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UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

**IMPACT OF FINANCIAL INTEGRATION ON ECONOMIC DEVELOPMENT,
FOREIGN DIRECT INVESTMENT ON CO₂ EMISSIONS AND ECONOMIC
GROWTH ON FOREIGN CAPITAL INFLOWS**

By

ABUBAKAR ABDULLAHI

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirements for the Degree of Doctor of Philosophy**

November 2021

SPE 2021 48

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DEDICATION

To my Family members



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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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November 2021

Chairman : Associate Professor Saifuzzaman Ibrahim, PhD
School : Business and Economics

Financial integration, CO₂ emissions, economic development, and institutions are topical issues, which attract interest from academicians and policymakers. The last three decades have seen a significant increase in the degree of financial integration, and therefore cross-border financial flows. Economic development amongst countries has increased likewise. Also, FDI inflows amongst countries has increased substantially while carbon emissions still pose great global environmental challenge. Again, in spite of the low growth rate of GDP relative to the developing and emerging countries, developed nations account for about ninety percent of foreign capital inflows. This study has three specific objectives. The first objective investigates the impact of financial integration on economic growth using data from 2000-2015 in a sample of 95 developed and developing countries using the dynamic panel quantile technique. The results show that the impact of financial integration on economic development varies across income levels. The study finds that financial integration has a negative impact on economic development in low and high-income quantiles, but has no significant impact amongst middle-income quantiles. The second objective examines the impact of foreign direct investment on the emissions of carbon dioxide (CO₂) using data from 1995-2014 in a sample of 123 countries at different levels of economic development, using the bias-corrected least square dummy method. This results show that FDI has an asymmetry impact on CO₂ emissions. FDI reduces CO₂ emissions in high and upper-middle-income countries but increases the emissions in low-income countries. The results suggest that FDI flows into high and upper-middle-income countries and attracts cleaner technologies, while the low-income countries become the destination for dirty FDI. The third objective focuses on the moderating role of institutional quality on economic growth-foreign capital inflow nexus, using data from 2002-2015 in a sample of 163 countries, based on the bias-corrected least square dummy variable technique. The results show that economic growth, real income per capita, and foreign reserve have an impact on foreign capital inflow. The study finds the effect of economic growth on capital inflow to be conditional on institutional quality. Economic growth does not

influence foreign capital inflow at a low level of institutional quality but has a significant positive effect on capital inflow at median and high level of institutional quality.

Economic development is one cardinal global issues, which therefore emphasized the importance of financial integration to augment for domestic capital deficit necessary to realize the growth and developmental aspirations of countries. Therefore, we recommend that countries should pay consideration attention to its trade structure in order to neutralise the impact of financial integration and to promote growth and development. Another central global problem is that of global warming and therefore environmental sustainability through reduction of CO₂ emissions. The role of FDI has been stressed in promoting sustainable environment. Secondly, we recommend policy makers especially in developing countries should strengthen their institutions to ensure and enforce compliance to environmental regulations. Thirdly, we recommend that countries wishing to attract foreign capital should focus, amongst other things, on improving institutional variables.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

**KESAN INTEGRASI KEWANGAN KE ATAS PEMBANGUNAN EKONOMI,
PELABURAN LANGSUNG ASING TERHADAP PELEPASAN CO₂ DAN
PERTUMBUHAN EKONOMI TERHADAP ALIRAN MASUK MODAL ASING**

Oleh

ABUBAKAR ABDULLAHI

November 2021

Pengerusi : Profesor Madya Saifuzzaman bin Ibrahim, PhD
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Integrasi kewangan, pelepasan CO₂, pembangunan ekonomi dan institusi adalah isu topikal, yang menarik minat ahli akademik dan pembuat dasar. Dalam tiga dekad yang terakhir menyaksikan peningkatan ketara dalam integrasi kewangan, dan sekaligus aliran kewangan merentas sempadan. Pembangunan ekonomi di kalangan negara-negara maju dan membangun juga telah meningkat. Selain itu, aliran masuk FDI di kalangan negara telah meningkat dengan ketara dengan pelepasan karbon masih merupakan cabaran alam sekitar global yang hebat. Sekali lagi, walaupun kadar pertumbuhan KDNK yang rendah berbanding dengan negara yang sedang dan pesat membangun, negara maju menyumbang kira-kira sembilan puluh peratus daripada aliran masuk modal asing. Objektif umum kajian ini adalah untuk menyiasat hubungan antara integrasi kewangan, pembangunan ekonomi, FDI, pelepasan CO₂, institusi, dan aliran masuk modal asing dalam sampel panel negara maju dan membangun dari 1995-2015. Kajian ini mempunyai tiga objektif khusus. Objektif pertama menyiasat kesan integrasi kewangan ke atas pertumbuhan ekonomi dengan menggunakan data dari tahun 2000-2015 dalam sampel 95 negara maju dan membangun menggunakan teknik kuantil panel dinamik. Dapatan menunjukkan bahawa kesan integrasi kewangan ke atas pembangunan ekonomi adalah berbeza-beza mengikut tahap pendapatan. Kajian mendapati bahawa integrasi kewangan mempunyai kesan negatif ke atas pembangunan ekonomi dalam kuantiti yang berpendapatan rendah dan tinggi, tetapi tidak mempunyai kesan yang ketara dalam kalangan kuantil berpendapatan sederhana. Objektif kedua mengkaji kesan pelaburan langsung asing ke atas pelepasan karbon dioksida (CO₂) dengan menggunakan data dari 1995-2014 dalam sampel 123 negara yang mempunyai tahap pembangunan ekonomi yang berbeza, menggunakan kaedah Bias-Corrected Least Square Dummy Variable. Keputusan ini menunjukkan bahawa FDI mempunyai kesan asimetri ke atas pelepasan CO₂. FDI mengurangkan pelepasan CO₂ di negara berpendapatan tinggi dan sederhana atas tetapi meningkatkan pelepasan di negara berpendapatan rendah. Keputusan menunjukkan bahawa FDI mengalir ke negara berpendapatan tinggi dan sederhana atas dan menarik teknologi yang lebih bersih, manakala negara berpendapatan rendah menjadi destinasi FDI kotor (penyebab pencemaran). Objektif ketiga memfokuskan pada

penyederhanaan peranan kualiti institusi terhadap pertumbuhan ekonomi-perhubungan aliran masuk modal asing, menggunakan data dari 2002-2015 dalam sampel 163 negara, berdasarkan teknik Bias-Corrected Least Square Dummy Variable. Dapatan menunjukkan bahawa pertumbuhan ekonomi, pendapatan per kapita benar, dan rizab asing mempunyai kesan ke atas aliran masuk modal asing. Kajian mendapati kesan pertumbuhan ekonomi terhadap aliran masuk modal adalah bersyarat ke atas kualiti institusi. Pertumbuhan ekonomi tidak mempengaruhi aliran masuk modal asing pada tahap kualiti institusi yang rendah tetapi mempunyai kesan positif yang signifikan terhadap aliran masuk modal pada tahap median dan tinggi kualiti institusi.

Pembangunan ekonomi merupakan satu isu global utama, yang oleh itu menekankan kepentingan integrasi kewangan untuk penambahan defisit modal domestik yang diperlukan untuk merealisasikan aspirasi pertumbuhan dan pembangunan negara. Oleh itu, kami mengesyorkan agar negara-negara harus memberi perhatian kepada struktur perdagangannya untuk meneutralkan kesan integrasi kewangan dan untuk menggalakkan pertumbuhan dan pembangunan. Pemanasan global dan oleh itu kelestarian alam sekitar adalah satu lagi masalah utama yang dihadapi kebanyakan negara. Peranan FDI telah ditekankan dalam menggalakkan persekitaran yang mapan. Kedua, kami mengesyorkan pembuat dasar terutamanya di negara membangun perlu mengukuhkan institusi mereka untuk memastikan dan menguatkuasakan pematuhan kepada peraturan alam sekitar. Ketiga, kami mengesyorkan bahawa negara yang ingin menarik modal asing harus menumpukan, antara lain, untuk menambah baik pembolehubah institusi.

ACKNOWLEDGEMENT

All thanks are to Almighty Allah, the Beneficent, and the most merciful. Indeed, all praise be to Allah for the gift of life, good health, and for the knowledge to conduct this research work, for Allah is omniscience. I thank Allah for being able to weather the storms during the completion of this research. Certainly, Allah is Aleemun, Hakeemun, and all praises are for Him.

My special gratitude goes to my supervisors, and particularly to the Chairman of my supervisory committee. I cannot thank you enough for your patience, guidance, and constructive critique. The success of this work could not have been achieved without your insightful contributions. I shall remain eternally grateful.

My heartiest appreciation goes to my family. I say thank you to, especially to my wife, mother, siblings, and other family members who have supported me in prayers, morale, courage, finance, and other aspects. Knowing that I have your support provided me the courage and tenacity to withstand the challenges and focus on my goals. Your contributions to the success of this research work are immeasurable.

I must acknowledge my sponsors; Kaduna State University and Tertiary Education Trust Fund (TETFund). I thank you for finding me worthy of the scholarship, given the paucity of resources and the large number of applicants. I sincerely appreciate your sponsorship. I cannot conclude without acknowledging the support of my friends and colleagues. I thank you for your kindness and prayers towards the success of this work. To my colleagues, I appreciate our constructive discussions, insights, and alternative views in addressing problems while conducting this research.

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LIST OF ABBREVIATIONS

CO ₂	Carbon Dioxide
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
ICT	Information and Communication Technology
LSDVC	Bias Corrected Least Square Dummy Variable
R&D	Research and Development



CHAPTER 1

INTRODUCTION

1.1 Background

Financial integration is a topical issue, which attracts attention from academics and policymakers. The term financial integration is loosely used interchangeably with integration. The term integration in economics may be traced to the works of Heckscher (1931) and Jacob Viner (1950), which simply means close linkage and/or the removal of impediments to unification. This study focuses on financial financial integration, in which financial integration is defined as a phenomenon where financial markets of neighbouring economies or regions are closely connected and/or the removal of barriers to the free flow of capital and exchange (Baele et al, 2004; Chen and Qaung, 2014, Ibrahim et al, 2016). Integration may include transfers of financial technologies, information sharing, cross-border financial flows, and participation of foreign investors in the domestic financial market (Summers, 2000).

The world is becoming increasingly globalized, where restrictions to capital flows are significantly reduced. This may be attributed to three factors, namely (1) the improvement in information and telecommunication technologies that enables information sharing among countries within the shortest possible time (Mussa, 2000)., (2) the changes in investors' drive for profitable opportunities and changing investors' risk profile by accepting greater risks in return for profits (Summers, 2000), and (3) the changes in public policy and perception from financial seclusion and trade protection to economic and political integration (Biekpe and Motelle, 2013; Lane and Milesi-Ferreti, 2003; UNCTAD, 2001).

There are two major reasons for financial integration. First, the economic motive, which allows for pooling financial capital and risk from surplus spending units across countries and filling the gap between actual and needed financial capital to boost investment and productivity. Some countries have surplus capital and are searching for viable investment opportunities to invest their resources, while other countries have a deficit of financial capital to support their investment spending. Therefore, financial integration provides an opportunity for both players to realize their goals in a win-win situation. Second, financial integration brings countries closer and fosters stronger political alliances (Friedrich, Schnabe and Zettelmeyer, 2013).

It is important to note that the idea of complete financial integration is at best idealistic and may not be applicable in all circumstances. Although the financial sector is increasingly becoming integrated and globalized, political factors and market imperfection may hinder full financial market integration. Therefore, there may be some forms of legal, institutional, and administrative restrictions, in addition to market imperfection, that influence the absolute degree of financial integration.

Another issue relating to financial integration, which requires scrutiny is the flow of foreign capital (WDI, 2017). The flows of foreign capital have grown substantially and in response to the degree of financial integration. The flows of foreign capital is however disproportionate amongst countries/income levels. The flow of foreign capital to developed countries is substantial relative to low low-income countries (Lane and Melessi-Ferreti, 2017)

As argued, one of the primary motive for financial integration is to promote economic growth and development. Thus, most developing countries attempt to attract foreign capital in order to augment for the deficit in domestical capital/investment necessary for their growth and developmental potentials. One major driver (pull factor) of foreign capital is economic growth. This implies that countries with higher growth rate should more attract foreign investment. Another driver to the inflow of foreign capital is return on capital. Usually, most developing countries offer higher rate of returns on capital, given their capital labour ratios. That is; these countries are capital deficient but have abundant/excess labour supplies.

In spite of the fact that these indicators favour developing countries, statistics show that substantial proportion of global capital flows to developed countries (Lane and Melessi-Ferreti, 2017). This may imply that there may be other factors influencing the relationship between these pull factors and capital inflows amongst countries.

Specifically, Lucas argue that while foreign investors view economic growth and returns on capital when forming investment decision, at the same time they look at institutional quality and migration hand-in-hand the aforementioned pull variables prevailing in countries. Lucas puzzle helps explain the theoretical contradiction and the reason for disproportionate inflows of foreign capital by arguing that migration and the level of institutional quality may in fact influence the flows of capital amongst countries. This study however shall be restricted to the role of institutional quality on the relationship between foreign capital and and economic growth.

Thee third issue which demands global attention pertains problem relating to enviroental quality/sustainability. The impact of globl warming to nations' economies is substantial United Nations Environmental Protection Agency (2017). Given these problems, countries are making frantic effort to reduce the emissions of CO2 in order to improve environmental quality.

Attempts by countries to mitigate and reduce the impact of carbon emissions on the environment means that financial integration is at the center of the discussion. This is because there are empirical evidences, which linked financial integration directly to CO2 emissions and therefore environmental quality (Abdouli and Hammami, 2016; Shahbaz et al. (2015). Of particular importance is the role of FDI, which is a subset of financial integration, on reducing or increasing carbon dioxide emissions.

It is argue that FDI reduces CO2 emissions through R&D and by innovating environmentally friendly techniques, which are then shared amongst the recipient countries (Churchill, 2018; Abdouli and Hammami, 2016; Shahbaz et al., 2015). This implies that FDI my in fact be beneficial to the environment. A contrary argument however is that FDI increases the emissions of CO2 through increase in production and non-compliance to environmentally friendly rules, regulations, and processes (Kiviyiro and Arminen, 2014; Seker et al., 2015). This means that FDI has severe consequences on the environment. Thus, while discussion on global warming and enviornmentl quality is central to both national and global policy makers, the precise impact of FDI to environmental quality is dicey and may require deep investigation.

1.2 Financial Integration and Economic Development

Economic development is one cardinal goal of every country. In fact, key issue of the global sustainable goal is economic development. The vision for most countries is sustained economic development. Economic development is multi dimensional. However, economic development is represented by increase in real GDP per capita. This may be because that the first indicator of economic development is high real GDP per capita. Given this yardstick, there is significant growth in per capita income amongst countries world over.

