: Why globalization and democracy offer the best hope for progress, peace and development. John Wiley & Sons, 2009.

M. Mumper, and M.L. Freeman. "The causes and consequences of public college tuition inflation." Higher education: Handbook of theory and research. Dordrecht: Springer Netherlands, 2005.p.307-361.

M. Noland,P. Donghyun, and B.E Gemma, "Developing the service sector as engine of growth for Asia: an overview." Asian Development Bank Economics Working Paper Series 320,2012

M. Pradhan, and G.Uddin Khan. "Role of Remittance for improving quality of life: Evidence from Bangladesh." Turkish Economic Review 2.3,2015.p.160-168

M. Todaro, and Stephen C. Smith. "Economic development. Harlow, England." 2003.

M. Usman, [et al.], "Modeling financial development, tourism, energy consumption, and environmental quality: Is there any discrepancy between developing and developed countries?." Environmental Science and Pollution Research 28.41,2021,p.58480-58501.

M. Zhunio, Sharmila Vishwasrao, and Eric P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." Applied Economics 44.35 ,2012.p.4605-4616.

M..Ametoglo, E.Silo, Ping Guo, and Kwami Ossadzifo Wonyra. "Regional integration and income inequality in ECOWAS zone." Journal of Economic Integration 33.3,2018.p.604-627.

M.A, Fadhil,and M.K.Almsafir. "The role of FDI inflows in economic growth in Malaysia (time series: 1975-2010)." Procedia economics and finance 23,2015.p.1558-1566.

M.A. Adha, F.Husnayeni Nahar, and M.Azizurrohman. "The impact of trade liberalization on poverty reduction in Indonesia." Jurnal Ekonomi & Studi Pembangunan 19.2,2018.p.178-185.

M.A.Aliyu, "Foreign direct investment and the environment: Pollution haven hypothesis revisted." 2005.

M.A.Khan, "Financial development and economic growth in Pakistan: evidence based on autoregressive distributed lag (ARDL) approach." South Asia Economic Journal 9.2,2008..375-391.

M.Achim Violeta, V.Ligia Văidean, and S.Nicolae Borlea. "Corruption and health outcomes within an economic and cultural framework." The European journal of health economics 21.2,2020.p.195-207.

M.Agarwal, P.Atri, and S.Kundu. "Foreign direct investment and poverty reduction: India in regional context." South Asia Economic Journal 18.2,2017.p.135-157.

M.Ajayi,[et al.], "International remittances and well-being in sub-Saharan Africa." Journal of Economics and International Finance 1.3,2009.p. 078-084.

M.Akmal,Shahbaz,[et al.], "An empirical investigation of the relationship between trade liberalization and poverty reduction: A case for Pakistan." The Lahore Journal of Economics 12.1,2007.p.99-118.

M.Al-Awad, and N.Harb. "Financial development and economic growth in the Middle East." Applied Financial Economics 15.15,2005,p.1041-1051.

M.Aoki,. "The five phases of economic development and institutional evolution in China, Japan, and Korea." Institutions and comparative economic development. London: Palgrave Macmillan UK, 2012.p.13-47.

M.Appiah, Michael, Doreen Idan Frowne, and Derrick Tetteh. "Re-examining the nexus between financial development and poverty reduction: evidence from emerging economies." Applied Economics Journal 27.2,2020.p.125-144.

M.Arouri,[et al.], "Energy consumption, economic growth and CO2 emissions in Middle East and North African countries." Energy policy 45,2012,p.342-349.

M.Azam, and S.Ali Raza. "Financial sector development and income inequality in ASEAN-5 countries: does financial Kuznets curve exists?." Global Business and Economics Review 20.1,2018.p.88-114.

M.Azam, Muhammad, L.Liu, and N.Ahmad. "Impact of institutional quality on environment and energy consumption: evidence from developing world." Environment, Development and Sustainability 23,2021,p.1646-1667.

M.Baloch, and Danish. "CO2 emissions in BRICS countries: what role can environmental regulation and financial development play?." Climatic Change 172.1-2 ,2022,p. 9.

M.Burke, and A.Ozdagli. "Household inflation expectations and consumer spending: evidence from panel data." Review of Economics and Statistics 105.4,2023,p.948-961.

M.C. Zhunio, S.Vishwasrao, and E.P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." Applied Economics 44.35,2012.p.4605-4616.

M.C.Zhunio,S.Vishwasrao, and E.P. Chiang. "The influence of remittances on education and health outcomes: a cross country study." Applied Economics 44.35,2012,p.4605-4616.

M.D.Ramirez, and H.Sharma. "Remittances and growth in Latin America: A panel unit root and panel cointegration analysis." (2008).

M.Dahan and D.Tsiddon. "Demographic transition, income distribution, and economic growth." Journal of Economic growth 3.1,1998.p.29-52.

M.Dahan, and D.Tsiddon. "Demographic transition, income distribution, and economic growth." Journal of Economic growth 3.1,1998.p.29-52.

M.Demiral,[et al.], "Non-renewable energy effects of trade in intermediate and final products: Evidence from emerging industrial economies." Energy & Environment,2023,p. 0958305X231167474.

M.Destek, and A.Sinha. "Renewable, non-renewable energy consumption, economic growth, trade openness and ecological footprint: Evidence from organisation for economic Co-operation and development countries." Journal of cleaner production 242,2020,p.118537.

M.Destek, and Ilyas Okumus. "Does pollution haven hypothesis hold in newly industrialized countries? Evidence from ecological footprint." Environmental Science and Pollution Research 26,2019,p.23689-23695.

M.E. Kunawotor, G.A. Bokpin, and C.Barnor. "Drivers of income inequality in Africa: Does institutional quality matter?." African Development Review 32.4,2020.p.718-729.

M.E.Bildirici, and S.M.Gökmenoğlu. "Environmental pollution, hydropower energy consumption and economic growth: Evidence from G7 countries." Renewable and Sustainable Energy Reviews 75,2017.p.68-85.

M.F.Rahman, and K.Alam. "Clean energy, population density, urbanization and environmental pollution nexus: Evidence from Bangladesh." Renewable Energy 172,2021,p.1063-1072.

M.F.Rangongo, and C.C.Ngwakwe. "Human Capital Investment and Economic Growth: A Test of Endogenous Growth Theory in Two Developing Countries." Acta Universitatis Danubius: Oeconomica 15.1,2019.

M.Fetahi-Vehapi,L.Sadiku, and M.Petkovski. "Empirical analysis of the effects of trade openness on economic growth: An evidence for South East European countries." Procedia Economics and Finance 19,2015,p.17-26.

M.G.Quibria,. "Two-Gap Models of Foreign Aid: A Survey." Journal of Economic Development 5.1,1980,p. 67-89.

M.Ghouchani, [et al], "Developing a perspective on the use of renewable energy in Iran." Technological Forecasting and Social Change 172,2021.p.121049.

M.H.Ibrahim and S.Hook Law. "Institutional Quality and CO2 Emission–Trade Relations: Evidence from S ub-S aharan A frica." South African Journal of Economics 84.2,2016.p.323-340.

M.Haddad, and A.Harrison. "Are there positive spillovers from direct foreign investment?: Evidence from panel data for Morocco." Journal of development economics 42.1,1993,p.51-74.

M.Hakeem, and O.Oluitan. "Financial development and human capital in South Africa: a time-series approach." Research in Applied Economics 4.3,2012.p.18.

M.Hakooma, and V.Seshamani. "The impact of human capital development on economic growth in Zambia: An Econometric Analysis." International Journal of Economics, Commerce and Management 4.4,2017,p.71-87.

M.Haq, M. Luqman, and A. Cheema. "DOES FOREIGN ASSISTANCE COMPLEMENT SAVINGS IN THE GROWTH PROCESS: EMPIRICAL EVIDENCE FROM SELECTED ASIAN COUNTRIES." Global & Local Economic Review 25.2: 37.

M.Hazans, and I.Trapeznikova. "Access to secondary education in Albania: incentives, obstacles, and policy spillovers." Obstacles, and Policy Spillovers (September 28, 2006.

M.Hirschnitz-Garbers,[et al.] "Key drivers for unsustainable resource use–categories, effects and policy pointers." Journal of Cleaner Production 132,2016,p.13-31.

M.Ibrahim, and P.Alagidede. "Effect of financial development on economic growth in sub-Saharan Africa." Journal of Policy Modeling 40.6,2018.p.1104-1125.

M.Jäntti, and S.P. Jenkins. "Income mobility." Handbook of income distribution. Vol. 2. Elsevier, 2015,p.807-935.

M.Koengkan,. "The positive impact of trade openness on consumption of energy: Fresh evidence from Andean community countries." Energy 158,2018.p.936-943.

M.Lacheheb, Peter Adamu, and Seth Akutson. "Openness, financial development and economic growth in Algeria: An ARDL bound testing approach." International Journal of Economics, Finance and Management Sciences 1.6,2013,p.400-405.

M.Li, W.Du, and S.Tang. "Assessing the impact of environmental regulation and environmental co-governance on pollution transfer: Micro-evidence from China." Environmental Impact Assessment Review 86,2021.p.106467.