The degree of cross-border financial flows has increased substantially over the last three decades. The global net FDI inflow in 1990 was 239 billion dollars, approximately the size of global GDP. By 2015, the global net FDI inflow has grown substantially to about 2.67 trillion dollars, equivalent to about three times the size of global GDP (WDI, 2017). The ratios of net FDI inflow to low, middle, and high-income countries in 2015 were 0.01 percent, 0.22 percent, and 0.77 percent, respectively. This may be a product of increased bilateral, multilateral, regional trade and financial agreements that allow cross-border capital flows among participating countries (Geldi, 2012; Vo, 2005).

Table 1.1: Gross capital inflow by income levels for 95 selected countries

	Low-income countries	Middle-income countries	High-income countries	Total
2000	35	2235	28878	31148
2001	35	2261	29115	31411
2002	39	2328	31995	34362
2003	42	2713	41301	44057
2004	46	3142	51069	54257
2005	45	3667	55473	59185
2006	45	4488	68263	72797
2007	47	6146	85581	91774
2008	51	5148	83711	88910
2009	58	6621	83863	90542
2010	62	8111	90086	98260
2011	69	8139	94930	103138
2012	85	9177	99058	108320
2013	103	9469	102519	112092
2014	114	9489	104007	113609
2015	118	8886	98544	107549

Note: All figures are in billion dollars.
(Source: Lane and Milesi-Ferretti, 2017)

Table 1.1 above shows gross capital inflow (in billion dollars) in 95 sampled countries based on income levels. We see a significant increase in gross capital inflows to these countries by 245 percent within the 16 years period. From the table, total capital inflow is about 31 trillion dollars. From that amount, low income countries received about 31 billion dollars, middle income countries received about 2.24 trillion dollars while high income countries received the largest share of about 29 trillion dollars. By 2015, gross capital inflow has increased substantially to about 107 trillion amongst these countries. In the same manner, low income countries received the least share of about 120 billion dollars, while middle income and high income countries received about 9 trillion and 98 trillion dollars respectively. The growth of capital inflow has been consistent, except for the year 2008 and 2015. These years are associated with global financial crises, which therefore reduces cross border capital flows. Further, Table 1.1 shows disproportionate flow of capital amongst countries based on their income levels.

The importance of financial integration to the global economy cannot be overemphasized. The increasing ratio of capital flows (both capital inflow and outflow) relative to the size of countries' GDP in the last two decades supported this fact (Figure 1.1). The ratio of capital flows to GDP consistently remained above 50 percent of GDP (except for 2007 and 2008). These years represent a period of the global financial crisis and therefore, a contraction in capital flows. The ratio of capital flows to GDP for high, middle, and low-income countries in 2000 were 63 percent, 61 percent, and 54 percent, respectively. By 2015, the ratio increased to 72 percent, 77 percent, and 90 percent (Lane and Milesi-Ferretti, 2017).

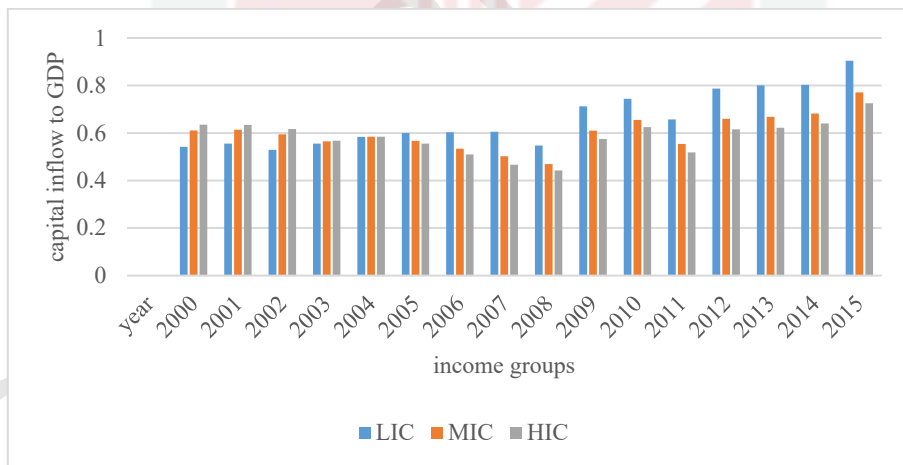


Figure 1.1: The ratio of capital flows to GDP based on income levels. LIC, MIC, and HIC denote low-income countries, middle-income countries, and high-income countries, respectively. LIC= 12 countries, MIC= 44 countries, HIC= 39 countries. To calculate the annual mean of the ratio of capital flows to GDP, the summation of ratios for all countries in an income group for a year is divided by the number of countries. (Source: Lane and Milesi-Ferretti, 2017)

Looking at the degree of financial openness among these countries, low-income countries are found to be more financially restrictive. Using the capital account openness index employed by Chinn and Ito (2017), high-income countries are found to be the most financially liberal nations with little capital control. Middle-income countries may have some financial restrictions. This is depicted in Figure 1.2 below. The degree of capital control may directly relate to the capital flows amongst countries and the degree of financial integration. This may be the reason why the high and middle-income countries received the greatest share of capital inflow, while capital inflow to low-income countries is marginal despite their huge economic prospects (both in resources and human capital). Besides the degree of capital account openness, other factors outside the scope of this study that may influence foreign capital flows include institutions, economic activities, financial sector development, infrastructures, and ICT, where most low-income countries at a disadvantage.

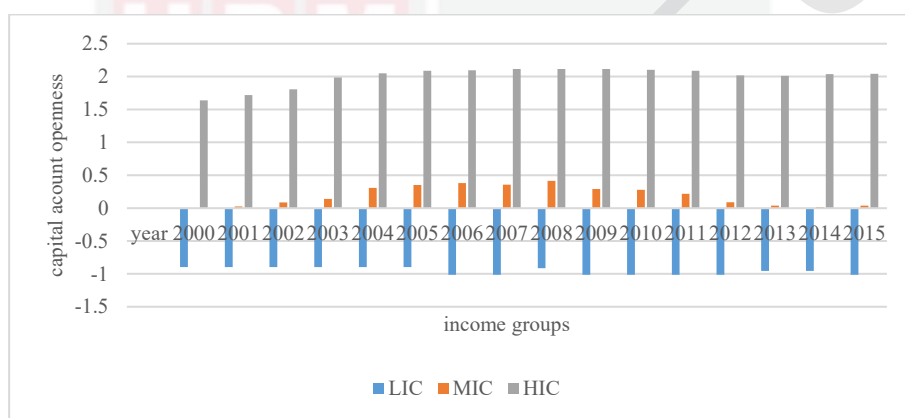


Figure 1.2: LIC, MIC, and HIC denote low-income countries, middle-income countries, and high-income countries, respectively. LIC= 12 countries, MIC= 44 countries, HIC= 39 countries. The annual mean for each income group is computed over the period under study. (Source: Chinn and Ito, 2017)

One major argument supporting financial integration is that it promotes economic development. While some countries can achieve their economic growth targets, quite a significant number of countries have yet to meet their growth potentials. This is particularly more evident among developing countries, where growth potentials are enormous, yet they are not close to realizing them. It may be argued that a shortage of financial capital in developing countries may hinder their economic development. Domestic investment in most developing countries is insufficient to meet their development targets. Hence, countries with a capital deficiency should strive to attract potential foreign capital/investment from abroad. Meanwhile, some developed countries have excess domestic savings and are looking for viable and profitable investment opportunities in other countries.

International financial integration provides opportunities for both parties. Financial integration removes restrictions to capital flows and allows cross-border borrowing and lending. Developing countries can borrow abroad to achieve their growth targets. FDI and portfolio investments are some means of financial liabilities (inflow) to developing countries. Capital-rich nations can invest their excesses abroad, particularly in developing countries, and further encourage economic growth and development at a global scale.

There are several arguments in support of financial integration. The first argument is that it promotes growth and development (Bekaert et al, 2005; Imbs, 2006; Masten et al., 2008; Matsuyama, 2008; Obstfeld, 2009). Financial integration allows cross-border lending and borrowing, from the surplus spending countries to deficit spending countries. International financial integration promotes access to funds to reduce the gap between actual and required investment spending, encourages risk-sharing, and provides an avenue for portfolio diversification. Chakraborty et al, (2016) and Shen, Lee, and Lee (2010) believed that these will lead to economic development.

The second argument supporting international financial integration is that it promotes financial sector stability and development (Babecky et al., 2010; Chakraborty et al., 2016). Through global integration, the financial sector adopts best global practices in terms of corporate governance, standard accounting practices, financial sector supervision, and regulations (Guiso et al; 2004; Schmukler, 2004). Foreign financial institutions and capital usually bring advanced technologies that lower the cost of borrowing (Schneider, 2001), better methods of risk assessment (Biekpe and Motelle, 2013), and increased competition as well as efficiency (Reddy, 2003; Vo and Daly, 2007). These will have a significant impact on financial sector development.

Third, it is argued that financial integration leads to improvement in institutional qualities (Muye and Muye, 2017). Foreign investment favours countries with strong institutions, which provide protection to private investors. Therefore, countries in a bid to attract foreign capital should consistently improve on their institutional qualities, such as control of corruption, enforcing law and order, and ensuring political stability. Foreign investment also promotes the transfer and adoption of institutional qualities to their host nations, including standardized accounting principles, corporate governance, and reduction in bureaucracy.

Despite the arguments in favour of financial integration, other studies highlighted its negative impacts. One of the arguments against international financial integration is that it may be a source for economic growth volatility and financial sector instability (Bailliu, 2002; Demirguc-Kunt and Detragiache, 1998; Gourinchas and Jeanne, 2013). Although it has been stated that financial integration may promote economic development by attracting financial capital from other countries, it can as well retard growth by being a conduit for capital outflow, especially from poor and corrupt developing nations (Aghion et al.; 2004; Aoki et al., 2006). This is true because sudden inflow and outflow of capital, especially in small countries without a developed financial sector and quality institutions, may lead to financial instability and undermines economic development (Biekpe and Motelle, 2013).

Another argument against financial integration is that it propagates financial and economic crises to other countries and magnifies the negative shock spillover effect (Jun and Maderistsch, 2014). Through financial market connectivity, a financial crisis from one country may easily spill over to other countries, known as the contagion effect. Thus, financial integration exposes financial markets across regions and the world to the immediate danger of international financial crisis (Forbes and Rigobon, 2002).

1.3 Foreign Direct Investment (FDI) and CO₂ Emission

Striving for a sustainable environment is a global issue that has led to the signing of international treaties, such as the Kyoto Protocol in 1992. The Kyoto protocol aimed at getting countries to commit to reducing greenhouse gas emissions and to ensure responsible utilization to protect the environment. Excessive carbon dioxide (CO₂) emissions are identified as the primary source of global warming and environmental degradation. Therefore, to address this problem, research on green technologies has gained interest among researchers and policymakers. Green technologies in production processes and innovations promote less polluting and are less harmful to the environment.

Robert, Thomas and Anthony (2012) defined environmental sustainability as the ability to provide for our present needs without jeopardizing the future needs and life support of future generations. In other words, environmental sustainability seeks to maintain indefinite global life support, without which human life would cease to exist. The life support system refers to air, water, food, energy, and other factors necessary for healthy living.

The United Nations Environmental Protection Agency (2017) reports that the carbon dioxide emissions from fossil fuel, industrial processes, forestry, and other land use accounts for 76 percent of global greenhouse gas emissions. The rest is accounted for by methane, nitrous oxide and F-gases (16 percent, 6 percent and 2 percent, respectively). The Electricity and Heat sector production accounts for the highest rate of greenhouse gas emissions by 25 percent. The Agriculture, Forestry and Other Land Use and Industry sectors follow with 24 percent and 21 percent, respectively. The Transport sector accounts for 14 percent, the sector for other energy sources contributes 10 percent and the Buildings sector contributes 6 percent of global CO₂ emissions.

It has been argued that production-related human activities are the major cause of CO₂ emissions (Al-mulali and Che Sab, 2012; Jalil and Mahmud, 2009). The drive for economic growth and development motivates countries to encourage large-scale production. Furthermore, trade liberalization has exacerbated the drive to produce in excess for export. The implication of this is increased CO₂ emissions and environmental degradation. Some empirical studies have established an inverse correlation between economic growth and CO₂ emissions, thereby implying a trade-off between growth and environmental quality (Lutfalipour, Falahi, and Ashena, 2010; Ocal and Aslan, 2013; Shahbaz and Feridun, 2012).

Thus, researchers and policymakers are now faced with the task of ensuring economic development, while at the same time, promoting environmental sustainability. Most countries now consider environmental impact assessment together with economic decisions or activities. One way to achieve the goal of sustainable development is through the adoption of greener technologies. It has been argued that research and development (R&D) is important towards improving environmental quality (Churchill, 2018). However, R&D may involve a huge financial outlay, which most developing countries do not have the financial capacity to undertake.

The FDI inflow is one way to mitigate the lack of finance for R&D among countries. It has been argued that FDI is instrumental in technological transfer between/among countries (Abdouli and Hammami, 2016; Shahbaz et al., 2015). Through FDI, environmental-friendly technologies may be transferred from developed countries to host countries, which may not have the financial capacity to invest in R&D. The problem of environmental sustainability is global in nature and therefore requires a global solution. Moreover, FDI can address the problem of environmental quality through technological diffusion that helps to reduce CO₂ emissions.

It is important to note that the negative consequences of environmental degradation are huge. In 2018, the United Nations reported that nine in ten persons living in urban areas inhale polluted air, resulting in poor health and poor quality of life. In 2012, the Massachusetts Institute of Technology reported that the economic cost of air pollution to the Chinese economy in 2005 is substantial, which amounted to about \$112 billion in productivity loss and medical bills. Therefore, sustainable economic development is most important in any economy.

Most countries now consider environmental impact assessment in making economic decisions. It is argued that R&D is important to improve environmental quality (Churchill et al., 2018). Research on environmental-friendly technologies requires huge financial costs. Most developing countries do not have sufficient capital resources to finance such research, and therefore are at a disadvantage in acquiring new technologies that support a sustainable environment. Even among developed nations with sufficient financial capital, profit incentives may discourage investment in R&D, given the risk involved and returns that may take longer to realize. This means that the problem of environmental degradation is also a concern to most developed countries, just as in the case of low-income developing countries.

Following the argument that FDI provides an avenue to solve the problem of sustainable economic development, available statistics revealed a mixed outcome. With a substantial increase in FDI inflow in the last two decades, one would expect that CO₂ emissions would reduce. However, statistics show an increase in both economic development and CO₂ emissions.