M.M.Rahman. "Environmental degradation: The role of electricity consumption, economic growth and globalisation." Journal of environmental management 253,2020,p.109742.

M.Magombeyi, and N.M. Odhiambo. "Dynamic impact of FDI inflows on poverty reduction: Empirical evidence from South Africa." Sustainable Cities and Society 39,2018.p.519-526.

M.Majid, Shabri Abd,[et al.], "Does financial development reduce poverty? Empirical evidence from Indonesia." Journal of the knowledge economy 10,2019.p.1019-1036.

M.McGrath,[et al.], "The consolidated European synthesis of CO2 emissions and removals for the European Union and United Kingdom: 1990–2020." Earth System Science Data 15.10,2023,p.4295-4370.

M.McMillan, and I.Verduzco. "New evidence on trade and employment: An overview." Trade and Employment 1994,1986,p. 23.

M.Mehara,. "The causality between human capital and economic growth in oil exporting countries: Panel cointegration and causality." Journal of Business Management and Social Sciences Research 2.6,2013,p. 62-66.

M.Mert, G.Bölük, and A.Çağlar. "Interrelationships among foreign direct investments, renewable energy, and CO 2 emissions for different European country groups: a panel ARDL approach." Environmental Science and Pollution Research 26,2019.p.21495-21510.

M.Mohsin, F.Taghizadeh-Hesary, and E.Rasoulinezhad. "Energy efficiency and electricity reforms: a way forward for clean power development." The Handbook of Energy Policy. Singapore: Springer Nature Singapore,2023.p.1-30.

M.Mughal, and .Vechiu. "Does FDI promote higher education? Evidence from developing countries." 10th Nordic Conference in Development Economics (NCDE). 2009.

M.Murshed, "An empirical analysis of the non-linear impacts of ICT-trade openness on renewable energy transition, energy efficiency, clean cooking fuel access and environmental sustainability in South Asia." Environmental Science and Pollution Research 27.29,2020.p.36254-36281.

M.Murshed,[et al.] "The nexus between environmental regulations, economic growth, and environmental sustainability: linking environmental patents to ecological footprint reduction in South Asia." Environmental Science and Pollution Research 28.36,2021,p.49967-49988.

M.Pagano, and G.Pica. "Finance and employment." Economic Policy 27.69,2012.p.5-55.

M.Pagano, Marco, and G. Pica. "Finance and employment." Economic Policy 27.69 (2012): 5-55.

M.Panait,[et al.], "Impact factors to reduce carbon emissions. Evidences from Latin America." Kybernetes 52.11,2023.p.5669-5686.

M.Paulden, and K.Claxton. "Budget allocation and the revealed social rate of time preference for health." Health economics 21.5,2012.p.612-618.

M.Pereira, M.Teresa, and A.Chatzidakis. "'Blame it on marketing': consumers' views on unsustainable consumption." International Journal of Consumer Studies 36.6,2012.p.656-667.

M.Quibria, "International migration, remittances and income distribution in the source country: a synthesis." Bulletin of economic research 49.1,1997.p. 29-46.

M.randoust, and A.Hatemi. "Foreign aid and economic growth: new evidence from panel cointegration." Journal of economic development 30.1,2005,p.71-80.

M.Rastogi, S.Singh, and H.Pathak. "Emission of carbon dioxide from soil." Current science 82.5,2002,p. 510-517.

M.Roemer,and M.K.Gugerty. Does economic growth reduce poverty?. Cambridge, MA: Harvard Institute for International Development, 1997.

M.Rogers, and W.A.Pridemore. "The effect of poverty and social protection on national homicide rates: Direct and moderating effects." Social Science Research 42.3,2013,p.584-595.

M.Rosenberg,. "An outcomes-based approach across the medical education continuum." Transactions of the American Clinical and Climatological Association 1292018.p. 325.

M.S Creane,[et al.], Financial development and growth in the Middle East and North Africa. International Monetary Fund, 2003.

M.S. Atanda, and O.Charles. "Inward remittance and economic growth in Sub-Saharan African countries: Application of panel cointegration approach." Research Journal of Finance and Accounting 5.12,2014.p.51-68.

M.S.Al Mamun, M.I. Ariffin, and Z.Hamid. "Does domestic credit of the banking sector promote economic growth? evidence from Bangladesh." International Journal of Islamic Business (IJIB) 3.1.2018,p.33-55.

M.S.Creane,[et al.], Financial development and growth in the Middle East and North Africa. International Monetary Fund, 2003.

M.S.Majid, "Inflation, financial development, and economic growth: the case of Malaysia and Thailand." Philippine Review of Economics 44.1,2010.

M.Saez-Marti, and J.W. Weibull. "Discounting and altruism to future decision-makers." Journal of Economic theory 122.2,2005,p.254-266.

M.Salahuddin,[et al.] "The effects of electricity consumption, economic growth, financial development and foreign direct investment on CO2 emissions in Kuwait." Renewable and sustainable energy reviews 81,2018.p.2002-2010.

M.Sehrawat, A. K. Giri, and G.Mohapatra. "The impact of financial development, economic growth and energy consumption on environmental degradation: Evidence from India." Management of Environmental Quality: An International Journal 26.5,2015,p.666-682.

M.Sehrawat, and A.K.Giri. "The impact of financial development, economic growth, income inequality on poverty: evidence from India." Empirical Economics 55,2018.p.1585-1602.

M.Shabbir,[et al.], "Poverty Reduction Strategies. Exploring the link between Poverty and Corruption from less developed countries." Dilemas Contemporáneos: Educación, Política y Valore 6.2,2019.

M.Shafiq Nouman, and S.Gillani. "Health Outcomes of Remittances in Developing Economies: An Empirical Analysis." Pakistan Journal of Economic Studies (PJES) 1.1,2018,1-20.

M.Shahbaz [et al.] "Economic growth, energy consumption, financial development, international trade and CO2 emissions in Indonesia." Renewable and sustainable energy reviews 25,2013.p.109-121.

M.Shahbaz, and M.Rahman. "Foreign capital inflows-growth nexus and role of domestic financial sector: an ARDL co-integration approach for Pakistan." Journal of Economic Research 15.3,2010,p. 207-231.

M.Shahbaz,[et al.] "Economic growth, energy consumption, financial development, international trade and CO2 emissions in Indonesia." Renewable and sustainable energy reviews 25,2013,p.109-121.

M.Shahbaz,[et al.], "The effect of renewable energy consumption on economic growth: Evidence from the renewable energy country attractive index." Energy 207,2020.p.118162.

M.Shahbaz,[et al.], "The nexus between tourism demand and output per capita with the relative importance of trade openness and financial development: A study of Malaysia." Tourism Economics 23.1,2017,p.168-186.

M.Shahbaz,H-H Lean, and M.S.Shabbir. "Environmental Kuznets curve hypothesis in Pakistan: cointegration and Granger causality." Renewable and Sustainable Energy Reviews 16.5,2012.p.2947-2953.

M.Shahbaz,I.Ur Rehman, and N.Shahnaz Ahmad Mahdzan. "Linkages between income inequality, international remittances and economic growth in Pakistan." Quality & quantity 48. 2014.p.1511-1535.

M.Singhania and N.Saini. "Demystifying pollution haven hypothesis: Role of FDI." Journal of Business Research 123 (2021): 516-528.

M.Škare, and R.P.Družeta. "Poverty and economic growth: A review." Technological and Economic development of Economy 22.1,2016.p.156-175.

M.T, Musakwa, and N.M. Odhiambo. "Remittance inflows and poverty dynamics in South Africa: An empirical investigation." SAGE Open 10.4,2020.p.2158244020983312.

M.Tshepo, "The Nexus between corruption and governance since the dispensation of democracy in South Africa: A time series analysis." Retrieved from March 1,2015.2021.

M.Tucker, "Carbon dioxide emissions and global GDP." Ecological Economics 15.3,1995p. 215-223.

M.Usman. and N.Hammar. "Dynamic relationship between technological innovations, financial development, renewable energy, and ecological footprint: fresh insights based on the STIRPAT model for Asia Pacific Economic Cooperation

countries." Environmental Science and Pollution Research 28.12,2021.p.15519-15536.

M.Van Ham, D.Manley, and T.Tammaru. "Geographies of socio-economic inequality." 2022.

M.W Zafar,[et al.], "The dynamic linkage between remittances, export diversification, education, renewable energy consumption, economic growth, and CO2 emissions in top remittance-receiving countries." Sustainable Development 30.1,2022.p.165-175.

M.Wang, and H.Zhuang. "FDI and educational outcomes in developing countries." Empirical Economics,2021.p.1-35.

M.Younsi, H.Khemili, and M.Bechtini. "Does foreign aid help alleviate income inequality? New evidence from African countries." International Journal of Social Economics 46.4,2019.p.549-561.

M.Younsi, H.Khemili, and Marwa Bechtini. "Does foreign aid help alleviate income inequality? New evidence from African countries." International Journal of Social Economics 46.4,2019.p.549-561.

M.Z. Chishti, A. Rehman, and M.Murshed. "An estimation of the macroeconomic determinants of income poverty in Pakistan? Evidence from a non-linear ARDL approach." Journal of Public Affairs 22.4,2022.p.e2719.

M.Zhunio [et al.],"The influence of remittances on education and health outcomes: a cross country study." Applied Economics 44.35,2012,p.4605-4616.

Md, R. Alam E. Kiterage, and B.Bizuayehu. "Government effectiveness and economic growth." Economic Bulletin 37.1,2017.p.222-227.

Md. Mondal,N.Islam, and M.Shitan. "Relative importance of demographic, socioeconomic and health factors on life expectancy in low-and lower-middle-income countries." Journal of epidemiology 24.2,2014.p.117-124.

Md., Haque,[et al.] "Contribution of greenhouse gas emissions during cropping and fallow seasons on total global warming potential in mono-rice paddy soils." Plant and Soil 387 (2015): 251-264.

Md.Hossain, Sarwar,[et al.], "Recent trends of human wellbeing in the Bangladesh delta." Environmental Development 17,2016.p.21-32.

Md.N, Uddin, . "Bangladesh: Income inequality and globalization." Asian Business Review 10.1,2020.p.43-52.

Md.Q, Alam, and Md.Shabbir Alam. "Financial development, economic growth, and poverty reduction in India." Etikonomi: Jurnal Ekonomi 20.1,2021.p.13-22.

MD.Rahman,[et al]. "The effect of remittance on energy consumption: Panel cointegration and dynamic causality analysis for South Asian countries." Energy 220,2021.p.119684.

MD.S.Ahmed, "Migrant workers remittance and economic growth: evidence from Bangladesh." ASA University Review 4.1,2010,p.1-13.

Md.Uddin, Nezum. "Bangladesh: Income inequality and globalization." Asian Business Review 10.1,2020.p.43-52.

N. Hanif, and N.Arshed. "Relationship between school education and economic growth: SAARC countries." International Journal of Economics and Financial Issues 6.1,2016.p.294-300.

N.Ahmad [et al.], "The causal links between foreign direct investment and economic growth in Pakistan." European Journal of Business and Economics 6,2012.

N.BKWAYEP, Y.Rodrigue, and N.Roger TSAFACK. "Remittances, financial inclusion and income inequality in Africa." 2020.

N.Campos,. "Context is everything: measuring institutional change in transition economies." World Bank Policy Research Working Paper 2269,1999.

N.Groce,[et al.], "Poverty and disability–a critical review of the literature in low and middle-income countries." Leonard Cheshire Research Centre Working Paper Series 16,2011.

N.Habib-Mintz,. "To what extent can the informal economy concept adequately explain the dynamism of the non-formal sector in developing countries." Journal of International Business and Economy 10.1,2009.p.1-19.

N.Henry,A.Yusheng, and M.K. Gyan. "Banking system stability and economic sustainability: A panel data analysis of the effect of banking system stability on sustainability of some selected developing countries." Quant Financ Econ 3,2019,p. 709-38.

N.Hermes, and R.Lensink. "Foreign direct investment, financial development and economic growth." The journal of development studies 40.1,2003,p.142-163.

N.Hermes, and R.Lensink. "Foreign direct investment, financial development and economic growth." The journal of development studies 40.1,2003,p.142-163.

N.Kakwani,. "Performance in living standards: an international comparison." Journal of development economics 41.2,1993.p.307-336.

N.Kutivadze,. Public debt, domestic and external financing, and economic growth. No. 2011-12. 2011.

N.Kutivadze,. Public debt, domestic and external financing, and economic growth. No. 2011-12. 2011.

N.Masud, and B.Yontcheva. "Does foreign aid reduce poverty?: empirical evidence from nongovernmental and bilateral aid." 2005.

N.Mose,. "Determinants of regional economic growth in Kenya." African Journal of Business Management 15.1,2021.p.1-12.

N.Nantob, "Income inequality and inflation in developing countries: An empirical investigation." Economics Bulletin 35.4,2015.p.2888-2902.

N.P. Deyshappriya, "Impact of macroeconomic factors on income inequality and income distribution in Asian countries." 2017.

.N.Samargandi, and A.M. Kutan. "Private credit spillovers and economic growth: Evidence from BRICS countries." Journal of International Financial Markets, Institutions and Money 44,2016.p.56-84.

N.Samargandi, J.Fidrmuc, and S.Ghosh. "Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries." World development 68,2015,p.66-81.

N.Samargandi, Nahla,J. Fidrmuc, and S. Ghosh. "Is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle-income countries." World development 68,2015,p.66-81.

N.Saqib, M. Masnoon, and N. Rafique. "Impact of foreign direct investment on economic growth of Pakistan." Advances in Management & Applied Economics 3.1,2013,p. 35-45.

N.Van Phuc, and N.Thuc Duy Anh. "Foreign direct investment, financial development and economic growth in Asian developing countries." HO CHI MINH CITY OPEN UNIVERSITY JOURNAL OF SCIENCE-ECONOMICS AND BUSINESS ADMINISTRATION 2.1,2012.p. 3-17.

N.Yoshino, F.Taghizadeh-Hesary, and M.Otsuka. "Determinants of international remittance inflow in Asia-Pacific middle-income countries." Economic Analysis and Policy 68 ,2020.p.29-43.

N-H, Le, L.Vinh Quoc Duy, and B.Hoang Ngoc. "Effects of foreign direct investment and human capital on labour productivity: Evidence from Vietnam." The Journal of Asian Finance, Economics and Business 6.3,2019.p.123-130.

O. Azfar, and T.Gurgur. "Does corruption affect health outcomes in the Philippines?." Economics of Governance 9,2008.p.197-244.

O.Adesiyan, C. The impact of public spending on education in Nigeria. MS thesis. University of Cape Town, 2017.

O.Aigheyisi,. "Non-Oil Trade and Income Inequality in Nigeria." The Empirical Economics Letters 19.6,2020.

O.De Schutter, JSwinnen, and J.Wouters, eds. Foreign direct investment and human development: the law and economics of international investment agreements. Routledge, 2012.

O.Dincer, and O.Teoman. "Does corruption kill? Evidence from half a century infant mortality data." Social Science & Medicine 232,2019.p.332-339.

O.Ekwebelem,[et al.], "Threats of COVID-19 to achieving United Nations sustainable development goals in Africa." The Americ an Journal of Tropical Medicine and Hygiene 104.2.2021.p. 457.

O.GÜRLER, KİREN, and S.DEMİROGLARI. "Determinants of household education expenditures by education level: The case of Turkey." International Journal of Contemporary Economics and Administrative Sciences 10.1,2020.p.235-258.

O.K.Essandoh, M.Islam, and M.Kakinaka. "Linking international trade and foreign direct investment to CO2 emissions: any differences between developed and developing countries?." Science of the Total Environment 712,2020,p.136437.

O.Muftau, M.Iyoboyi, and A.S.Ademola. "An empirical analysis of the relationship between CO2 emission and economic growth in West Africa." American Journal of Economics 4.1,2014.p. 1-17.

O.Ojo, and T.Oshikoya. "Determinants of long-term growth: Some African results." Journal of African economies 4.2,1995,p.p163-191.

O.Osode, E.Chimere O. Iheonu, and R.Dauda. "On the relationship between globalization and income inequality: Does institution matter?." Journal of Public Affairs 22.2,2022.p.e2433.

O.S.Olalekan, and A.A. Badejo. "The impact of remittances on economic growth in Nigeria: An error correction modeling approach." Zagreb International Review of Economics & Business 17.2,2014,p.21-43.

O.Zallé, "Natural resources and economic growth in Africa: The role of institutional quality and human capital." Resources Policy 62,2019,p.616-624.

Olsen, William P. "The anti-corruption handbook." How to protect your business in the global marketplace 172,2010.p.1-193.

P. Aghion,[et al.], "When does domestic savings matter for economic growth?." IMF Economic Review 64,2016.p.381-407.

P. Goldberg, and T.Reed. "Demand-side constraints in development: The role of market size, trade, and (in) equality." Demand-Side Constraints in Development: The Role of Market Size, Trade, and (In) Equality: Goldberg, Pinelopi| uReed, Tristan. [Sl]: SSRN, 2023.

P. Hess,. Economic growth and sustainable development. Routledge, 2016.

P. Mo, Hung. "Corruption and economic growth." Journal of comparative economics 29.1,2001.p.66-79.

P. Mulder, H.LF De Groot, and M. W. Hofkes. "Economic growth and technological change: a comparison of insights from a neo-classical and an evolutionary perspective." Technological Forecasting and social change 68.2,2001,p.151-171.

P. Panda,. "Does trade reduce infant mortality? Evidence from sub-Saharan Africa." World Development 128,2020.p.104851.

P. Subbarao,. "FDI and human capital development." 2008.

P. Wise, and G.L. Darmstadt. "Strategic governance: addressing neonatal mortality in situations of political instability and weak governance." Seminars in Perinatology. Vol. 39. No. 5. WB Saunders, 2015.

P. Zahonogo,. "Trade and economic growth in developing countries: Evidence from sub-Saharan Africa." Journal of African Trade 3.1-2 2016,p.41-56.

P.A.Vitenu-Sackey, and R. Barfi. "The impact of COVID-19 pandemic on the global economy: Emphasis on poverty alleviation and economic growth. The Economics and Finance Letters, 8 1.,2021.p.32-43.