Table 1.2 in appendix 1 presents FDI inflow, per capita income, and CO₂ emissions amongst 123 selected countries. The table shows that the global average for CO₂ emissions and real GDP per capita have increased but FDI inflow has reduced. This may

indicate a positive relationship between income per capita and environmental quality. The global average for CO₂ emissions has increased by about one metric ton, from 4.0333 in 2000 to 4.9701 in 2014. The global average for real GDP per capita has increased by about \$1950, from \$8189 in 2000 to about \$10140 in 2014. However, the average FDI inflow recorded a significant decline. The share of FDI inflow to GDP fell by about 200 percent, from about 4.4 (percent of global GDP) in 2000 to about 2.3 (percent of global GDP) in 2014.

The mean CO₂ emissions, ratio of FDI inflow to GDP, and real GDP per capita for the 123 countries showed a similar pattern with the global average. Both CO₂ emissions and income per capita increased while the ratio of FDI inflow decreased. Among these countries, CO₂ emissions increased by 0.143 metric ton, from 4.836 in 2000 to 4.979 in 2014.

In general, the sample countries contribute greatly to global carbon dioxide emissions. It can be observed that the mean CO₂ emissions for these countries exceeds the global average in both 2000 and 2014. With respect to income per capita, the average for the 123 countries increased by \$2627, from \$12115 in 2000 to \$14742 in 2014. These figures exceeded the global mean for real GDP per capita. On the contrary, the ratio of FDI inflow to GDP declined marginally by 0.071, from 4.174 in 2000 to 4.102. Although FDI inflow showed a decline, FDI inflow to these countries is still substantial and surpasses the global average.

Further observation shows that (although with a reduction in CO₂ emissions) high-income countries are the highest CO₂ emitters, releasing 11.935 and 10.713 metric tons per capita in 2000 and 2014, respectively. Middle-income countries (both upper and lower-middle-income countries) are the second-highest contributors to global warming through CO₂ emissions. In middle-income countries, CO₂ emissions had increased between 2000 and 2014, from 3.539 and 1.051 metric tons per capita in 2000 for upper and lower-middle-income countries to about 6.588 and 1.474 metric tons per capita in 2014, respectively. For the same period, low-income countries show a little reduction in carbon emission, from 0.407 to 0.321 metric tons per capita.

With respect to the ratio of FDI to GDP, low and lower-middle-income countries recorded an increase in FDI inflow, from 1.461 and 0.862 in 2000 to 3.468 and 2.063 in 2014, respectively. Upper-middle and high-income countries experienced a fall in the FDI inflow to GDP ratio, from 2.928 and 4.742 in 2000 to 2.439 and 2.218 in 2014, respectively. All income groups recorded an improvement in real per capita GDP. Real GDP per capita for low-income countries increased from \$522 in 2000 to \$717 in 2014. Lower and upper-middle-income countries saw an increase in income from \$1107 and \$3789 in 2000 to \$1951 and \$7478 in 2014, respectively.

Table 1.2 reveals that most developed countries recorded a decline in CO₂ emissions, while CO₂ emissions in most developing countries increased between 1999 and 2015 (Figure 1.3). All high-income countries in the sample recorded a fall in CO₂ emissions, except Argentina, Chile, Hong Kong, Korea, Latvia, Lithuania, Norway, Oman, Panama,

Saudi Arabia, Trinidad and Tobacco, and Uruguay. The highest reduction in CO₂ emissions were recorded in Denmark, UAE, Italy, Ireland, and Spain (CO₂ emissions reduced by about 38, 34, 33, 32, and 30 percent, respectively). Other high-income countries with a significant reduction in CO₂ emissions include United Kingdom (29%), Portugal (29%), Cyprus (28%), Greece (27%), Belgium (25%), Czech Rep (24%), France (23%), Hungary (22%) and Switzerland (20%). The rest of the high-income countries in the sample recorded a reduction of below 20 percent in CO₂ emissions.

Interestingly, some non-high-income countries also recorded a fall in CO₂ emissions within this period, including Dominican Rep (10%), Gabon, (27%), Jamaica (33%), Jordan (1%), Kenya (6%), Lebanon (8%), Mexico (1%), Nigeria (12%), Romania (13%), Ukraine (23%), Uzbekistan (30%), Venezuela (3%), and Zimbabwe (31%). However, all countries with the top 20 highest recorded increase in CO₂ emissions between 1999 and 2015 (except Trinidad and Tobacco) are non-high-income countries, namely Mozambique (314%), Congo DR (266), Tanzania (185%), China (179%), Vietnam (170%), Benin Rep (163%), Mongolia (127%), Ethiopia (123%), Angola (122%), Nepal (119%), Georgia (117%), Bangladesh (116%), Congo Rep (95%), Myanmar (90%), Sudan (88%), Namibia (83%), Trinidad and Tobacco (81%), Kazakhstan (81%), Kyrgyz (74%), and Tajikistan (72%).

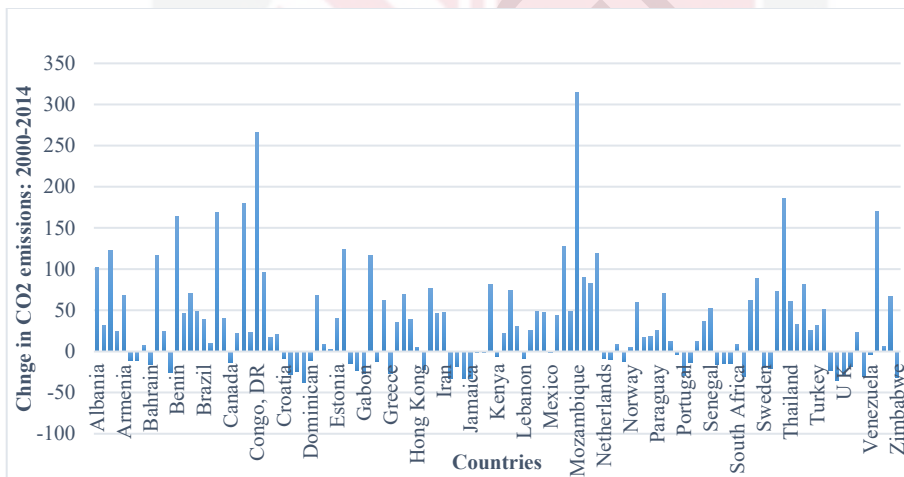


Figure 1.3: Percentage change in CO₂ emissions for selected 95 countries
(Source: WDI)

These observations look at CO₂ emissions in relation to FDI inflow. Figure 1.4 below presents the ratio of FDI inflow to CO₂ emissions over a 15-year period, from 2000 to 2014. First, the average of FDI and CO₂ emissions (15-year average) for each income group was calculated. Then the mean value of FDI is divided by the mean value of CO₂ emissions. This approach is to address the dissimilarity among the income groups in nominal values of FDI and CO₂ emissions.

Figure 1.4 shows that low-income countries have the highest ratio of FDI to CO₂ emissions (78%). This is followed by lower-middle-income countries (15%), upper-middle-income countries (5%) and high-income countries (2%). This implies that FDI to high and upper-middle-income countries is environmentally friendly and contributes to protecting the environment through technological transfer. Thus, it is likely that the pollution halo hypothesis may prevail in these countries. For low-income countries, dirty FDI (industrial flight) may be more prominent and pollute the environment.

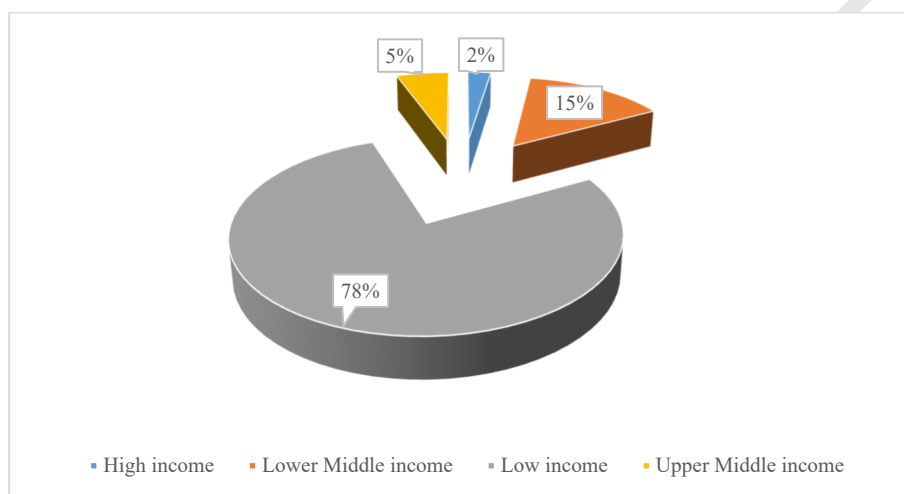


Figure 1.4: The ratio of FDI inflow to CO₂ emissions based on income levels, from 2000-2014

(Source: Author's computation based on data from WDI database)

Literature shows that FDI has both positive and negative effects on the overall economy. Some research works showed that FDI generates a positive impact while others argued to the contrary. The benefits of FDI include promoting economic growth and development. One major argument for FDI is that it augments the shortfall in domestic investment, which is necessary for growth. Due to the shortage of domestic investment, the targeted growth rate may be constrained. FDI fills this gap and leads to economic growth and development (Almfraji and Almsafir, 2014).

Second, FDI enables technological transfers and diffusion between countries (Djulius, 2017; Osano and Koine, 2016). It is argued that FDI from developed countries usually embodies the most recent and better technologies. These technologies are transferred to the host nations through FDI inflow. R&D requires huge financing and through FDI, these countries may have access to newer and greener technologies to be adopted by local industries.

Third, FDI supports the development of the financial sector in host nations (Boateng, Amponsah and Baah, 2017; Chee and Nair, 2010). Financial flows can increase the depth of the financial sector. Through FDI, the financial sector has a better access to relevant information and may adopt better management practices to become more efficient and stable.

Fourth, FDI leads to improvement and adherence to institutional rules (Buchanan, Le, and Rishi, 2012; Ullah and Arshad-Khan, 2017). Quality institutions are very important for FDI inflow. It requires a robust institutional quality. Studies showed that countries with better institutions attract FDI more than countries with weak institutions. It implies that countries seeking to attract FDI would have to improve their institutional quality, for example, through better internal policies on controlling corruption. A transfer of institutional policies from foreign firms operating in host countries can improve local institutional quality.

However, FDI may also generate negative externalities to the host economies. The negative impact of FDI may include the contribution to environmental degradation (Kilicarslan and Dumrul, 2017; Kocak and Sankgunesi, 2018). There is an indirect negative correlation between FDI and environmental quality through its impact on growth. Growth is generally argued to increase CO₂ emissions, which directly affect environmental quality. Therefore, the argument that FDI promotes economic growth is a counterargument against FDI. Further, the technology transfer argument may not necessarily hold in all cases, particularly for FDI to low-income countries. In some cases, FDI relocates to developing countries to avoid compliance with the strict environmental laws in their countries. This leads to increased CO₂ emissions in the host economies.

Second, FDI may lead to the crowding-out effect (Ahmed et al; 2015; Wu, Sun and Li, 2012). There is competition for economic space between domestic and foreign direct investments, which may not always be healthy for the economy. FDI may have a destabilizing effect on the economy of its host nations, particularly in smaller economies.

Therefore, while anticipating FDI to positively contribute towards sustainable growth through technological transfer, it is important to examine its role in environmental sustainability. There are two channels through which FDI may affect the host country's environmental quality (Cole, Elliott, and Zhang, 2011; Wang et al; 2013; Zarsky, 1999). The first channel is the Scale Effect, where it promotes economic growth through an increase in domestic consumption and production. The second channel is the Technical Effect, where FDI leads to the transfer and adoption of better techniques and processes in production, as well as the promotion and adoption of environmental law and regulation.

Many previous studies have discussed and supported the first channel, whereas the second channel is still being debated. If FDI leads to the adoption of environmental law and a greener process of production, environmental quality can be improved. However, if it is exploitative and aimed at taking advantage of the loose environmental laws and ineffective institutions in developing countries, then it may degrade the environment.

1.4 Economic Growth, Institution and Foreign Capital Inflow

Economic development has remained elusive to most developing countries due to a lack of financial capital to support their growth path. Actual domestic capital investment falls far short of the required capital investment necessary to achieve their economic growth target. Therefore, foreign capital investment is important to augment the deficit in domestic investment. Through financial integration, the foreign capital investment may flow to countries with insufficient domestic capital investment and help promote economic development.

Several developing countries are rich in human and material resources necessary for growth. Yet, most low-income countries are underdeveloped despite their great potential. One factor hampering the economic development in low-income nations is the lack of sufficient financial capital. Domestic investment in these countries is small and does not meet the required investment. On the contrary, several high-income countries have surplus financial capital and may be willing to invest abroad. Through FDI, foreign capital can flow from surplus nations to capital-deficit countries.

The theory argues that low-income developing countries attract more foreign capital relative to the developed countries. Developed nations are capital intensive and have high capital to labour ratio. On the contrary, developing countries are labour intensive with low capital to labour ratio. This implies that return on capital is higher in developing countries, and therefore attracts foreign capital

Lothian (2006) argued that the marginal product of capital is the main driver of capital flows among countries. Foreign capital will flow to countries with higher marginal product of capital that implies greater return on investment. The marginal product of capital among capital-deficient countries, especially developing countries, is higher than the developed countries. Therefore, more capital should flow to the developing countries.

Statistics however showed evidence to the contrary (Lane and Melessi-Ferretti, 2017). More foreign capital is found to flow to the developed countries than to developing countries. This is contrary to theoretical postulation, a situation referred to as the “Lucas puzzle”. The neoclassical theory was founded on the assumption that the marginal product of capital is the primary determinant of foreign capital flows, while all other variables are held constant (Lothian, 2006). However, the reality is that these factors do not remain constant. These factors change at the same time and must be studied concurrently. Therefore, more studies should focus on factors influencing the inflow of foreign capital among countries. Table 1.3 in appendix 2 shows the foreign capital inflow and institutional quality variables in 163 selected countries.

It may be argued that the sample consists of heterogeneous countries, especially with respect to the size of their economy. Expecting high-income countries to receive more capital inflow due to the size of their GDP, the sample considers the economic size and capital inflow by GDP. The ratio of capital inflow to GDP is presented in Figure 1.5

below. The table shows that most high-income countries (except Saudi Arabia, UAE, Kuwait, Japan, Korea, Uruguay, Israel, and Andorra) have an index of more than 1, where capital inflow to these countries is substantially larger than their GDP. In some instances, the capital inflow to GDP ratio is more than 10 times the size of some countries' GDP; Luxembourg (149), Malta (26), Ireland (19), Cyprus (14), and Hong Kong (11). Most high-income countries with a ratio of capital inflow to GDP of less than one are capital-exporting nations, where capital outflow is substantial relative to their inflow.