P.Acosta,[et al.], "Remittances and development in Latin America." World Economy 29.7,2006.p.957-987.

P.Aghion, & P.Howitt. "Growth with quality-improving innovations: an integrated framework." Handbook of economic growth 1,2005,p. 67-110.

P.Ekins, and J. Medhurst. "The European structural funds and sustainable development: A methodology and indicator framework for evaluation." Evaluation 12.4,2006,p.474-495.

P.Giuliano, and M.Ruiz-Arranz. "Remittances, financial development, and growth." Journal of development economics 90.1,2009,p. 144-152.

P.Hess, Economic growth and sustainable development. Routledge, 2016.

P.K.Crossley, "China Normal: Patterns of urbanization, industrialization, and trade on a Eurasian discursive base." Modern Asian Studies 54.4,2020.p.1278-1314.

P.Karkatsoulis,[et al.], "Regulatory quality index: Methodology and implementation guide for European countries." Regulatory Quality Index: Methodology and Implementation Guide. European Liberal Forum (ELF). 2019.

P.Kumar,[et al.], "The nexus between air pollution, green infrastructure and human health." Environment international 133,2019,p.105181.

P.M.Kargbo, Impact of foreign aid on economic growth in Sierra Leone: Empirical Analysis. No. 2012/07. WIDER Working Paper, 2012.

P.M.Romer, "Growth based on increasing returns due to specialization." The American Economic Review 77.2,1987,p.56-62.

P.Martinez, "The impact of foreign aid on economic growth." 2015.

P.Nunnenkamp, R.Schweickert, and M.Wiebelt. "Distributional effects of FDI: how the interaction of FDI and economic policy affects poor households in Bolivia." Development policy review 25.4,2007.p.429-450.

P.Nunnenkamp,. "To what extent can foreign direct investment help achieve international development goals?." World Economy 27.5,2004.p.657-677.

P.O.Demetriades, and K.Hussein. "Does financial development cause economic growth? Time-series evidence from 16 countries." Journal of development Economics 51.2,1996,p.387-411.

P.Ozili,. "Covid-19 pandemic and economic crisis: The Nigerian experience and structural causes." Journal of Economic and Administrative Sciences 37.4,2021.p.401-418.

P.Pegkas, and C.Tsamadias. "Does higher education affect economic growth? The case of Greece." International Economic Journal 28.3,2014,p.425-444.

P.Pegkas, Panagiotis. "The impact of FDI on economic growth in Eurozone countries." The Journal of Economic Asymmetries 12.2,2015,p.124-132.

P.Poumanyvong, and S.Kaneko. "Does urbanization lead to less energy use and lower CO2 emissions? A cross-country analysis." Ecological economics 70.2,2010.p.434-444.

P.R. Agénor, and O.Canuto. "Middle-income growth traps." Research in Economics 69.4,2015,p.641-660.

P.R. Krugman, and R.Z. Lawrence. "Trade, jobs, and wages." 1993.

P.Romer "Human capital and growth: Theory and evidence." 1989.

P.Samimi, and H.Salarzadeh Jenatabadi. "Globalization and economic growth: Empirical evidence on the role of complementarities." PloS one 9.4,2014.p.e87824.

P.T. Lieu, C.Chang, and J.Chang. "inflation rate Variations across household: empirical evidence from taiwan." Available at SSRN 490457,2004.

P.V.Sittha, Pornpen Vora. "Governance and poverty reduction in Thailand." Modern Economy 3.05,2012,p.487.

P.W.Glewwe,[et al.] "School resources and educational outcomes in developing countries: A review of the literature from 1990 to 2011 (Working Paper No. 17554)." Retrieved from http: http://www. nber. org/papers/w17554,2011.

P-L, Tsai, and C-H Huang. "Openness, growth and poverty: The case of Taiwan." World Development 35.11,2007.p.1858-1871.

P-R.Agénor, O.Canuto, and M.Jelenic. "Avoiding middle-income growth traps." 2012.

Q. Zhang,[et al.], "Inter-regional spillover of China's sulfur dioxide (SO2) pollution across the supply chains." Journal of Cleaner Production 207,2019.p. 418-431.

Q.Faisal Sultan, Faisal, and W.A. Waheed. "Human capital and economic growth: Time series evidence from Pakistan." 2011,p.815-833.

Q.Le,[et al.], "The impact of foreign direct investment on income inequality in Vietnam." Economies 9.1,2021.p. 27.

Q.Wang, and R.Huang. "The impact of COVID-19 pandemic on sustainable development goals–a survey." Environmental Research 202,2021.p.111637.

Q.Wang, J.Guo, and R.Li. "Official development assistance and carbon emissions of recipient countries: a dynamic panel threshold analysis for low-and lower-middle-income countries." Sustainable Production and Consumption 29,2022,p.158-170.

Q.Zhu, J.Cordeiro, and J.Sarkis. "Institutional pressures, dynamic capabilities and environmental management systems: Investigating the ISO 9000–Environmental management system implementation linkage." Journal of environmental management 114,2013.p.232-242.

R. Barro, and J-W Lee. "Losers and winners in economic growth." The World Bank Economic Review 7.suppl_1,1993.p.267-298.

R. Barro, and J-W Lee. "Sources of economic growth." Carnegie-Rochester conference series on public policy. Vol. 40. North-Holland, 1994.

R. Barro, and S.M.Xavier. "Economic growth second edition." (2004).

R. Birner,. "Improving governance to eradicate hunger and poverty." Twenty twenty (2020) focus brief on the world's poor and hungry people/International Food Policy Research Institute (IFPRI),2007.

R. Blundell, and S.Bond. "Initial conditions and moment restrictions in dynamic panel data models." Journal of econometrics 87.1,1998.p.115-143.

R. Brinkman, "Economic growth versus economic development: Toward a conceptual clarification." Journal of Economic Issues 29.4, 1995,p. 1171-1188.

R. Chami,C.Fullenkamp, and S,Jahjah. "Are immigrant remittance flows a source of capital for development?." IMF Staff papers 52.1,2005,p.55-81.

R. Edeme Kojo, C.Emecheta, and M.Ogechi Omeje. "Public health expenditure and health outcomes in Nigeria." American Journal of Biomedical and Life Sciences 5.5,2017.p.96-102.

R. Hill, "Real income, unemployment and subjective well-being: Revisiting the costs and benefits of inflation reduction in Canada." Canadian Public Policy/Analyse de Politiques,2000.p. 399-414.

R. Hujer,C.Zeiss, and P.Jorge Maurício Rodrigues. Serial correlation in dynamic panel data models with weakly exogenous regressor and fixed effects. Universitätsbibliothek Johann Christian Senckenberg, 2005.

R. Irshad, and N.Ghafoor. "Infrastructure and economic growth: evidence from lower middle-income countries." Journal of the Knowledge Economy 14.1,2023.p.161-179.

R. Lucas. "On the mechanics of economic development." Journal of monetary economics 22.1,1988,p.3-42.

R. Mitra, and Md H. Sharif, "Foreign aid and economic growth in the Philippines." Economics Bulletin 33.3.2013,p.1706-1714.

R. Sharma, "Health and economic growth: Evidence from dynamic panel data of 143 years." PloS one 13.10,2018.p. e0204940.

R. Solow, "Elements of pure economics." 1956,p.87-89.

R.Adams Jr,. "International remittances and the household: Analysis and review of global evidence." Journal of African Economies 15.suppl_2,2006.p.396-425.

R.Adeel-Farooq, M.Faraz Riaz, and T.Ali. "Improving the environment begins at home: Revisiting the links between FDI and environment." Energy 215,2021,p.p119150.

R.Argüello,. "Revisiting the relationship between income, inequality and economic growth." Lecturas de Economía 64,2006.p. 37-58.

R.Atalay,. "The education and the human capital to get rid of the middle-income trap and to provide the economic development." Procedia-Social and Behavioral Sciences 174 (2015): 969-976.

R.Barro, "Education as a determinant of economic growth." 2002.p.9-24.

R.Barro, and X. Sala-i-Martin. "Empirical analysis of a cross section of countries." Economic Growth ,1995,p. 414-459.

R.Burnett,. "Theodore W. Schultz (1902–1998)." The Palgrave Companion to Chicago Economics. Cham: Springer International Publishing, 2023..p. 401-420.

R.d'Aiglepierre, and L.Wagner. "Aid and universal primary education." Economics of education review 37,2013.p.95-112.

R.Durbarry,N.Gemmell, and D.Greenaway. New evidence on the impact of foreign aid on economic growth. No. 98/8. CREDIT Research paper, 1998.

R.E.Lucas Jr. "On the mechanics of economic development." Journal of monetary economics 22.1,1988,p.3-42.

R.F.Lubis, and P.Mahardika Adi Saputra. "The middle-income trap: is there a way out for asian countries?." Journal of Indonesian Economy and Business: JIEB. 30.3,2015.p.273.

R.Findlay, "Some aspects of technology transfer and direct foreign investment." The American Economic Review 68.2,1978.p.275-279.

R.Frank, "International migration and infant health in Mexico." Journal of immigrant health 7 2005.p.11-22.

R.Frank, and R.A. Hummer. "The other side of the paradox: The risk of low birth weight among infants of migrant and nonmigrant households within Mexico." International Migration Review 36.3 2002.p.746-765.

R.G. King, and R.Levine. "Finance and growth: Schumpeter might be right." The quarterly journal of economics 108.3,1993.p.717-737.

R.Geiger, . "Public and private sectors in higher education: A comparison of international patterns." Higher education 17.6,1988.p.699-711.

R.H, Adams Jr, Alfredo Cuecuecha, and John Page. "The impact of remittances on poverty and inequality in Ghana." World Bank Policy Research Working Paper 4732,2008.

R.H, Adams Jr,. "International remittances and the household: Analysis and review of global evidence." Journal of African Economies 15.suppl_2 ,2006.p.396-425.

R.H. Prasetiya,. "Do economic complexity and strong institutions affect income inequality." Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning 5.3,2021.p.296-316.

R.H.Adams Jr, and J.Page. "Do international migration and remittances reduce poverty in developing countries?." World development 33.10,2005,p. 1645-1669.

R.H.Prasetiya,"Do economic complexity and strong institutions affect income inequality." Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning 5.3,2021.p.296-316.

R.Hanna,[et al.], "The effectiveness of anti-corruption policy." EPPI Centre Report 3.1,2011.

R.Haq, and U.Zia. Does governance contribute to pro-poor growth? Evidence from Pakistan. No. 2009: 52. Pakistan Institute of Development Economics, 2009.

R.K.Dash, "Impact of remittances on domestic investment: a panel study of six south Asian countries." South Asia Economic Journal 21.1,2020,p.7-30.

R.Kemp, S.Parto, and R.B.Gibson. "Governance for sustainable development: moving from theory to practice." International journal of sustainable development 8.1-2,2005.p.12-30.

R.Kousar, [et al.], "The impact of foreign remittances and financial development on poverty and income inequality in Pakistan: Evidence from ARDL-bounds testing approach." The Journal of Asian Finance, Economics and Business 6.1,2019.p. 71-81.

R.M. Desai, A.Olofsgård, and T.M. Yousef. "Inflation and inequality: does political structure matter?." Economics Letters 87.1,2005.p.41-46.

R.M.Desai, and H.Kharas. "The California consensus: can private aid end global poverty?." Survival 50.4,2008.p.155-168.

R.O'brien, Contesting global governance: Multilateral economic institutions and global social movements. Vol. 71. Cambridge University Press, 2000.

R.Oluitan,Oluwatoyin. "Bank credit and economic growth: Evidence from Nigeria." International Business and Management 5.2,2012.p.102-110.

R.Posner,. "Equality, wealth, and political stability." The journal of law, economics, and organization 13.2,1997.p.344-365.

R.Reuveny, and Q.Li. "Economic openness, democracy, and income inequality: An empirical analysis." Comparative Political Studies 36.5.2003.p.575-601.

R.Sharma,. "Health and economic growth: Evidence from dynamic panel data of 143 years." PloS one 13.10,2018.p.e0204940.

R.Solow,. "PRODUCTION FUNCTION." The Review of Economics and Statistics 39.3,1957.p.312-320.

R.Ulucak and B.Ozcan. "Relationship between energy consumption and environmental sustainability in OECD countries: the role of natural resources rents." Resources Policy 69,2020,p.101803.

R.Vos,"What we do and don't know about trade liberalization and poverty reduction." 2007.

R.Vos,. "What we do and don't know about trade liberalization and poverty reduction." 2007.

R.WGoldsmith, "Financial structure and development." (No Title) (1969).

R.Wooster, and D.S. Diebel. "Productivity spillovers from foreign direct investment in developing countries: A meta-regression analysis." Review of Development Economics 14.3,2010,p. 640-655.

R.Zanini,Ruviaro [et al.], "Infant mortality trends in the State of Rio Grande do Sul, Brazil, 1994-2004: a multilevel analysis of individual and community risk factors." Cadernos de Saúde Pública 25,2009.p.1035-1045.

Rehman, Abdul, et al. "The effect of carbon dioxide emission and the consumption of electrical energy, fossil fuel energy, and renewable energy, on economic performance: evidence from Pakistan." Environmental Science and Pollution Research 26 (2019): 21760-21773.

S. Abosedra,M.Shahbaz, and K.Nawaz. "Modeling causality between financial deepening and poverty reduction in Egypt." Social Indicators Research 126,2016,p.955-969.

S. Alataş, "The role of information and communication technologies for environmental sustainability: evidence from a large panel data analysis." Journal of environmental management 293,2021,p.112889.

S. Hussain, Tanveer Ahmad, and Shoaib Hassan. "Corporate Governance and Firm performance using GMM." International Journal of Information, Business and Management 11.2,2019.p.300-316.

S. Idrees,and N.Abu Bakar. "Accounting for the contribution of foreign direct investment in population health: a case study of Pakistan." International Journal of Research in Social Sciences 9.5,2019.p.14-35.

S. Klees,. "Aid, development, and education." Current issues in comparative education 13.1,2010.

S. Nagarajan Migration, remittances, and household health: Evidence from South Africa. Diss. The George Washington University, 2009.

S. Naz,[et al.], "Moderating and mediating role of renewable energy consumption, FDI inflows, and economic growth on carbon dioxide emissions: evidence from robust least square estimator." Environmental Science and Pollution Research 26,2019.p.2806-2819.

S. Pal,[et al.], "The impact of remittance inflows on economic growth, unemployment and income inequality: An international evidence." International Journal of Economic Policy Studies,2022.p.1-25.

S. Zahra, "Predictors and financial outcomes of corporate entrepreneurship: An exploratory study." Journal of business venturing 6.4,1991.p.259-285.

S.A.Ejuvbekpokpo, and S.Hassan. "Impact of Institutional Quality on Educational Attainment: The Case of Low-Income SSA Countries." Canadian Social Science 15.9,2019.p.19-24.

S.A.Sarkodie,and S.Adams. "Renewable energy, nuclear energy, and environmental pollution: accounting for political institutional quality in South Africa." Science of the total environment 643.2018.p.1590-1601.

S.Adams, and E.Kwame Mensah Klobodu. "Urbanization, economic structure, political regime, and income inequality." Social Indicators Research 142,2019.p.971-995.

S.Aiyar,[et al.], Growth slowdowns and the middle-income trap. International Monetary Fund, 2013.

S.Alataş, and M.Çakir. "The effect of human capital on economic growth: A panel data analysis." Yönetim Bilimleri Dergisi 14.27,2016,p.p539-555.

S.Albanesi,. "Inflation and inequality." Journal of monetary Economics 54.4,2007,.p.1088-1114.

S.Antwi,[et al.], "Impact of foreign direct investment on economic growth: Empirical evidence from Ghana." International Journal of Academic Research in Accounting, Finance and Management Sciences 3.1,2013,p. 18-25.

S.Arogundade, B.Mduduzi, and A.Samuel Hassan. "Spatial impact of foreign direct investment on ecological footprint in Africa." Environmental Science and Pollution Research 29.34,2022.p.51589-51608.

S.Azizi,. "The impacts of workers' remittances on human capital and labor supply in developing countries." Economic Modelling 75,2018.p.377-396.

S.Azizi. "The impacts of workers’ remittances on poverty and inequality in developing countries." Empirical Economics 60.2,2021.p.969-991.

S.Barua, and F.Rafiq. "Macroeconomic determinants of remittances and implications for economic growth: Evidence from Bangladesh." Bangladesh's Macroeconomic Policy: Trends, Determinants and Impact .2020,p. 371-392.

S.Ben Mim, and M.S. Ben Ali. "Through which channels can remittances spur economic growth in MENA countries?." Economics 6.1,2012,p. 20120033.

S.C Terrelonge, "For health, strength, and daily food: the dual impact of remittances and public health expenditure on household health spending and child health outcomes." The Journal of Development Studies 50.10,2014.p.1397-1410.

S.Cavusgil, P.N. Ghauri, and A.A. Akcal. Doing business in emerging markets. Sage, 2012.

S.Chatterjee, P.Giuliano, and I.Kaya. "Where has all the money gone? Foreign aid and the quest for growth." 2007.

S.Chatterjee,G.Sakoulis, and S.Turnovsky. "Unilateral capital transfers, public investment, and economic growth." European Economic Review 47.6,2003,p.1077-1103.

S.Claessens, and E.Perotti. "Finance and inequality: Channels and evidence." Journal of comparative Economics 35.4,2007.p.748-773.

S.Dasgupta, and E.D.Cian. "The influence of institutions, governance, and public opinion on the environment: Synthesized findings from applied econometrics studies." Energy Research & Social Science 43,2018,p.77-95.

S.Deraniyagala,. Technical change and efficiency in Sri Lanka's manufacturing sector (Doctoral dissertation, University of Oxford),1994.

S.Devarajan,V.Swaroop, and H-fu Zou. "The composition of public expenditure and economic growth." Journal of monetary economics 37.2,1996.p.313-344.

S.F.AYADI, "Pollution Haven Hypothesis (PHH) in selected West African economies: A panel generalized method of moments (PGMM) approach." Journal of Economic Studies (JES) 17.1,2020.p. 68-78.