On the contrary, the ratio of capital inflow to GDP for most developing countries is less than one, implying that capital inflow to these countries is less than their GDP. Only a few developing countries have received capital inflow more than the size of their GDP. For instance, Azerbaijan, Liberia, Congo rep, Somalia, Kazakhstan, Kyrgyz, and Ukraine are resource-rich countries that have capital inflow to GDP ratio of more than 1. Armenia, Bulgaria, Cambodia Georgia, Jordan, Lao, Lebanon, Macedonia, Malaysia, Moldova, Mongolia, Montenegro, Papua New Guinea, and Serbia enjoys the advantage of geographical proximity to other high income/developed countries and benefit from such spillover effect. Nonetheless, most high-income countries are still the preferred destination for capital inflow, while developing countries receive less capital inflow relative to their GDP.

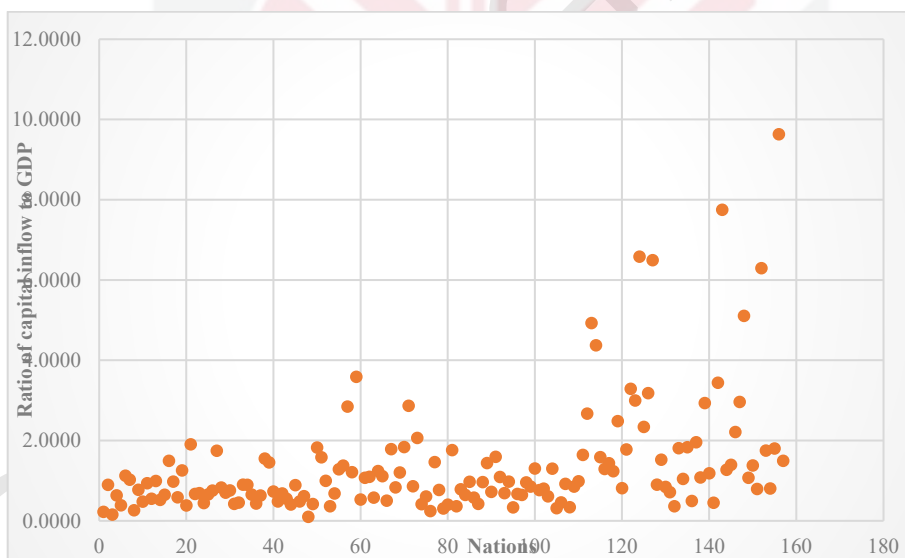


Figure 1.5: The mean ratio of capital inflow to GDP among 163 developed and developing countries, from 2010-2015

(Source: Lane and Melessi-Ferretti (2017). The ratio of capital inflow to GDP is based on the author's computation.)

Another approach is to look at the nexus between institutional quality and foreign capital inflow. Figure 1.6 to Figure 1.8 present the 6-year average of capital inflow and institutional variables among grouped based on income levels, from 2010-2015. Figure

1.6 represent high-income, Figure 1.7 represent middle income countries, while Figure 1.8 represent low income countries.

From Figure 1.6, it shows that almost all high income countries have sound institutions. This correspondingly, show the ratio of foreign capital inflow to GDP to be greater than 1 (except for Saudi Arabia, Japan, South Korea, New Zealand, Oman, UAE, Israel, and Uruguay). This indicates substantial flow of foreign, at least to an extent which is greater than these countries economy. For instance, foreign for capital inflow to Cyprus and Hong Kong is almost fourteen (14) and eleven (11) times the size of their GDPs respectively. Countries like Japan and UAE, which have good institutions yet with low level of capital inflow are exporters of capital. That is, their capital assets are greater than their liabilities. In the case of Saudi Arabia, Kuwait, Oman, and New Zealand, Figure 1.6 shows evidence of weak institutions relative to most high income countries. While Israel have strong institutions in terms of rule of law, regulatory quality, and corruption control but very weak in terms of political stability. This therefore means rational investors would think twice before investing in Israel.

Figure 1.7 shows that the middle income countries receive fair share of capital inflow. The ratio of capital inflow to GDP is less than one (1) in most cases but approaches unity. This means that capital inflow to these countries is close to the size of GDP of these countries. Further observation shows that institutional variables are fairly around fifty percent. This may explain the reason for size of foreign capital inflow to these countries. There are few countries with significant flow of foreign capital. For instance, Congo Republic and Kazakhstan with a ratio of almost two (2) and one (1) are rich in resources and therefore may explain the reason for significant capital inflow. Other countries such as Armenia, Cambodia, Bulgaria, Dominica, Georgia, Lao, Cambodia amongst others may have enjoyed success in attracting foreign due to their close proximity to US, Europe, China etc. others such as Malaysia, Belize, Seychelle, Maldives are great tourist attraction which therefore encourage in the inflow of foreign capital into this sector.

Figure 1.8 shows that all low income countries (except Rwanda) have weak institutions. The institutional variables in Rwanda are fair, which may explain for the modest inflow of foreign capital of about forty percent of GDP. On the other hand, Liberia, Sierra Leone, Sudan, and Democratic Republic of Congo are rich in natural resources which may explain the reason for the substantial flow of foreign capital relative to other low income countries. Other countries such as Mozambique, Madagascar, and Gambia attract tourists. On a general most low income countries despite their growth of GDP are low in terms of institutional quality, which may explain the reason for the marginal inflow of foreign capital.

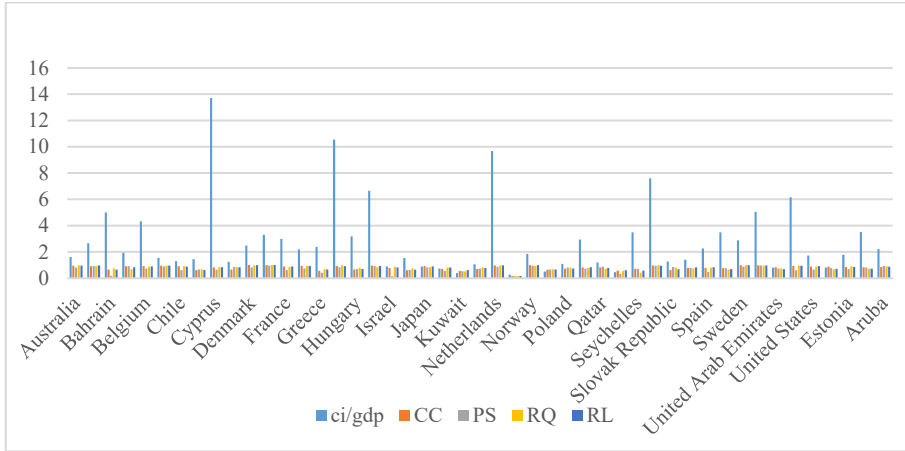


Figure 1.6: Average ratio of capital inflow to GDP and institutional variables among 53 high-income countries. ci/gdp, cc, ps, rq, rl represent the ration of capital inflow to GDP, control of corruption, political stability, regulatory quality, and rule of law respectively.

(Source: Institutional data collected from WGI, while GDP and capital inflow data are obtained from Lane and Melessi-Ferretti (2017). The ratio of capital inflow to GDP is based on the author’s computation.)

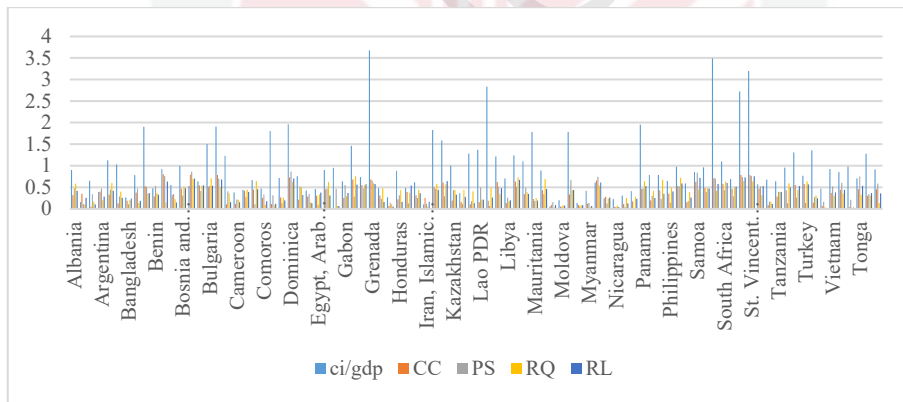


Figure 1.7: Average ratio of capital inflow to GDP and institutional variables among 90 middle-income countries. ci/gdp, cc, ps, rq, rl represent the ration of capital inflow to GDP, control of corruption, political stability, regulatory quality, and rule of law respectively.

(Source: Institutional data collected from WGI, while GDP and capital inflow data are obtained from Lane and Melessi-Ferretti (2017). The ratio of capital inflow to GDP is based on the author’s computation)

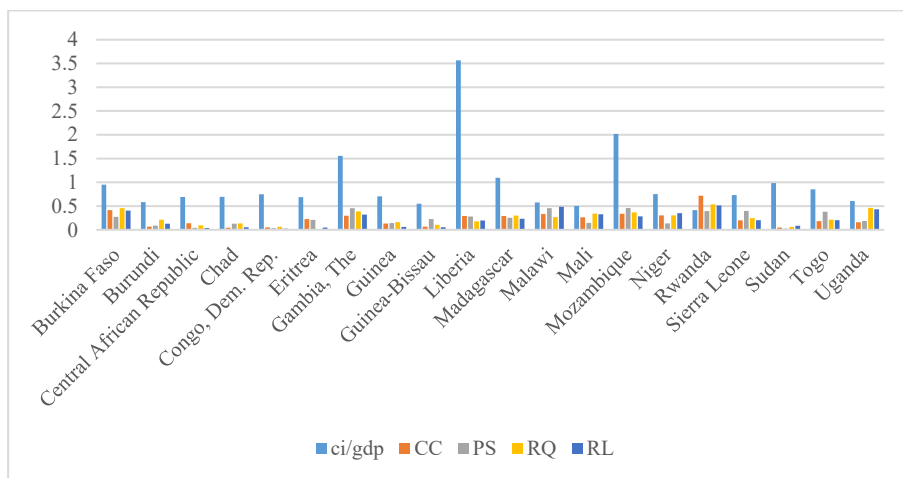


Figure 1.8: Average ratio of capital inflow to GDP and institutional variables among 20 low-income countries. ci/gdp, cc, ps, rq, rl represent the ration of capital inflow to GDP, control of corruption, political stability, regulatory quality, and rule of law respectively.

(Source: Institutional data collected from WGI, while GDP and capital inflow data are obtained from Lane and Melessi-Ferretti (2017). The ratio of capital inflow to GDP is based on the author's computation)

1.5 Problem Statement

1.5.1 Financial integration and economic development

The degree of financial integration has increased significantly in the last two decades, which leads policymakers and researchers to devote more time and resources to study its impact on economic development. Although several studies have investigated the relationship between financial integration and economic development, there is no consensus among scholars on the overall impact (Batuo, Mlambo, and Asongu, 2018; Ibrahim et al; 2016; Villareal and Bielma, 2017; Yao and Zheng, 2014). This calls for further studies to investigate the impact of financial integration on economic development through various approaches.

Financial integration affects exchange rate through capital account balance of countries, thereby affecting economic development. While foreign capital flow may be beneficial especially to capital deficient countries, it may lead to fluctuations in exchange rate which therefore affects trade. Thus, financial integration or capital inflow may promote economic development particularly in import based countries. That is, it will lead to exchange rate appreciation which will lower import price, hence promoting economic welfare and development. On the contrary, export based economies will be affected adversely by capital inflow. This is because capital inflow will lead to exchange rate

appreciation which undermines export. Thus, financial integration leads to exchange rate volatility, whose impact on economic development is indeterminate.

Previous studies adopted mean estimators to investigate the nexus between financial integration and economic development (Nasreen et al., 2020; Kandil et al., 2015; Ahmed, 2016). Some scholars argued that these methods may be difficult to apply, especially in a panel consisting of a heterogeneous sample. The major issue with panel means estimators is that the mean of the parameter estimates may not truly reflect the entire characteristics of the sample observations in the study. In other words, parameter estimates from mean estimators are at best the average (i.e the relationship between explanatory variables on the conditional mean of the dependent variable). However, this does not reflect entire sample, especially when there are extreme values which may skew the results. For instance, our sample consist of heterogeneous observations. Thus, the mean value may hide other observations in the study. There is a need to apply a methodology that can isolate the impact of financial integration on economic development specific to countries for a better policy implication.

Most importantly, at the heart of researches is policy application. Given that the impact of financial integration on economic development may be dependent on the structure of the economy, it is therefore logical to argue that a general policy may not be applicable to all countries. Thus, there is need for a method which will capture this and therefore have direct policy application. This may be some of the shortcomings of past studies. For instance, standard OLS measure the conditional mean of the dependent variable. This may not have direct policy application, particularly where the sample contains outliers, yet important in the study too.

Ibrahim et al. (2016) attempted to correct this problem by using the quantile regression in a cross-sectional setting. While this method can isolate the impact specific to countries based on their level of economic development, a cross-sectional study is limited to a single point in time, similar to a snapshot. Information over the years, both pre and post-snapshot are required to examine a cause-and-effect relationship. Therefore, cross-sectional studies may not be suitable for cause-and-effect studies. Most macroeconomics variables are also dynamic and lagged information is important in determining a cause-and-effect relationship.

Thus, although the degree of financial integration has increased substantially in the last 20 years, which attracts the attention of policy makers, yet there is no general agreement amongst scholars and policy makers as to its impact on economic development. It is argue that the impact of financial integration on economic development may depend on the structure of an economy. One major issue therefore is policy applicability since it has been argue that the impact of financial integration on economic development may vary amongst countries. This therefore calls for a methodology which addresses this problem.

1.5.2 FDI and CO₂ emissions

Despite the argument that FDI contributes to reducing CO₂ emissions, there is no supportive consensus among scholars. Theoretically, the FDI may have a mixed effect on environmental quality. Previous studies have reported mixed empirical results. Some studies argued that FDI reduces CO₂ emissions and improves environmental quality through technological transfer and diffusion (Nepal et al., 2021; Jebli et al., 2019; Waqih et al., 2019; Abdouli and Hammami, 2016). However, others argued that FDI increases CO₂ emissions and degrades the environment (Mavikela and Khobia, 2018; Zhang and Zhang, 2018; Shahbaz et al., 2020; Bakhsh et al., 2017; Shahbaz et al., 2018). These apparent contradictions and lack of consensus amongst scholars call for further research into the relationship between FDI and CO₂ emissions.

Past empirical studies reveal evidence in support of the pollution haven hypothesis and employed samples drawn from developing countries and low-income countries (Ahmad et al., 2020; Zameer et al., 2020; Sarkodie and Strezov, 2019; Mike and Kardaşlar, 2018). On the other hand, some studies with samples drawn from developed, high-income and middle-income countries show evidence to support the pollution halo hypothesis (Udemba and Yelsintas, 2021; Mike and Kardaşlar, 2018). Therefore, it is important to explore the role of income level and economic development that affects the relationship between FDI and CO₂ emissions. Countries' income level may define their priorities, particularly their policy choices between economic growth and environmental sustainability. The priority for most low-income countries would be economic growth and most times without due regards for its impact on the environment. On the other hand, most developed countries attach significant importance to environmental quality just as economic development. This may imply that FDI to low-income countries may not be as environmentally friendly as developed countries. Thus, the impact of FDI on CO₂ emissions may be influenced by countries' income levels.