S.Feeny, "The impact of foreign aid on economic growth in Papua New Guinea." Journal of development Studies 41.6,2005,p.1092-1117.

S.Fels, and R.Zeckhauser. "Perfect and total altruism across the generations." Journal of Risk and Uncertainty 37,2008.p. 187-197.

S.G.Reddy, and C.Minoiu. "Development aid and economic growth: A positive long-run relation." 2006.

S.Galperti,and B.Strulovici. "A theory of intergenerational altruism." Econometrica 85.4,2017,p. 1175-1218.

S.Gumus, and S.Kayhan. "The Relationship between Economic Growth and School Enrollment Rates: Time Series Evidence from Turkey." Educational Policy Analysis and Strategic Research 7.1,2012.p.24-38.

S.Gupta, M.Verhoeven, and E.R. Tiongson. "The effectiveness of government spending on education and health care in developing and transition economies." European Journal of Political Economy 18.4,2002.p. 717-737.

S.H. Law,H.Boon Tan, and W. N. W. Azman-Saini. "Financial development and income inequality at different levels of institutional quality." Emerging Markets Finance and Trade 50.sup1,2014.p.21-33.

S.H.Salarilak, [et al.], "Association between the socio-economic indicators and infant mortality rate (IMR) in Iran." Iranian Journal of Public Health 38.4,2009.p.21-28.

S.Idrees, and Abu Bakar. "Foreign direct investment and social sectors development: a review." Pakistan Journal of Humanities and Social Sciences 7.1,2019.p.93-105.

S.Idrees, and N.Abu Bakar. "Accounting for the contribution of foreign direct investment in population health: a case study of Pakistan." International Journal of Research in Social Sciences 9.5,2019.p.14-35.

S.Islam, M. Munasinghe, and M. Clarke. "Making long-term economic growth more sustainable: evaluating the costs and benefits." Ecological Economics 47.2-3,2003,p.149-166.

S.J.Matusz, "Calibrating the employment effects of trade." Review of International Economics 6.4,1998,p. 592-603.

S.Jaffee,[et al.], The safe food imperative: Accelerating progress in low-and middle-income countries. World Bank Publications, 2018.

S.K,Gnangnon,. "Does multilateral trade liberalization help reduce poverty in developing countries?." Oxford Development Studies 47.4,2019.p.435-451.

S.K. Gnangnon,. "Effect of poverty on financial development: Does trade openness matter?." The Quarterly Review of Economics and Finance 82,2021.p. 97-112.

S.K.Gnangnon, "Does multilateral trade liberalization help reduce poverty in developing countries?." Oxford Development Studies 47.4,2019.p.435-451.

S.K.Kotásková, [et al.], "The Impact of Education on Economic Growth: The Case of India." Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis 66.1,2018.

S.K.Lenka, "Does financial development influence economic growth in India?." Theoretical & Applied Economics 22.4,2015.

S.Kalemli-Ozcan,. "Does the mortality decline promote economic growth?." Journal of Economic Growth 7,2002.p.411-439.

S.Klasen,. "Economic growth and poverty reduction: measurement and policy issues." 2005.

S.Kousar, Shazia,[et al.], "Impact of economic and green growth on poverty, income inequalities, and environmental degradation: a case of South Asian

economies." Environmental Science and Pollution Research 30.12,2023,p.35200-35213.

S.M.Taylor,. "Unbundling the pollution haven hypothesis." Advances in Economic Analysis & Policy 4.2,2005.

S.M.Zekarias, "The impact of foreign direct investment (FDI) on economic growth in Eastern Africa: Evidence from panel data analysis." Applied Economics and Finance 3.1,2016,p.145-160.

S.Makki, and A Somwaru. "Impact of foreign direct investment and trade on economic growth: Evidence from developing countries." American journal of agricultural economics 86.3,2004,p 795-801.

S.Mbah, and D.Amassoma. "The linkage between foreign aid and economic growth in Nigeria." International Journal of Economic Practices and Theories 4.6,2014,p.1007-1017.

S.Mohammed,[et al.], "Do government expenditure and financial development impede environmental degradation in Venezuela?." PloS one 14.1,2019. e0210255.

S.Muhammad,[et al.], "Effect of urbanization and international trade on CO2 emissions across 65 belt and road initiative countries." Energy 196,2020,p.117102.

S.N.Azizah, N.Ela Fauziyyah, and A.Qoyum. "Short-run and Long-run Relationship between Economic Growth, Foreign Direct Investment, Trade Liberalization and Education on Income Inequality: Evidence from Indonesia." Journal of Islamic Finance 8,2019.p.047-055.

S.Naz,[et al.]., "Moderating and mediating role of renewable energy consumption, FDI inflows, and economic growth on carbon dioxide emissions: evidence from robust least square estimator." Environmental Science and Pollution Research 26,2019,p.2806-2819.

S.Özokcu, and Ö.Özdemir. "Economic growth, energy, and environmental Kuznets curve." Renewable and sustainable energy reviews 72,2017.p.639-647.

S.P.Nathaniel,. "Ecological footprint and human well-being nexus: accounting for broad-based financial development, globalization, and natural resources in the Next-11 countries." Future Business Journal 7.1,2021.p.1-18.

S.Perez-Moreno,. "Financial development and poverty in developing countries: a causal analysis." Empirical Economics 41,2011.p.57-80.

S.R.Sutradhar, "The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka." International Journal of Economic Policy Studies 14.1,2020,p.275-295.

S.S.Akadiri,[et al.], "Examining the impact of globalization in the environmental Kuznets curve hypothesis: the case of tourist destination states." Environmental Science and Pollution Research 26,2019,p.12605-12615.

S.Saengchai, M.Mitprasat, and P.Horakul. "Judging quality of education from social paradigm in Asia: effect of civil liberties, regulatory quality and voice and accountability." Journal of Security and Sustainability Issues 9.J,2020.p.240-251.

S.Salam,[et al.] "The dynamic relation between technology adoption, technology innovation, human capital and economy: comparison of lower-middle-income countries." Interdisciplinary description of complex systems: INDECS 17.1-B,2019,p.146-161.

S.Saud, S.Chen, and A.Haseeb. "The role of financial development and globalization in the environment: accounting ecological footprint indicators for selected one-belt-one-road initiative countries." Journal of Cleaner Production 250,2020.p.119518.

S.Sellers, Samuel, K.L. Ebi, and J.Hess. "Climate change, human health, and social stability: addressing interlinkages." Environmental health perspectives 127.04,2019,p.045002.

S.Shahzad,[et al.], "Carbon emission, energy consumption, trade openness and financial development in Pakistan: a revisit." Renewable and Sustainable Energy Reviews 70,2017.p.185-192.

S.Smulders, "Entropy, environment, and endogenous economic growth." International Tax and public finance 2,1995,p.319-340.

S.Solarin,[et al.], "Investigating the pollution haven hypothesis in Ghana: an empirical investigation." Energy 124,2017.p. 706-719.

S.Sothan, "Foreign aid and economic growth: evidence from Cambodia." The Journal of International Trade & Economic Development 27.2,2018,p.168-183.

S.Srivastava, and S.Talwar. "Decrypting the dependency relationship between the triad of foreign direct investment, economic growth and human development." The Journal of Developing Areas 54.2,2020.

S.T,Bolarinwa, A.Adewale Adegboye, and X.Vinh Vo. "Is there a nonlinear relationship between financial development and poverty in Africa?." Journal of Economic Studies 48.7,2021.p.1245-1266.

S.U.Deraniyagala, "Prehistory and the indigenous peoples of Sri Lanka." 1994.

S.Ullah,M.Tariq Majeed, and Adiqa Kausar Kiani. "The Influence of Remittances on Education and Health Outcomes: an Analy-sis for South Asian Countries." Jinnah Business Review 2019.

S.Vallance, H.C. Perkins, and J.E. Dixon. "What is social sustainability? A clarification of concepts." Geoforum 42.3,2011.p.342-348.

S.Wang, B.Lu, and K.Yin. "Financial development, productivity, and high-quality development of the marine economy." Marine Policy 130,2021.p.104553.

S.Z.A.Rizvi, and M.Nishat. "The impact of foreign direct investment on employment opportunities: Panel data analysis: Empirical evidence from Pakistan, India and China." The Pakistan development review ,2009,p.841-851.

Sahoo, Pravakar, and Ashwani Bishnoi. "Role of Japanese official development assistance in enhancing infrastructure development in India." Contemporary South Asia 24.1 (2016): 50-74.

Shin, Inyong. "Income inequality and economic growth." Economic Modelling 29.5,2012.p. 2049-2057.

S-J, Wei, and Y.Wu. "Globalization and inequality: Evidence from within China."2001.

T. Beck, A.Demirgüç-Kunt, and R.Levine. "Finance, inequality and the poor." Journal of economic growth 12,2007.p.27-49.

T. Büthe, and H.V. Milner. "The politics of foreign direct investment into developing countries: increasing FDI through international trade agreements?." American journal of political science 52.4,2008.p.741-762.

T. Liu,[et al.], "Linking economic performance and sustainable operations of China's manufacturing firms: What role does the government involvement play?." Sustainable Cities and Society 67,2021.p.102717.

T. Pham,. "Income inequality and foreign aid." 2015.

T.B.Kavya, and S.Shijin. "Economic development, financial development, and income inequality nexus." Borsa Istanbul Review 20.1,2020.p.80-93.

T.B.Kavya, and S.Shijin. "Economic development, financial development, and income inequality nexus." Borsa Istanbul Review 20.1,2020.p.80-93.

T.Beck, "Financial dependence and international trade." Review of international Economics 11.2,2003,p. 296-316.

T.Beck, R. Levine, and N.Loayza. "Finance and the Sources of Growth." Journal of financial economics 58.1-2,2000,p.261-300.

T.C. Nguyen,. "Financial crises and income inequality." Available at SSRN 3879483,2021.

T.Gylfason, and G.Zoega. "Natural resources and economic growth: The role of investment." World Economy 29.8,2006,p.1091-1115.

T.Houweling, and A.E. Kunst. "Socio-economic inequalities in childhood mortality in low-and middle-income countries: a review of the international evidence." British medical bulletin 93.1,2010.p.7-26.

T.Kaulihowa, and C.Adjasi. "FDI and income inequality in Africa." Oxford Development Studies 46.2,2018.p.250-265.

T.M.Letcher, "Introduction with a focus on atmospheric carbon dioxide and climate change." Future energy. Elsevier, 2020. 3-17.

T.N.Sequeira, "Inflation, economic growth and education expenditure." Economic Modelling 99,2021.p.105475.

T.Singh,."Does international trade cause economic growth? A survey." The World Economy 33.11,2010.p.1517-1564.

T.Soubbotina, Beyond economic growth: An introduction to sustainable development. World Bank Publications, 2004.

T.Sunde, Tafirenyika. "Foreign direct investment, exports and economic growth: ADRL and causality analysis for South Africa." Research in International Business and Finance 41,2017,p. 434-444.

T.Tachibanaki, and S.Sakoda. "Comparative Study of Happiness and Inequality in Five Industrialized Countries." Advances in Happiness Research: A Comparative Perspective,2016, 97-118.

T.Tadesse, "Foreign aid and economic growth in Ethiopia: A cointegration analysis." The Economic Research Guardian 1.2,2011,p 88-108.

T.Tahir, and M.Tariq Majeed. "An Empirical Analysis of the Relationship between International Trade and Quality of Life." Empirical Economic Review 4.1,2021.p.1-32.

T.Tahir, and M.Tariq Majeed. "An Empirical Analysis of the Relationship between International Trade and Quality of Life." Empirical Economic Review 4.1.p.2021.p.1-32.

T.Tambunan, "The impact of foreign direct investment on poverty reduction: A survey of literature and a temporary finding from Indonesia. Consultative meeting on 'Foreign direct investment and policy changes: Areas for new research'." Bangkok, Thailand: United Nations Conference Centre, 2005.

T.Vavik, and M.M. Keitsch. "Exploring relationships between universal design and social sustainable development: some methodological aspects to the debate on the sciences of sustainability." Sustainable development 18.5,2010,p.295-305.

TN.Bui, . "How does the relationship between economic growth and bank efficiency? Evidence from Asean countries." International Transaction Journal of Engineering Management, and Applied Sciences and Technologies 11.7,2020,p. 49-58.

U.Al-Mulali,[et al.], "Exploring the relationship between urbanization, energy consumption, and CO2 emission in MENA countries." Renewable and Sustainable Energy Reviews 23.2013.p.107-112

U.Amakom, and C.Gerald Iheoma. "Impact of migrant remittances on health and education outcomes in sub-Saharan Africa." IOSR Journal of Humanities and Social Science 19.8,2014.p.33-44.

U.Bajra,. "The interactive effects of remittances on economic growth and inequality in Western Balkan countries." Journal of Business Economics and Management 22.3,2021.p.757-775.

U.Nair-Reichert, and D.Weinhold. "Causality tests for cross-country panels: a New look at FDI and economic growth in developing countries." Oxford bulletin of economics and statistics 63.2 ,2001,p.153-171.

U.Reinhardt,"Reorganizing the financial flows in American health care." Health Affairs 12.suppl 1,1993.p.172-193.

UN- ESCAP, Asia's landlocked developing countries: structural transformation, poverty reduction and financing for development. United Nations, 2019.

UNICEF. (2020). Policy brief: the impact of COVID-19 on children. New York: United Nations Children's Fund.

V.A, Nutassey, and S.Frimpong. "The role of corruption in financial development-foreign direct investment nexus in Sub-Saharan African countries." Int. J. Bus. Econ. Law 23.1,2020,p.333-342.

V.Kioupi, and N.Voulvoulis. "Education for sustainable development: A systemic framework for connecting the SDGs to educational outcomes." Sustainability 11.21,2019,p.6104.

V.Koechlin, and G.Leon. "International remittances and income inequality: An empirical investigation." Journal of Economic Policy Reform 10.2,2007.p.123-141.

V.Koechlin, and G.Leon. "International remittances and income inequality: An empirical investigation." Journal of Economic Policy Reform 10.2,2007.p.123-141.

V.L..Crisóstomo, F.S. Freire, and M.R De Oliveira Freitas. "Determinants of corporate sustainability performance–evidence from Brazilian panel data." Social Responsibility Journal 16.8,2020,p.1053-1072.

V.McBride,[et al.], "The potential of astronomy for socioeconomic development in Africa." Nature Astronomy 2.7,2018.p. 511-514.

V.Suriyakala,[et al.], "Factors affecting infant mortality rate in India: an analysis of Indian states." Intelligent Systems Technologies and Applications 2016. Springer International Publishing, 2016.

V.Tangcharoensathien,[et al.], "The political economy of UHC reform in Thailand: lessons for low-and middle-income countries." Health Systems & Reform 5.3,2019, p.195-208.

Vo, Duc Hong, et al. "What factors affect income inequality and economic growth in middle-income countries?." Journal of Risk and Financial Management 12.1 (2019): 40.

W. Cline, Trade and income distribution. Peterson Institute, 1997.

W. Dunaway, and I.Wallerstein. "Crisis, transition, and resistance movements: A conversation with Immanuel Wallerstein." Appalachian Journal,1999.p.284-305.

W. Woo, "The major types of middle-income trap that threaten China." WT Woo, M. Lu, JD Sachs, and Z. Chen, A New Economic Growth Engine for China. Escaping the Middle-income Trap by Not Doing More of the Same,2012,p 3-39.

W.A.Lewis, "Economic development with unlimited supplies of labour." ,1954,p. 139-91.

W.Bao,[et al.], "Real estate prices, inflation, and health outcomes: Evidence from developed economies." Frontiers in public health 10,2022.p.851388.

W.Beckerman, Wilfred. "Economic growth and the environment: Whose growth? Whose environment?." World development 20.4,1992.p.481-496.

W.Chinnakum,"Impacts of financial inclusion on poverty and income inequality in developing Asia." The Singapore Economic Review 68.04,2023.p.1375-1391.

W.Durongkaveroj, and T.Ryu. "Relative effects of trade liberalization on poverty: Evidence from Thailand." Progress in Development Studies 19.4,2019.p.264-283.

W.E.Rees, "Economic development and environmental protection: an ecological economics perspective." Environmental monitoring and assessment 86,2003,p. 29-45.

W.H.Tsen, "Granger causality tests among openness to international trade, human capital accumulation and economic growth in China: 1952–1999." International Economic Journal 20.3,2006.p.285-302.

W.Jiang, and X-Y, Liu. "Infant mortality and inflation in China: based on the mixed frequency VAR analyses." Frontiers in Public Health 10,2022.p.851714.

W.Lafferty, "From environmental protection to sustainable development: the challenge of decoupling through sectoral integration." Governance for sustainable development: The challenge of adapting form to function,2004,p.191-220.

W.McMahon, Walter. "Education and growth in East Asia." Economics of Education Review 17.2,1998.p.159-172.

W.O, Shittu,[et al.], "The impacts of foreign direct investment and globalisation on economic growth in West Africa: examining the role of political governance." Journal of Economic Studies 47.7,2020.p.1733-1755.

W.Yin, "Integrating Sustainable Development Goals into the Belt and Road Initiative: would it be a new model for green and sustainable investment?." Sustainability 11.24,2019,p.,6991.

X.Lin,[et al.], "Linking innovative human capital, economic growth, and CO2 emissions: an empirical study based on Chinese provincial panel data." International journal of environmental research and public health 18.16,2021,p. 8503.

X.Liu, and J.Bae. "Urbanization and industrialization impact of CO2 emissions in China." Journal of cleaner production 172.2018.p.178-186.

X.Liu, X.Zhang, and C-C Chao. "Foreign aid, leisure–effort choice, and economic growth." Economic Modelling 43,2014.p.435-438.

X.Wang, W.Yanhua, and X.Chunxin. "The impact of natural resource abundance on green economic growth in the belt and road countries: The role of institutional quality." Environmental Impact Assessment Review 98, 2023,p 106977.

X.Wu, A.Pan, and Q.She. "Direct and indirect effects of climate aid on carbon emissions in recipient countries." Journal of Cleaner Production 290,2021.p.125204.