The choice of estimators is another issue confronting past studies with large individual units relative to time observations. Primarily, Belaid and Abderrahmani (2013), Ozturk (2010) and Smyth (2013) argued that one major reason for disagreement among scholars may be related to the methodological problem with the data set. While panel studies contain more information, they inherit the problems peculiar to both time series and cross-sectional studies. GMM is argued to be a better estimator in addressing most of these problems. However, one shortcoming of GMM is that its parameter estimates may be biased. Nickel (1981) argued that the parameter estimates of most dynamic panel studies are biased due to finite time observations. This is also common with GMM (although robust and efficient) due to its small time dimension. A large time observation in GMM may lead to an instrumental variable proliferation, which would cast doubt on the efficiency of the estimation. The bias-corrected Least Square Dummy Variable (LSDVC) estimator has been found to perform better than the GMM and other dynamic panel estimators. More importantly, it reduces the bias in GMM due to finite time series observations by allowing for larger time observations. The superiority of this method has been confirmed through Monte Carlo simulations (Bun and Kiviet, 2003; Dang et al., 2015; Judson and Owen, 1999; and Kiviet, 1995).

Issue of global warming and therefore CO₂ emissions is at the centre of discussion amongst policy makers' world over. FDI inflows has recorded significant growth over the years. Theoretically, the impact of FDI on carbon emissions is undefined which necessitate calls for investigation. We postulate that the effect of FDI on carbon dioxide emissions may depend on level of income, and therefore economic growth. This may imply that impact of FDI to CO₂ emissions may in fact be affected by level of economic development, which may affect consciousness to environmental issues. Furthermore, past panel studies employed methods which generate bias estimate. Therefore, there is need to correct this problem by employing the Bias Corrected Least Square Dummy Variable method, which has been argued to generate parameter estimates which are least bias and are consistent relative to other dynamic panel techniques.

1.5.3 Institutions, economic growth and foreign capital inflow

The significance of foreign capital in economic growth and development has been emphasized. The neoclassical theory acknowledges the importance of capital accumulation in economic development. Shortage of domestic investment to meet developmental aspirations has forced countries to rely on foreign capital to augment for in capital deficit. Therefore, there is a need for studies to focus on the determinants of foreign capital inflow.

Economic theory suggests that the marginal product of capital is the primary determinant of foreign capital inflow. It argues that return on capital is the driver of capital flows among countries. Hence, countries with a higher return on capital (marginal product of capital) will attract more foreign capital inflow. Developing countries are more labour intensive, therefore, have a higher rate of marginal product of capital. Developed countries are more capital intensive and have a lower return on capital. This results in more foreign capital inflow to developing countries.

However, statistical evidence contradicts this theoretical expectation. A significant amount of foreign capital inflow is found to be directed to the developed countries, whereas developing countries receive only a small fraction of foreign capital. Lucas (1990) argued that differences in institutional quality are among the reasons that justify why foreign capital does not flow to developing countries. Data on institutional quality show that most developed countries have good institutional indexes, while developing countries are synonymous with weak institutions. Thus, studies should examine the role of institutional measures on foreign capital inflow amongst countries.

Studies on institutional quality and foreign capital flows are scarce and with mixed results (Ajide, 2013; Cebula and Mixon, 2012; Globerman et al., 2003). Some empirical literature found strong positive nexus between institutions and foreign capital inflow (Schneider, Matei, and Sattar, 2022; Islam et al., 2020; Kunel and Yelta, 2017; Pinar and Volkan, 2018), while others such as D'Agostino et al., (2016) Tsanana et al., (2016) Chang and Hao, (2017) Cieřlik and Goczek, (2018), and Schneider, Matei, and Sattar, (2022) argued that institutional variables do not significantly affect foreign capital

inflow. The apparent lack of consensus among scholars calls for re-examining the relationship between institutional quality and foreign capital flows.

In addition, past studies that have examined the relationship between institutions and foreign capital flows may have issues with their model specification and interpretation. Some previous studies considered institutions as an important factor that affects capital flows. Contrarily, institutions should be viewed in relation to macroeconomic fundamentals that affect capital inflow. Therefore, modelling such a relationship may require interacting the institutional factor with other macroeconomic variables, such as economic growth, to examine how growth attracts foreign capital given the level of institutional quality. Most studies that took into account the role of institutions on capital flows may have misspecified their models, such as the multiplicative interaction between institutions and macroeconomic fundamentals or inferential errors (interpreting marginal effect). Brambor, Clark, and Golder (2006) showed that most empirical studies are subject to model misspecification and/or inferential errors. This study addresses these problems.

In conclusion, while theory suggest that economic growth attracts foreign capital, statistical evidences reveal otherwise where developed countries with lower growth rate of GDP seem to attract most foreign capital while developing countries with higher growth rate receive negligible amount of foreign capital. It thus show that the impact of economic growth on capital accumulation may be conditional on other factors. Lucas argued that institutional factors moderate the relationship between growth and capital accumulation. Some past studies are confronted with the problem of model specification and interpretation when modelling relationship of this nature. We address this problem by specifying and interpreting our models as argued by Bambor et al., (2006).

1.6 Objective of the Study

The general objective of the study is to investigate the relationship between financial integration, economic development, FDI, CO₂ emissions, institutions, and foreign capital inflow in a panel sample of developed and developing countries from 1995-2015. The specific objectives of the study include;

1. To investigate the impact of financial integration on economic development in a sample of 95 developed and developing countries, from 2000-2015.
2. To examine the impact of FDI on CO₂ emissions in a sample of 123 developed and developing countries from 2000-2014.
3. To analyze the impact of institutions on foreign capital-economic growth nexus in a sample of 163 developed and developing countries from 2002-2014.

1.7 Research Questions

1. Does financial integration promote economic development?
2. Does FDI reduces CO2 emissions?
3. Does institutional quality moderate the impact of economic growth on foreign capital inflow?

1.8 Significance of the Study

1.8.1 Financial Integration and economic development

This research work is important in many ways. First, while there are several studies on the relationship between financial integration and economic development, scholars are divided on the impact of financial financial integration on economic development. Thus, lack of consensus among researchers leads to the need for further re-examination of the nexus between financial integration and economic development. This study hopes to provide an insight into the impact of financial integration on economic development among a heterogeneous panel sample of developed and developing nations.

Second, another important contribution of this study is in respect of policy application. One essence of research is to generate policy from the outcome of the research which may have direct or indirect bearing on the economy. This study allows for specific outcomes given the heterogeneous sample, and therefore may have different policy outcome specific for each individual depending on their income level. Past panel studies which adopt panel mean estimates which therefore means that policy conclusion may sometimes be misleading, particularly since the parameter mean estimates may not reflect the entire sample especially when the data consist of heterogeneous individuals. This study however corrects for this limitation by adopting a dynamic panel quantile method. This techniques generates results specific to quantiles of the dependent variable. This mean that we can draw policy outcome specific to various quantiles.

Third, the sample consist of both developed and developing countries. This may particularly as it has be argue that effect foreign capital accumulation may in fact affect economic development through capital account balance and exchange rate, which in the end impact trade. This means that countries will be able to make both short term and long term policies. For instance, taking Nigeria as a case study which is import based economy. Amongst the implication of such imported inflation amongst others. Given the desire to grow and therefore the need for foreign capital inflow to augment the scarce domestic financial resources, financial integration may ensure the realization of this goal. Through financial integration, Nigeria can attract foreign capital which leads exchange rate appreciation and therefore cheaper imports. This will increase economic welfare. Again, through FDI, it can develop its export market and or drive its import substitution

policy for the over all benefit of the economy. However, knowing the dynamics of the impact of financial integration on economic development, Nigeria's should be aware that this policy may have be reviewed in the long run as the structure of economy changes.

Fourth, another area where this study contributes to knowledge is in the methodology used. Most past studies used mean estimators to investigate the relationship between financial integration and economic development. The limitation associated with these estimators is that the mean value does not necessarily reflect the true sample. This poses a conundrum, particularly, in the policy application. This study corrects the shortcoming by using the panel quantile regression to investigate the impact of financial integration on economic development. This method can isolate the impact of financial integration on economic development specific to countries depending on the information criterion. Thus, this method may be relevant to policy makers as the results are specific to quantile levels of interest to them. Another strength of the methd is that the reaserch does not need to worry on the problems of outliers, heteroscedasticity, and non-normal data, because the method is specifically suited for panel samples which may be prone to these problems. This method is useful for researchers who are interested in classifying the countries and study the direct policy applicability.

Final, the study past studies adopted the quantile regression method in a cross-sectional setting. The limitation of this method is that it is a snapshot and may not capture the information required to examine the cause-and-effect relationship. Determining the cause and effect nexus requires lag information, which is not available in cross-sectional studies. Further, most macroeconomic variables are dynamic, which are influenced by lag information. Therefore, time series data are needed when investigating the cause-and-effect relationship. This study utilizes a dynamic panel model and addresses the limitation associated with cross-sectional studies.

1.8.2 FDI and CO₂ emissions

The importance of this research work cannot be overemphasized. First, no consensus has been achieved from past studies that investigated the relationship between FDI and CO₂ emissions. This implies that FDI may generate positive or negative externalities on the environment depending on certain conditions. It is necessary to find these conditions that influence the relationship between FDI and CO₂ emissions. One of such factors is believed to be the stage of economic development. While it may be argued that most countries recognise the importance of a sustainable environment, they differ in policies related to economic development. The outcome of the relationship between FDI and the environment may be contingent on the importance attached to the environment by countries, which might be influenced by the level of economic development. FDI is seen as one of the means to address the problem of environmental degradation through the transfer of better and environmental-friendly technologies. It is argued that FDI may relocate to countries with weaker environmental laws. Therefore, by considering the role of income level in each country, this study provides further insight for policymakers.

Second, another importance of this research work is policy application. The study hope to find the nature of FDI flowing to countries, therefore provide information necessary for global policy action. The issue of global warming has received global attention. Countries are striving reduce their emissions of carbon dioxide while at the same time meeting their developmental aspirations. This study argues that the impact of FDI on CO₂ emissions may depend on countries income level. This means that we will be to formulate policy action at global level to curb the problem of global warming through CO₂ emissions. For instance, US and China are world's largest and second largest economies and attracts considerable amount of FDI. US is high income country while China is not. China is considered the World Industry/manufacturing powerhouse. Most FDI to China may not be environmentally friendly to FDI flowing to the US, although the amount of carbon emissions has been reducing.

Third, another contribution of this study is in term of choice of method of estimation. This study uses the Bias Corrected Least Square Dummy Variable method, which is built on moment conditions of the GMM. One major problem facing most dynamic panel studies is choosing appropriate method of estimation. Panel studies are characteristically more problematic as they inherit the problems of both time series and cross-sectional studies. Thus, the challenge is to choose a method that addresses these problems, while at the same time is asymptotically efficient. Usually, GMM has been argued to be more robust, especially in using dynamic panel estimators. The limitation of the GMM technique however is that it is biased due to the small time observations. The LSDVC method however inherits the strength of the GMM. In addition, it corrects for biasness of parameter estiamtes due to finite time observations. It is argue that the LSDVC yields consistent, least bias, and least standard error relative to all dynamic panel estimators. This study addresses the limitation of past studies owing to choice of technique of estimation.

Fourth, the importance of this study cannot be over emphasized particularly to developing or emerging economies which serve as preferred destination for FDIs. While it is important to attract FDIs for economic development, it is equally important to take into account the issue of environmental quality. It is important these countries set out environmental regulations as part of conditions for FDI inflow. This will be strategic both in the short and long runs. Otherwise, while these countries may be able to achieve developmental goals due to FDI inflows, it may however be confronted with environmental problems in the long run. Thus, this research work provide us with necessary information for policy actions both in the short and long runs.

1.8.3 Institutions, economic growth and foreign capital inflow

This study is important in several ways. First, this study provides answer to the theoretical and empirical mismatched. While theory suggests that economic growth is one of the main factor which attracts foreign capital, and therefore countries with higher growth rate should receive more share of international capital. Statistical evidences however show that international capital flows more to developed countries with lower rate. This apparent contradiction between theory and reality needs answer. This study

therefore provides the necessary explanation for such, hence the importance of this research.

Second, another importance of this research work is in term of testing the Lucas puzzle. The study put to test the Lucas puzzle, which explains why international capital does not flow to developing or emerging countries, with higher growth rate as argued by the theory. Theory suggests that developing countries have higher marginal product of capital relative to the developed countries. This serves as incentive to foreign capital inflow to developing countries. However, statistics reveal evidence to the contrary, which show a substantial portion of global foreign capital flows to developed countries. This is conflicting with the theory and therefore warrants an investigation. Lucas Puzzle argue that institutional quality and human capital development explain the reason for capital inflows amongst countries. That is, while growth may attract foreign investment, it is important to equally examine how institutional factors may affect return on investment. Thus, study looks at the role of institutions in moderating the relationship between foreign capital inflow and macroeconomic determinant.

Third, reviewing the role of institutional quality on the relationship between growth and foreign capital inflow is in itself another contribution of this study. This is because there few studies which look at the relationship between institutions, foreign capital accumulation, and economic growth. Further, there results particularly with respect of institutions is mixed. Some of the past studies view institutions as determinant of capital inflow in itself. However, this study argues that institutional quality is not a determinant but influences capital inflow through other macroeconomic variables. Simply put, investors may be interested in institutional variables only to the extend they affect their return on their investment. For instance, current reality of the war between Russia and Ukraine, investors may not be too incline to invest in these countries, even though returns may be high. Thus, the study present new light in the relationship between foreign inflow and economic growth moderated by quality of institutional variables. This therefore stresses the importance of this research work.

Fourth, this study also contributes in terms of model specification and interpretation. Most past studies that examined the role of institutions on capital flows may have misspecified their models in considering the multiplicative interaction between institutions and macroeconomic fundamentals (Lucas, 1990) or incurred inferential errors in interpreting the marginal effect (Brambor, et al. 2006). This study addresses these problems using an interaction model to calculate the marginal effect.

1.9 Organization

The rest of the thesis is organized as follows: Chapter 2 presents the literature review that discusses theoretical and empirical literature, as well as the gap in the study. The chapter is divided into three subsections. Subsection 2.1 discusses related literature on financial integration and economic development. Subsection 2.2 discusses related literature on FDI and environmental sustainability. Subsection 2.3 reviews related literature on capital inflow, economic growth, and institutions.

Chapter 3 presents the methodology. It discusses the theoretical justification, model specification, method of estimation and data. It is divided into three subsections. Subsection 3.1 discusses the methodological aspect of the impact of financial integration on economic development. Subsection 3.2 discusses the methodology of the impact of FDI on CO₂ emissions. Subsection 3.3 discusses the methodology of the impact of institutions on foreign capital inflow-economic growth nexus.

Chapter 4 presents and analyses the findings of the study. It discusses the summary statistics and results of model estimations. It further analyses the findings within the context of empirical and/or theoretical expectations. In addition, sensitivity tests are performed to ensure the consistency of findings. The chapter is divided into four subsections. Subsection 4.1 discusses and analyses the estimated results of the impact of financial integration on economic development. Subsection 4.2 discusses and analyzes the estimated results of the impact of FDI on CO₂ emissions. Subsection 4.3 discusses and analyses the estimated results on institutions, capital inflow and economic growth.

Chapter 5 presents the summary and recommendation. It summarizes the research and offers policy recommendations. It further suggests areas for future research. The chapter is divided into three subsections. Subsection 5.1 covers the summary and recommendations on financial integration and economic development. Subsection 5.2 summarizes and provides policy recommendations on issues relating to the FDI-CO₂ nexus. Subsection 5.3 presents the summary and policy recommendations on the institutions, capital inflow, and economic growth relationships.

REFERENCES

- Abad, P., Chuliá, H., and Gómez-Puig, M (2010). EMU and European government bond market integration. *Journal of Banking & Finance*, 34: 2851–2860.
- Abbate, A., Eickmeier, S., Lemke, W., and Marcellino, M (2016). The Changing International Transmission of Financial Shocks: Evidence from a Classical Time-Varying FAVAR. *Journal of Money, Credit and Banking*, 48, No. 4;
- Abdouli, M and Hammami, S. (2016). Investigating the causality links between environmental quality, foreign direct investment and economic growth in MENA countries. *International Business Review*;
- Abdullah, M. A., Mansor, S. A. and Puah C. H., (2010). Determinants of International Capital Flows: The Case of Malaysia. *Global Economy and Finance Journal* Vol. 3 No.1: 31–43.
- Abdulnasser, H., J (2008). Tests for cointegration with two unknown regime shifts with an application to financial market integration. *Empir Econ*, Vol. 35:497–505.
- Aghion, P., Bacchetta, P., and Banerjee, A (2004). Financial development and the instability of open economies. *Journal of Monetary Economics*, Vol. 51; 1077-1106.
- Ahmed, A. D (2016). Integration of financial markets, financial development and growth: Is Africa different? *Journal of International Financial Markets, Institutions & Money*. 42: 43–59.
- Ahmed, A. D and Mmolainyane, K. K (2014). Financial integration, capital market development and economic performance: Empirical evidence from Botswana. *Economic Modelling*. 42: 1–14.
- Ahmed, K., Shahbaz, M., Qasim, A., and Long, W. (2015). The linkages between deforestation, energy, and growth for environmental degradation in Pakistan. *Ecological Indicator*. 49: 95-103.
- Ahmed, K., T., Ghani, M., G., Mohamad, N., and Derus, A., M. (2015). Does inward FDI Crowd-out Domestic Investment? Evidence from Uganda. *Procedia - Social and Behavioral Sciences*. 172: 419-426.
- Ahmed, S., and A. Zlate, (2014). Capital Flows to Emerging Market Economies. *Journal of International Money and Finance*. 48:221-248
- Aizenman, J., Jinjark, Y., and Park, D (2013). Capital Flows and Economic Growth in the Era of Financial Integration and Crisis, 1990–2010. *Open Econ Rev*. 24:371–396.

- Akbostanci, E., Turut-Asik, S., and Tunc, G.I. (2009). The relationship between income and environment in Turkey: is there an environmental Kuznets curve? *Energy Policy*. 37: 861–7.
- Akhtauruzamman, M., Hajzler, C., and Owen, P. D. (2017). Does institutional quality resolve the Lucas paradox? *Applied Economics*. 50:455-474
- Akin, C. S. (2014). The impact of foreign trade, energy consumption and income on CO₂ emissions. *International Journal of Energy Economics and Policy*. 4: 465–475.
- Al Nasser, O., M and Hajilee, M (2016). Integration of emerging stock markets with global stock markets. *Research in International Business and Finance*. Vol. 36: 1–12.
- Alam, I and Quazi, R. (2010). Determinants of capital flight: An econometric case study of Bangladesh. *International Review of Applied Economics*. 17: 85-103.
- Alborno, F., Cole, M.A., Elliott, R.J., and Ercolani, M.G. (2009). In search of environmental spill overs. *World Economics*. 32: 126-63.
- Albuquerque, Rui, 2003. The composition of international capital flows: risk sharing through foreign direct investment. *Journal of International Economics*. 61:(2), 353–383.
- Alfaro, L., Kalemli-Ozcan, S., & Volosovych, V. *Volatility of capital flows: Bad policies or bad institutions?* In NBER Conference on International Capital Flows. December 2004.
- Ali, W., Abdullah, A., & Azam, M. (2017). Re-visiting the environmental Kuznets curve hypothesis for Malaysia: fresh evidence from ARDL bounds testing approach. *Renewable and sustainable energy reviews*. 77, 990-1000.
- Almfraji, M., A and Almsafir, M., K. (2014). Foreign Direct Investment and Economic Growth Literature Review from 1994 to 2012. *Procedia - Social and Behavioral Sciences*. 129: 206-213.
- Al-mulali, U and Binti Che-Sab, B. C. N. (2012). The impact of energy consumption and CO₂ emissions on the economic growth and financial development in the Sub Saharan Countries. *Energy*. 39: 180-6.
- Al-mulali, U and Tang, C. F. (2013). Investigating the validity of pollution haven hypothesis in the gulf cooperation council (GCC) countries. *Energy Policy*. 60: 813–9.
- Al-mulali, U., Lee, Y. M. J., Mohammed, A. H., and Sheau-Ting, L. (2013). Examining the link between energy consumption, carbon dioxide emission, and economic growth in Latin America and the Caribbean. *Renewable and Sustainable Energy Reviews*. 26: 42–8.

- Al-Mulali, U., Weng-Wai, C., Sheau-Ting, L., and Mohammed, A. H. (2015). Investigating the environmental Kuznets curve (EKC) hypothesis by utilizing the ecological footprint as an indicator of environmental degradation. *Ecol Indic* 2015. 48:315–23.
- Alotaibi, A. R., & Mishra, A. V. (2017). Time varying international financial integration for GCC stock markets. *The Quarterly Review of Economics and Finance*. 63:66-78.
- Aloui, R., Ben Aïssa, M., S., and Nguyen, D., K (2011). Global financial crisis, extreme interdependences, and contagion effects: The role of economic structure? *Journal of Banking & Finance*. 35:130–141.
- Alshehry, A.S and Belloumi, M. (2015). Energy consumption, carbon dioxide emissions, and economic growth: A case of Saudi Arabia. *Sustainable Energy Review*: 41: 237-247.
- Anagnostou, A., Kallioras, D., and Petrakos, G (2016). Integrating the Neighbors: A Dynamic Panel Analysis of the EU-ENP Countries' Trade Relations. *Comparative Economic Studies*. 58:17–42.
- Anderson, T. W., and Hsiao, C. 1982. Formulation and estimation of dynamic models using panel data. *Journal of Econometrics* 18: 570–606.
- Ang, J. B. (2007). CO2 emissions, energy consumption and output in France. *Energy Policy*. 35: 4772–4778.
- Angeletos, G., M and Panousi, V (2011). Financial integration, entrepreneurial risk and global dynamics. *Journal of Economic Theory*. 146:863–896.
- Antonakakis, N., Chatziantoniou, I., and Filis, G. (2017). Energy consumption, CO2 emissions, and economic growth: An ethical dilemma. *Renewable and Sustainable Energy Reviews*. 68: 808–824.
- Anwar, S., & Nguyen, L. P. (2010). Foreign direct investment and economic growth in Vietnam. *Asia Pacific Business Review*. 16:83–202.
- Aoki, K., Benigno, G., Kiyotaki, N., Haldane, A., G., and Kalemli-Ozcan, S. (2007). Capital Flows and Asset Prices. International Seminar on Macroeconomics, National Bureau of Economic Research (2007). *The University of Chicago Press Journal*. 175-229.
- Apergis, N and Payne, J. E. (2010). A panel study of nuclear energy consumption and economic growth. *Energy Econ*. 32: 545–9.
- Apergis, N and Payne, J. E. (2010). Renewable energy consumption and economic growth: evidence from a panel of OECD countries. *Energy Policy* 38: 656–60.

- Apergis, N and Payne, J. E. (2014). Renewable energy, output, CO2 emissions, and fossil fuel prices in Central America: evidence from a non-linear panel smooth transition vector error correction model. *Energy Econ.* 42: 226–32.
- Apergis, N. (2016). Environmental Kuznets curves: New evidence on both panel and country-level CO2 emissions. *Energy Econ.* 54: 263–271.
- Apergis, N., Christoua, C., and Gupta, R. (2017). Are there Environmental Kuznets Curves for US state-level CO2 emissions? *Renewable and Sustainable Energy Reviews.* 69: 551–558
- Arellano, M., and Bond, S. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies* 58: 277–297.
- Arestic, O., Demetriades, P. O., and Luintel, K. B. (2001). Financial development and economic development: The role of stock markets. *Journal of Money, Credit, and Banking.* 33: 16-41.
- Arouri, M. E.H and Foulquier, P (2012). Financial market integration: Theory and empirical results. *Economic Modelling.* 29: 382–394.
- Arshad, M. U., Majeed, S. and Ali Shah, S. Z. (2012). The Determinants of Capital Inflow in Developing Economies: An Empirical Study of Pull Factors. *Journal of Basic and Applied Scientific Research* 2(10): 9764–9769.
- Aslanidis, N. (2009). Environmental Kuznets curves for carbon emissions: A critical survey. FEEM Working Paper, No. 75.2009.
- Assane, D and Grammy, A. (2010). Institutional framework and economic development: International evidence. *Applied Economics.* 35: 1811-1817.
- Azam, M., Qayyum, A., Zaman, K., and Ahmad, M. (2015). Factors determining energy consumption: evidence from Indonesia, Malaysia, and Thailand. *Renew Sustain Energy Rev.* 42: 1123–31.
- Azemar, C., Desbordes, R. (2013). Has the Lucas Paradox been fully explained? *Economic Letters.* 121, 183–187.
- Aziakpono, M. J., Kleimeier, S., and Sander, H (2014). Banking market integration in the SADC countries: evidence from interest rate analyses. *Applied Economics.* 44(29): 3857-3876.
- Azomahou, T., Laisney, F., and Nguyen-Van, P. (2006). Economic development and CO2 emissions: A nonparametric panel approach. *Journal of Public Economics.* 90: 1347– 1363.
- Baek, J and Kim, H.S. (2013). Is economic growth good or bad for the environment? Empirical evidence from Korea. *Energy Econ.* 36: 744–749.

- Baek, I. (2006). Portfolio Investment Flows to Asia and Latin America: Pull, Push or Market Sentiment? *Journal of Asian Economics*. 17: 363–73.
- Baello, L., Ferrando, A., Hördahl, P., Krylova, E., & Monnet, C. (2004) Measuring European financial integration. *Oxford Review of Economic Policy*. 20(4), 509-530.
- Balcilar, M., Kutan, A. M., and Yaya, M. E (2017). Financial integration in small Islands: The case of Cyprus. *International Review of Economics and Finance*. 47: 201–219.
- Bao, Q., Chen, Y., and Song, L. (2008). The environmental consequences of foreign direct investment in China. *Environ Dev Econ*. 16: 71-92.
- Beine, M., Cosma, A., and Vermeulen, R (2010). The dark side of global integration: Increasing tail dependence. *Journal of Banking & Finance*. 34. 184–192.
- Bekaert, G., Harvey, C., R., Lundblad, C., T., and Siegel, S (2013). The European Union, the Euro, and equity market integration. *Journal of Financial Economics*. 109: 583–603.
- Belaid, F and Abderrahmani, F. (2013). Electricity consumption and economic growth in Algeria: A multivariate causality analysis in the presence of structural change. *Energy Policy*. 55: 286-295.
- Belke, A., Dobnik, F., and Dreger, C. (2011). Energy Consumption and Economic Growth: new Insights into the Co-integration Relationship. *Energy Econ*. 33: 782–9.
- Ben Jebli, M., Ben Youssef, S., Apergis, N. (2014). The Dynamic Linkage between CO₂ emissions, Economic Growth, Renewable Energy Consumption, Number of Tourist Arrivals and Trade. MPRA Paper 57261.
- Bento, J.P.C and Moutinho, V. (2016). CO₂ emissions, non-renewable and renewable electricity production, economic growth, and international trade in Italy. *Renewable and Sustainable Energy Reviews* 55: 142–155.
- Biekpe, N and Motelle, S. (2013). Financial integration and the stability of the financial system in Southern African Customs Union. *Banks and Bank Systems*, Vol. 8; Issue 4.
- Blonigen, B. A., Piger, J. 2014. Determinants of foreign direct investment. *Can. J. Econ*. 47: 775–812.
- Blundell, R and Bond, S. 1998. Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87: 115–143.
- Bo, S. (2011). A literature survey on environmental Kuznets curve. *Energy Procedia*. 5: 1322–1325.

- Boateng, E., Amponsah, M., and Baah, C., A. (2017). Complementarity Effect of Financial Development and FDI on Investment in Sub-Saharan Africa: A Panel Data Analysis. *African Development Review*. 29: 305-318.
- Bonfiglioli, A. (2008). Financial integration, productivity, and capital accumulation. *Journal of International Economics*. 76: 337-355.
- Boubakri, S., Couharde, C., and Hélène Raymond, H (2016). Effects of financial turmoil on financial integration and risk premia in emerging markets. *Journal of Empirical Finance*. 38: 120–138.
- Bouvatier, V and Delatte, A., L (2015). Waves of international banking integration: A tale of regional differences. *European Economic Review*. 80: 354–373.
- Bove, V and Elia, L (2016). Migration, Diversity, and Economic Growth. *World Development*. 89: 227–239.
- Brafu-Insaidoo, W. G. and Biekpe, N. (2014). Determinants of foreign capital inflows: the experience of selected Sub-Saharan countries. *Journal of Applied Economics*. Vol. 17: 63-88.
- Brambor, T. Clark, W. R., and Golden, M. (2006). Understanding interaction models: improving empirical analyses. *Political Analysis*. 14: 63-82.
- Brana, S and Lahet, D. (2010). Determinants of capital inflows into Asia: The relevance of contagion effect as push factor. *Emerging Market Review*. 11: 273-284.
- Bruno, G. S. F. 2005. Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters* 87: 361–366.
- Bruno, G., S., F (2005). Estimation and Inference in Dynamic Unbalanced Panel-data Models with a Small Number of Individuals. *Stata Journal*. Vol. 5.
- Bruno, S.F. (2005). Approximating the bias of the LSDVC estimator for dynamic unbalanced panel data model. *Economics Letters*. 87: 361–366.
- Buchanan, B. G., Le, Q. V., & Rishi, M. (2012). Foreign direct investment and institutional quality: Some empirical evidence. *International Review of financial analysis*. 21: 81-89.
- Bun, M. J. G and Kiviet, J.F. 2003. On the diminishing returns of higher order terms in asymptotic expansions of bias. *Economics Letters* 79: 145–152.
- Bun, M.J.G and Kiviet, J.F. (2003). On the diminishing returns of higher order terms in asymptotic expansions of bias. *Economics Letters*. 79: 145–152.
- Bun, M.J.G and Kiviet, J.F. (2003). On the diminishing returns of higher order terms in asymptotic expansions of bias. *Economics Letters*. 79: 145–152.