X.Yang, L.Geng, and K.Zhou. "Environmental pollution, income growth, and subjective well-being: regional and individual evidence from China." Environmental Science and Pollution Research 27,2020.p.34211-34222.

X.Yao [et al.]. Free trade agreements and environment for sustainable development: a gravity model analysis. Sustainability, 11-3, 2019, p. 597.

Y. Alem, and G.Köhlin. "The impact of food price inflation on subjective well-being: Evidence from urban Ethiopia." Social indicators research 116,2014.p.853-868.

Y. Lu, and D.J. Treiman. "The effect of labor migration and remittances on children's education among blacks in South Africa." 2007.

Y.Altunbaş, and J.Thornton. "Does inflation targeting increase income inequality?." Journal of Post Keynesian Economics 45.4,2022.p.558-580.

Y.Bayar, and O.F.Ozturk. "Interaction between financial development and foreign direct investment inflows in Turkey." Scientific Cooperation for the Future in the Social Sciences, Usak, Turkey, September,2016,p22-23.

Y.Bilan,[et al.], "Impact of income distribution on social and economic well-being of the state." Sustainability 12.1,2020,p.429.

Y.Bilan,[et al.], "Impact of income distribution on social and economic well-being of the state." Sustainability 12.1,2020.p.429.

Y.Cho, and D.Newhouse. "How did the great recession affect different types of workers? Evidence from 17 middle-income countries." World Development 41,2013,p.31-50.

Y.Chuang,[et al.], "A longitudinal ecological study of the influences of political, economic, and health services characteristics on under-five mortality in less-developed countries." Health & place 23,2013.p.111-121.

Y.Keho, "The impact of trade openness on economic growth: The case of Cote d'Ivoire." Cogent Economics & Finance 5.1,2017,p.1332820.

Y.L.Zhang, et al. "Large contribution of fossil fuel derived secondary organic carbon to water soluble organic aerosols in winter haze in China." Atmospheric chemistry and physics 18.6.2018.p.4005-4017.

Y.Shi, S.Paul, and Sudharshan Reddy Paramati. "The impact of financial deepening on income inequality: Empirical evidence from Australia." International Journal of Finance & Economics 27.3,2022.p.3564-3579.

Y.Song, [et al.], "The effect of remittances and FDI inflows on income distribution in developing economies." Economic Analysis and Policy 72.2021.p.255-267.

Y.Subramaniam,[et al.], "The impact of microfinance on poverty and income inequality in developing countries." Asian-Pacific Economic Literature 35.1, 2021,p 36-48.

Yang, Jie, et al. "Driving forces of China's CO2 emissions from energy consumption based on Kaya-LMDI methods." Science of the Total Environment 711 (2020): 134569.

Z. Ahmed,Z.Wang, and S.Ali. "Investigating the non-linear relationship between urbanization and CO 2 emissions: An empirical analysis." Air Quality, Atmosphere & Health 12.2019.p.945-953.

Z. Khan, M.Ahmad, and A.Khan. "On the remittances-environment led hypothesis: empirical evidence from BRICS economies." Environmental Science and Pollution Research 27 2020.p.16460-16471.

Z. Lacheheb, and N.Wana Ismail. "The impact of remittance on economic growth in low and middle income countries." International Journal of Academic Research in Economics and Management 9.2 2020.p.61-70.

Z.Aloui, . "The impact of Foreign Direct Investment and the institutional quality on Welfare in Latin America and Sub-saharan Africa." 2019.

Z.Aloui,. "The impact of Foreign Direct Investment and the institutional quality on Welfare in Latin America and Sub-saharan Africa." 2019.

Z.Goschin, "Remittances as an economic development factor. Empirical evidence from the CEE countries." Procedia Economics and Finance 10,2014,p.54-60.

Z.Lacheheb,and N.W.Ismail. "The impact of remittance on economic growth in low and middle income countries." International Journal of Academic Research in Economics and Management 9.2.2020,p.61-70.

Z.Li,[et al.], "Urbanization-driven changes in land-climate dynamics: A case study of Haihe River Basin, China." Remote Sensing 12.17,2020,p.2701.

Z.Lv,and T.Xu. "Trade openness, urbanization and CO2 emissions: dynamic panel data analysis of middle-income countries." The Journal of International Trade & Economic Development 28.3,2019.p.317-330.

Z.Rahman, H.Cai, and M.Ahmad. "A new look at the remittances-FDI-energy-environment nexus in the case of selected Asian nations." The Singapore Economic Review 68.01.2023,p.157-175.

Z.van, J.Anton, and R.van Tulder. "Towards nexus-based governance: defining interactions between economic activities and Sustainable Development Goals

(SDGs)." International Journal of Sustainable Development & World Ecology 28.3,2021.p.210-226.

Z.Wang,[et al.], "Disposable masks release microplastics to the aqueous environment with exacerbation by natural weathering." Journal of hazardous materials 417,2021.p.126036.

Z.Wang[et al.], "Impact of remittances on carbon emission: fresh evidence from a panel of five remittance-receiving countries." Environmental Science and Pollution Research 28.37,2021.p.52418-52430.

Z.Xu, "Financial development, investment, and economic growth." Economic inquiry 38.2,2000.p.331-344.

Z.Yu,[et al.], "Re-examining the nexuses of communicable diseases, environmental performance, and dynamics of sustainable Development in OECD countries." Environmental Science and Pollution Research 29.43,2022.p.65771-65786.

Z.Yu,[et al.], "Re-examining the nexuses of communicable diseases, environmental performance, and dynamics of sustainable Development in OECD countries." Environmental Science and Pollution Research 29.43,2022.p.65771-65786.

ANNEX LIST OF COUNTRIES

MIC-FS		**UPMIC**	**LMIC**	
ALBANIA	INDONESIA	ALGERIA	ALGERIA	TUNISIA
ALGERIA	JORDAN	ANGOLA	ANGOLA	UKRAINE
ANGOLA	KAZAKHSTAN	BANGLADESH	BANGLADESH	VIETNAM
ARMENIA	KENYA	BENIN	BENIN	
AZERBAIJAN	LAO PDR	BHUTAN	BHUTAN	
BANGLADESH	LEBANON	BOLIVIA	BOLIVIA	
BELARUS	MALAYSIA	CAMBODIA	CAMBODIA	
BENIN	MAURITANIA	CAMEROON	CAMEROON	
BHUTAN	MEXICO	COMOROS	COMOROS	
BOLIVIA	MOLDOVA	CONGO, REP.	CONGO, REP.	
BOSNIA AND HERZEGOVINA	MOROCCO	COTE D'IVOIRE	COTE D'IVOIRE	
BOTSWANA	NAMIBIA	EGYPT, ARAB REP.	EGYPT, ARAB REP.	
BULGARIA	NEPAL	EL SALVADOR	EL SALVADOR	
CAMBODIA	NICARAGUA	GHANA	GHANA	
CAMEROON	NIGERIA	HONDURAS	HONDURAS	
COLOMBIA	PAKISTAN	INDONESIA	INDONESIA	
COMOROS	PARAGUAY	KENYA	KENYA	
CONGO, REP.	PERU	LAO PDR	LAO PDR	
COSTA RICA	PHILIPPINES	MAURITANIA	MAURITANIA	
COTE D'IVOIRE	SENEGAL	MOROCCO	MOROCCO	
ECUADOR	SERBIA	NEPAL	NEPAL	
EGYPT, ARAB REP.	SOUTH AFRICA	NICARAGUA	NICARAGUA	
EL SALVADOR	SRI LANKA	NIGERIA	NIGERIA	
GABON	TANZANIA	PAKISTAN	PAKISTAN	
GEORGIA	THAILAND	PHILIPPINES	PHILIPPINES	
GHANA	TUNISIA	SENEGAL	SENEGAL	
GUATEMALA	UKRAINE	SRI LANKA	SRI LANKA	
HONDURAS	VIETNAM	TANZANIA	TANZANIA	

MIC with seaports	HIC
ALGERIA	Chile
ANGOLA	Croatia
BANGLADESH	Cyprus
BENIN	Czech Republic
CAMBODIA	Equatorial Guinea
CAMEROON	Greece
COMOROS	HongKong
CONGO, REP.	Hungary
COTE D'IVOIRE	Ireland
EGYPT, ARAB REP.	Israel
EL SALVADOR	Japan
GHANA	Korea
HONDURAS	Kuwait
INDONESIA	Mauritius
KENYA	Poland
MAURITANIA	Portugal
MOROCCO	Qatar
NICARAGUA	Seychelle
NIGERIA	Slovakia
PAKISTAN	Spain
PHILIPPINES	
SENEGAL	
SRI LANKA	
TANZANIA	
TUNISIA	
UKRAINE	
VIETNAM	
ALBANIA	
AZERBAIJAN	
BOSNIA AND HERZEGOVINA	
BULGARIA	
COLOMBIA	
COSTA RICA	
ECUADOR	
GABON	
GEORGIA	
GUATEMALA	
JORDAN	
KAZAKHSTAN	
LEBANON	
MALAYSIA	
MEXICO	
NAMIBIA	
PERU	
SOUTH AFRICA	
THAILAND	