- Burdeleiu, R., Denzau, A., Keil, M., Sitthiyot, T., and Willett, T. (2004). When does inflation hurt economic growth? Different nonlinearities for different economies. *Journal of Macroeconomics*. 26: 519-532.
- Butkiewicz, J. L and Yanikkaya, H. (2006). Institutional quality and economic growth: Maintenance of the rule of law or democratic institutions or both? *Economic Modelling*. 223: 648-661.
- Byrne, J. P., & Fiess, N. (2016). International capital flows to emerging markets: National and global determinants. *Journal of International Money and Finance*. 61, 82-100.
- Cacciatore, M., Ghironi, F., and Lee, Y (2016). Financial market integration, exchange rate policy, and the dynamics of business and employment in Korea. *Journal of the Japanese and International Economies*. 42: 79–99.
- Calderon, C and Liu, L. The direction of causality between financial development and economic growth. Central Bank of Chile Working Papers No. 184, October 2002.
- Chakraborty, I., Hai, R., Holter, H. A., and Stepanchuk, S (2016). The real effects of financial (dis)integration: A multi-country equilibrium analysis of Europe. *Journal of Monetary Economics*. 85: 28-45
- Chambet, A and Gibson, R (2008). Financial integration, economic instability and trade structure in emerging markets. *Journal of International Money and Finance*. 27: 654–675.
- Chandran, V.G.R and Tang, C.F (2013). The impact of transport energy consumption, foreign direct investment and income on CO2 emissions in ASEAN-5 economies. *Renew Sustain Energy Review*. 24: 445-53.
- Chang, S.-C., 2015. Effects of financial developments and income on energy consumption. *Int. Rev. Econ. Financ.* 35, 28–44.
- Chebbi, H.E., Olarreaga, M., and Zitouna, H. (2009). Trade openness and Co2 emissions in Tunisia. *Middle East Dev J*. 03: 29–53.
- Chee, Y., L and Nair, M. (2010). The Impact of FDI and Financial Sector Development on Economic Growth: Empirical Evidence from Asia and Oceania. *International Journal of Economics and Finance*. 2: 107-119.
- Chee, Y.L and Nair, M. (2010). The impact of FDI and financial sector development on economic growth: Empirical evidence from Asia and Oceania. *International Journal of Economic and Finance* 2: 107-119.
- Chen, J and Quang, T (2014). The impact of international financial integration on economic growth: New evidence on threshold effects. *Economic Modelling*. 42: 475–489.

- Chen, M. P., Chen, P. F., and Lee, C. C (2014). Frontier stock market integration and the global financial crisis. *North American Journal of Economics and Finance*. 29: 84–103.
- Cheng, S.C and Wang, H.C. (2009). The threshold effects of foreign direct investment and economic development on carbon dioxide emission. Department of Business Administration, National Formosa University, Yunlin, Taiwan.
- Chinn, M., D and Ito, H (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics*. 81: 163-192.
- Chinn, Menzie D., and Hiro Ito. 2006. What matters for financial development? Capital controls, institutions, and interactions. *Journal of Development Economics*. 81: 163–92.
- Choi, C., Rhee, D.-E., Oh, Y., 2014. Information and capital flows revisited: The Internet as a determinant of transactions in financial assets. *Econ. Model*. 40: 191–198.
- Chou, K. H., Chen, C. H., and Mai, C. C (2011). The impact of third-country effects and economic integration on China's outward FDI. *Economic Modelling*. 28: 2154–2163.
- Churchill, S. A., Inekwe, J., Smyth, R., and Zhang, X. (2018). R&D intensity and carbon emissions in the G7: 1870–2014: 1870–2014. *Energy Economics*. 80: 30-37.
- Claus, E and Brian L., M. (2012). Equity market integration in the Asia Pacific region: Evidence from discount factors. *Research in International Business and Finance*. 26: 137– 163.
- Clements, B, Bhattachaarya, R., and Nguyen, T. Q. (2003). *External debt, public investment, and growth in low income countries*. IMF Working Papers WP/03/249.
- Coban, S., Topcu, M., 2013. The nexus between financial development and energy consumption in the EU: a dynamic panel data analysis. *Energy Econ*. 39 (3): 81–88.
- Cole, M.A. (2003). Development, trade, and the environment: how robust is the environmental Kuznets curve? *Environ Dev Econ*. 8: 557-80.
- Cole, M.A. (2004). Trade, the pollution haven hypothesis and the environmental Kuznets curve: examining the linkages. *Ecol Econ*. 48: 71-81.
- Cole, M.A., Elliott, R.J.R., and Zhang, J. (2011). Growth, foreign direct investment, and the environment: Evidence from Chinese cities. *J Reg Sci*. 51: 121–38.
- Coondoo, D., and Dinda, S. (2002). Causality between income and emission: A country Group specific econometric analysis. *Ecological Economics*, 40: 351–367.

- Çulha, A. A. (2006). A Structural VAR Analysis of the Determinants of Capital Flows into Turkey. *Central Bank Review*. 2: 11-35.
- Dang, V. A., Kim, M., and Shin, Y (2015). In search of robust methods for dynamic panel models in empirical corporate finance. *Journal of Banking and Finance*. 53: 84-98.
- Daude, Christian, and Ernesto Stein. 2007. The quality of institutions and foreign direct investment. *Economics & Politics*. 19: 317-44.
- Davis, J. S (2014). Financial integration and international business cycle co-movement. *Journal of Monetary Economics*. 64; 99-111.
- De Nicolò, G and Juvenal, L (2014). Financial integration, financial integration, and real activity. *Journal of Financial Stability*. 10: 65- 75.
- Deltuvaitė, V (2015). CEECs' financial integration: global or regional? Evidence from sovereign bond markets. International Conference on Applied Economics, ICOAE 2015, 2-4 July 2015, Kazan, Russia. *Procedia Economics and Finance*. 24: 192 - 197.
- De-Nicolò, G and Juvenal, L (2014). Financial integration, financial integration, and real activity. *Journal of Financial Stability*. Vol. 10; 65-75.
- Devereux, M., D and Sutherland, A (2011). Evaluating international financial integration under leverage constraints. *European Economic Review*. 55: 427-442.
- Dinda, S. Environmental Kuznets curve hypothesis: a survey. *Ecol Econ*. 2004. 49:431-55.
- Disoska, E. M (2016). Debt or Wage-led Growth: the European Integration. *Journal of Economic Integration*. 31(2) 326-352.
- Dj Julius, H (2017). Foreign Direct Investment and Technology Transfer: Knowledge Spillover in the Manufacturing Sector in Indonesia. *Global Business Review*. 18: 57-70.
- Donadelli, M and Paradiso, A (2014). Does financial integration affect real exchange rate volatility and cross-country equity market returns correlation? *North American Journal of Economics and Finance*. 28: 206-220.
- Dreger, C and Zhang, Y (2014). Does the economic integration of China affect growth and inflation in industrial countries? *Economic Modelling*. 38: 184-189.
- Economidou, C and Kool, C (2009). European economic integration and (a)symmetry of macroeconomic fluctuations. *Economic Modelling*. 26: 778-787.
- Edison, H. J., Levine, R., Ricci, L., and Sløk, T (2002). International financial integration and economic growth. *Journal of International Money and Finance*. 21: 749-776.

- Egger, H., Egger, P., and Greenaway, D (2008). The trade structure effects of endogenous regional trade agreements. *Journal of International Economics*. 74. 278–298.
- Esty, D.C and Porter, M.E. (1998). Industrial ecology and competitiveness. *J. Ind. Ecol.* 2: 35–43.
- Farhani, S and Rajeb J, B (2012). Energy consumption, economic growth and CO2 emissions: evidence from panel data for MENA region. *Int J Energy Econ Policy*. 2: 71–81.
- Farhani, S and Shahbaz, M. (2014). What role of renewable and non-renewable electricity consumption and output is needed to initially mitigate CO2 emissions in MENA region? *Renew Sustain Energy Rev*. 40: 80-90.
- Farhani, S., Mrizak, S., Chaibi, A., and Renault, C. (2014). The environmental Kuznets curve and sustainability: A panel data analysis. *Energy Policy*. 71: 189-98.
- Fecht, F., Grüner, H. P., and Hartmann, P (2012). Financial integration, specialization, and systemic risk. *Journal of International Economics*. 88. 150–161.
- Fedderke, J. W and Liu, W. (2002). Modelling the determinants of capital flows and capital flight: With an application to South African data from 1960-1995. *Economic Modelling*. 19: 419-444.
- Filger S. (2008). Global economic financial crisis; 2008. [online] Available at: (<http://www.globaleconomiccrisis.com/blog/2010/6/archives/category/global-economic-crisis>).
- Fisher, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics*. 32: 45-66.
- Fodha, M and Zaghoud, O. (2010). Economic growth and pollutant emissions in Tunisia: an empirical analysis of the environmental Kuznets curve. *Energy Policy*. 38: 1150–6.
- Fratzscher, M (2012) Capital Flows, Push versus Pull Factors and the Global Financial Crisis, *Journal of International Economics*. 88(2): 341–56.
- Friedrich, C., Schnabel, I., and Zettelmeyer, J (2013). Financial integration and growth — Why is Emerging Europe different? *Journal of International Economics* 89: 522–538.
- Friedrich, C., Schnabel, I., and Zettelmeyer, J (2013). Financial integration and growth — Why is Emerging Europe different? *Journal of International Economics*. 89: 522–538.
- Frijns, B., Tourani-Rad, A., and Indriawan, I (2012). Political crises and the stock market integration of emerging markets. *Journal of Banking & Finance*. 36: 644–653.

- Gan, P. T (2014). The precise form of financial integration: Empirical evidence for selected Asian countries. *Economic Modelling*. 42: 208–219.
- Garali, W and Othmani, S (2015). The determinants of international financial integration in the MENA area. 4th World Conference on Business, Economics and Management, WCBEM, *Procedia Economics and Finance*. 26: 535 – 541.
- García-Hiernaux, A., Guerrero, D. G., and McAleer, M (2016). Market integration dynamics and asymptotic price convergence in distribution. *Economic Modelling*. 52: 913–925.
- Garrido, D., Parra, D., & Rincon, H. (2013). Do the different types of capital flows respond to the same fundamentals and in the same degree? Recent evidence for emerging markets. Fernando Arias fariasro@ banrep. gov. co.
- Gebka, B and Karoglou, M (2013). Have the GIPSI settled down? Breaks and multivariate stochastic volatility models for, and not against, the European financial integration. *Journal of Banking & Finance*. 37: 3639–3653.
- Gehring, A (2013). Growth, productivity and capital accumulation: The effects of financial liberalization in the case of European integration. *International Review of Economics and Finance*. 25: 291–309.
- Geldi, H. K (2012). Trade effects of regional integration: A panel cointegration analysis. *Economic Modelling*. 29: 1566–1570.
- Geldi, H. K (2012). Trade effects of regional integration: A panel cointegration analysis. *Economic Modelling*. 29: 1566–1570.
- Gertler, M., & Rogoff, K. (1990). North-South lending and endogenous domestic capital market inefficiencies. *Journal of Monetary Economics*. 26(2): 245-266.
- Ghosh, A., R., Ostry, J., D., and Qureshi, M., S. (2016). When Do Capital Inflow Surges End in Tears? *American Economic Review: Papers & Proceedings* 2016, 106(5): 581–585.
- Ghosh, Atish R., Mahvash S. Qureshi, Jun Il Kim, and Juan Zaldueño. 2014. Surges. *Journal of International Economics*: 92: 266–85.
- Gillman, M and Kejak, M. (2005). Contrasting models of the effect of inflation on growth. *Journal of Economic Surveys*. 19: 113-136.
- Ginanjar Dewandaru, G., Masih, R., and Masih, A., M., M (2016). What can wavelets unveil about the vulnerabilities of monetary integration? A tale of Eurozone stock markets. *Economic Modelling* 52: 981–996.
- Gourinchas, P. O and Jeanne, O. (2013). Capital flows to developing countries: The allocative puzzle. *Review of Economic Studies*. 80: 1484-1545.

- Graham, M., Kiviaho, J., and Nikkinen, J (2012). Integration of 22 emerging stock markets: A three-dimensional analysis. *Global Finance Journal*. 23: 34–47.
- Grimes, P and Kento, J. (2003). Exporting the greenhouse: foreign capital penetration and CO2 emissions 1980–1996. *J. World Syst. Res.* 2: 261–275.
- Grossman G.K.A. (1995). Economic environment and the economic growth. *Quarterly Journal of Economics*. 110: 353–77.
- Guesmi, K., Teulon, F., and Muzaffar, A., T (2014). The evolution of risk premium as a measure for intra-regional equity market integration. *International Review of Financial Analysis*. 35: 13–19.
- Gupta, P., Sehgal, S., and Deisting, F (2015). Time-Varying Bond Market Integration in EMU. *Journal of Economic Integration*. 30(4) 708~760.
- Güven, C (2016). Financial integration: The role of tradable and non-tradable goods. *Economic Modelling*. 53: 345–353.
- Haisheng, Y., Jia, J., Yongzhang, Z., Shugong, W. (2005). The Impact on environmental Kuznets curve by trade and foreign direct investment in China. *Chin J Popul Resour Environ*. 3: 14–9.
- Hakimi, A and Hamdi, H. (2016). Trade liberalization, FDI inflows, environmental quality and economic growth: A comparative analysis between Tunisia and Morocco. *Renewable and Sustainable Energy Reviews*. 58: 1445–1456.
- Halicioğlu, F and Ketenci, N. (2016). The impact of international trade on environmental quality: The case of transition countries. *Energy*. 109: 1130-1138
- Halicioğlu, F. (2009). An econometric study of CO2 emissions, energy consumption, income and foreign trade in Turkey. *Energy Policy*. 37: 1156–64.
- Hannan, S. A. (2018). *Revisiting the determinants of capital flows to emerging markets- A survey of the evolving literature*. IMF Working Paper 18/214.
- Hasan, I and Schmiedel, H (2004). Networks and equity market integration: European evidence. *International Review of Financial Analysis*. 13: 601-613.
- Hassaballa, H. (2013). Environment and foreign direct investment: policy implications for developing countries. *J Emerg Issues Econ Finance Bank*. 1: 75-106.
- Heckscher, E. (1931). *Merkantilismen* (Stockholm: P.A. Norstedt & Söner).
- Hooy, C., W and Lim, K., P. (2013). Is market integration associated with informational efficiency of stock markets? *Journal of Policy Modeling*. 35: 29–44.
- Horvath, R and Petrovski, D (2013). International stock market integration: Central and South Eastern Europe compared. *Economic Systems*. 37: 81–91.

- Hossain, M.S. (2011). Panel estimation for CO₂ emissions, energy consumption, economic growth, trade openness and urbanization of newly industrialized countries. *Energy Policy*. 39: 6991–9.
- Ibrahim, S., Mazlina, A.R., Azman-Saini, W.N.W., and Zakaria, M. F. M (2016). Financial Integration–Growth Nexus: A Quantile Regression Analysis. *Journal of Economic Integration*, 31(3) 531-546.
- Ilut, B and Chirlesan, D (2012). Developments in the banking integration process of the new EU member states. *Procedia - Social and Behavioral Sciences*, 62: 457 – 461.
- Ito, H., Jongwanich, J., and Terada-Hagiwara, A. (2009). *What makes developing Asia resilient in a financially globalized world?* ADB Economics Working Paper Series No. 181.
- Iwata H, Okada K, Samreth S. (2010) Empirical study on the environmental Kuznets Curve for CO₂ in France: the role of nuclear energy. *Energy Policy*. 38:4057–4063.
- Jabbar, A and Awan, A. G. (2014). The determinants of capital inflow in developing countries with special reference to Pakistan. *Developing Country Studies*. 4: 159-182.
- Jacob, V. (1950). *The Customs Union Issue*. New York: Carnegie Endowment for International Peace.
- Jalil, A and Feridun, M. (2011). The impact of growth, energy and financial development on the environment in China: a cointegration analysis. *Energy Econ*. 33: 284–291.
- Jalil, A and Mahmud, S.F. (2009). Environment Kuznets Curve for CO₂ emissions: a cointegration analysis for China. *Energy Policy*. 37: 5167–72.
- Javid, M and Sharif, F. (2016). Environmental Kuznets curve and financial development in Pakistan. *Renewable and Sustainable Energy Reviews*. 54: 406–414
- Jebli, M.B and Youssef, S.B. (2015). The environmental Kuznets curve, economic growth, renewable and non-renewable energy, and trade in Tunisia. *Renew Sustain Energy Rev*. 47: 173–85.
- Jinjarak, Y (2013). Economic integration and government revenue from financial repression. *Economic Systems*. 37: 271–283.
- Jouini, J (2015). New empirical evidence from assessing financial market integration, with application to Saudi Arabia. *Economic Modelling*. 49: 198–211.
- Judson, R. A., and Owen, A.L. 1999. Estimating dynamic panel data models: a guide for macroeconomists. *Economics Letters*. 65: 9–15.
- Judson, R.A and Owen, A.L. (1999). Estimating dynamic panel data models: a guide for macro-economists. *Economic Letters*. 65: 9–15.

- Judson, R.A and Owen, A.L. (1999). Estimating dynamic panel data models: a guide for macro-economists. *Economic Letters*. 65: 9–15.
- Kahouli, B. (2016). Regional integration agreements, trade flows and economic crisis: A static and dynamic gravity model. *International Economic Journal*, 30(4): 450-475.
- Kakar, Z.K., 2016. Financial development and energy consumption: evidence from Pakistan and Malaysia. *Energy Sources Part B-Economics Planning and Policy* 11 (9): 868–873.
- Ke, S (2015). Domestic Market Integration and Regional Economic Growth—China’s Recent Experience from 1995–2011. *World Development*. 66: 588–597.
- Kenourgios, D., Samitas, A., and Paltalidis, N (2011). Financial crises and stock market contagion in a multivariate time-varying asymmetric framework. *Journal of International Financial Markets, Institutions, and Money*. 21: 92-106.
- Khalil, S and Inam, Z. (2006). Is trade good for environment? a unit root cointegration analysis. *Pak Dev Rev*. 45: 1187–96.
- Kılıçarslan, Z and Dumrul, Y. (2017). Foreign Direct Investments and CO2 Emissions Relationship: The Case of Turkey. *Business and Economics Research Journal*. 8: 647-660.
- Kim, H.S and Beak, J. (2012). The environmental consequence of economic growth revisited. *Econ. Bull*. 31 (2): 1198-1121.
- Kiviet, J. F. (1999). *Expectation of expansions for estimators in a dynamic panel data model; some results for weakly exogenous regressors*. In *Analysis of Panels and Limited Dependent Variable Models*. 199–225. Cambridge: Cambridge University Press.
- Kiviet, J. F. 1995. On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*. 68: 53–78.
- Kiviet, J.F. (1995). On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. *Journal of Econometrics*. 68: 53–78.
- Kiviet, J.F. (1999). *Expectation of expansions for estimators in a dynamic panel data model: some results for weakly exogenous regressors*. *Analysis of Panel Data and Limited Dependent Variables*. Cambridge University Press, Cambridge.
- Kiviyiro, P and Arminen, H. (2014). Carbon dioxide emissions, energy consumption, economic growth, and foreign direct investment: causality analysis for Sub-Saharan Africa. *Energy*. 74: 595–606.
- Koçak E and Şarkgüneşi A. (2018). The impact of foreign direct investment on CO₂ emissions in Turkey: new evidence from cointegration and bootstrap causality analysis. *Environ Sci Pollut Res Int*. 25: 790-804.

- Koenker, R and Bassett, G. J (1978). Regression quantiles. *Econometrica*. 46: 33-50.
- Koepke, R. (2015). *What drives capital flows to emerging markets? A survey of the empirical literatures*. Munich Personal RePEc Archive Paper No. 75887.
- Kohler, M. (2013). CO₂ emissions, energy consumption, income and foreign trade: a South African perspective. *Energy Policy*; 63: 1042–50.
- Kose, M. A. Prasad, E. S., and Taylor, A. D. (2009). *Thresholds in the process of international financial integration*. National Bureau of Economic Research Working Paper 14916.
- Kumar, S. (2015). Regional integration, capital mobility and financial intermediation revisited: Application of general to specific method in panel data. *Journal of International Financial Markets, Institutions & Money*, 36: 1–17.
- kurul, Z and Yalta, Y. (2017). Relationship between institutional factors and FDI flows in developing countries: New Evidence from dynamic panel estimations. *Economics*. 5: 5-17
- Kuznets, S. (1955). Economic growth and income inequality. *Am Econ Rev*. 45(1): 1–28.
- Lacheheb, M., Rahim, A.S.A, and Sirag, A. (2015). Economic growth and carbon dioxide emissions: Investigating the environmental Kuznets curve hypothesis in Algeria. *International Journal of Energy Economic Policy*. 5: 1125-1132.
- Lai, J. T., McNelis, P. D., & Yan, I. K. (2013). Regional capital mobility in China: Economic reform with limited financial integration. *Journal of International Money and Finance*, 37, 493-503.
- Lai, J. T., McNelis, P. D., and Yan, I. K. M (2013). Regional capital mobility in China: Economic
- Landau, D. (1983). Government expenditures and economic growth: A cross country study. *Southern Economic Journal*. 49: 785-792.
- Lane, P. R., and Milesi-Ferretti, G. M. (2003). The external wealth of nations mark ii: revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics*. 73 (2): 223–250.
- Lane, P. R., and Milesi-Ferretti, G. M. (2007). The external wealth of nations mark ii: revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics*. 73 (2): 223–250.
- Lane, P. R., and Milesi-Ferretti, G. M. (2017). The external wealth of nations mark ii: revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics*. 73 (2): 223–250.

- Lane, P., R and Milesi-Ferretti, G., M (2017). *International Financial Integration in the Aftermath of the Global Financial Crisis*. IMF Working Paper 17/115.
- Lean, H. H and Smyth, R. (2010). CO2 emissions, electricity consumption and output in ASEAN. *Applied Energy*. 87:1858–64.
- Lee, G.C. (2010). Foreign direct investment pollution and economic growth: evidence from Malaysia. *Appl. Econ*. 41: 1709–1716.
- Lee, J., W and Shin, K (2012). Welfare implications of international financial integration. Japan and the World Economy. 24: 235–245.
- Lee, J.W. (2013). The contribution of foreign direct investment to clean energy use, carbon emissions and economic growth. *Energy Policy*. 55: 483–489.
- Lee, T. C., Lam, J. S. L., and Lee, P., T., W (2016). Asian economic integration and maritime CO2 emissions. *Transportation Research. Part D*. 43. 226–237.
- Lehkonen, H (2015). Stock Market Integration and the Global financial Crisis. *Review of Finance*. 19. 2039–2094.
- Liang, F. *Does Foreign Direct Investment Harm the Host Country's Environment?* Conference paper presented at Hass School of Business University of California, Berkeley. April 2006.
- Linn, J., W and Wagh, S. *Regional Financial Integration: Its potential contribution to financial sector growth and development in Sub-Saharan Africa. Session Five, Beyond Banking: Regional Financial Integration*. A seminar paper presented African Finance at 21st Century, Organised by IMF Institute in collaboration with Joint African Institute, Tunis, Tunisia, March, 4-5; 2008.
- Liyanage, E. (2016). Determinants of capital inflows: Evidence from Sri Lanka. *Central Bank of Sri Lanka. Staff Studies*. 44: 1-31.
- Longhi, C., Musolesi, A., and Baumont, C (2014). Modelling structural change in the European metropolitan areas during the process of economic integration. *Economic Modelling*. 37: 395–407.
- Lopez, R.E and Islam, A.M. (2007). Trade and the environment. *Princeton encyclopedia of the world economy*. 16: 35–51.
- Lothian, J. R. (2005). *Institutions, capital flows, and financial integration*. *Center for Research in International Finance*. Working Paper Series 7.
- Loutskina, E and Strahan, P. E (2015). Financial integration, housing, and economic volatility. *Journal of Financial Economics*. 115: 25–41.
- Lu, Y., Tsang, E., and Peng, M. (2008). Knowledge management and innovation strategy in the Asia Pacific: toward an institution-based view. *Asia Pac. J. Manag.* 25: 361–374.

- Lucas, R. E. (1990). Why doesn't capital flow from rich to poor countries. *American Economic Review*. 70: 92-96.
- Lucey, B. M and Zhang, Q. Y (2011). Financial integration and emerging markets capital structure. *Journal of Banking & Finance*. 35: 1228–1238.
- Magdalene Silberberger, M and Königer, J (2016). Regulation, trade and economic growth. *Economic Systems*. 40: 308–322.
- Mahmudul Alam, MD., Walid Murad, MD., Noman AH. MD., and Ozturk, I. (2016). Relationships among carbon emissions, economic growth, energy consumption, and population growth: Testing environmental Kuznets curve hypothesis for Brazil, China, India, and Indonesia. *Ecological Indicator*. 70: 466-479.
- Majdoub, J., Mansour, W., & Jouini, J. (2016). Market integration between conventional and Islamic stock prices. *The North American Journal of Economics and Finance*. 37: 436-457.
- Malik, S (2015). Financial-integration thresholds for consumption risk-sharing. *International Review of Economics and Finance*. 38: 73–93.
- Mamun, M., Sohag, K., Mia M.A.H., Salahuddin, G., and Ozturk, I. (2014). Regional differences in the dynamic linkage between CO2 emissions, sectoral output and economic growth. *Renewable and Sustainable Energy Reviews*. 38: 1–11.
- Managi, S., Hibiki, A., and Tsurumi, T. (2009). Does trade openness improve environmental quality? *J Environ Econ Manag*. 58: 346–63.
- Martin, Philippe, Rey, H el ene, 2004. Financial super-markets: size matters for asset trade. *Journal of International Economics*. 64 (2): 335–361.
- Maudos, J and Fern andez de Guevara, J (2015). The economic impact of European financial integration: The importance of the banking union. *Spanish Review of Financial Economics*. 13: 11–19.
- Menyah, K and Wolde-Rufael, Y (2010). Energy consumption, pollutant emissions and economic growth in South Africa. *Energy Econ*. 32: 1374–82.
- Mercana, M and Karakaya, E. (2015). Energy Consumption, Economic Growth and Carbon Emission: Dynamic Panel Cointegration Analysis for Selected OECD Countries. 2nd Global Conference on Business, Economics, Management and Tourism, 30-31 October 2014, Prague, Czech Republic. *Procedia Economics and Finance*. 23: 587 – 592.
- Meschi, E and Vivarelli, M. (2009). Trade and income inequality in developing countries. *World Development*. 37: 287-302.
- Michalski, T and Ors, E (2012). (Interstate) Banking and (interstate) trade: Does real integration follow financial integration? *Journal of Financial Economics*. 104: 89–117.

- Milcheva, S., & Zhu, B. (2016). Bank integration and co-movements across housing markets. *Journal of Banking & Finance*, 72:148-171.
- Mmolainyane, K. K and Ahmed, A. D. (2015). The impact of financial integration in Botswana. *Journal of Policy Modeling*. 37:852–874.
- Morana, C (2008). International stock markets comovements: the role of economic and financial integration. *Empir Econ*. 35:333–359.
- Moshirian, F (2011). The global financial crisis and the evolution of markets, institutions and regulation. *Journal of Banking & Finance*. 35: 502–511.
- Motelle, S and Biekpe, M (2015). Financial integration and stability in the Southern African development community. *Journal of Economics and Business*. 79: 100–117.
- Mussa, M. *Factors Driving Global Economic Integration. In Global Economic Integration: Opportunities and Challenges*. A symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming 2000.
- Narayan, S., Srikanthakumar, S., and Islam, S. Z (2014). Stock market integration of emerging Asian economies: Patterns and causes. *Economic Modelling*. 39: 19–31
- Nasreen, S., Anwar, S., and Ozturk, I. (2017). Financial stability, energy consumption and environmental quality: Evidence from South Asian economies. *Renewable and Sustainable Energy Reviews*. 67: 1105–1122.
- Neaime, S (2016). Financial crises and contagion vulnerability of MENA stock markets. *Emerging Markets Review*. Vol. 27: 14–35.
- Nguyen-Van, P. (2010). Energy consumption and income: A semi-parametric panel data analysis. *Energy Economics*. 32: 557–563.
- Nickell, S. J. 1981. Biases in dynamic models with fixed effects. *Econometrica*. 49: 1417–1426.
- Nnyanzi, J. B (2016). Regional Economic Integration and Tax Revenue: East African Community. *Journal of Economic Integration*. 31(4): 932-967.
- Obstfeld, M (2009). International Finance and Growth in Developing Countries: What Have We Learned? *Economic Review*. 56: 63-111.
- Obstfeld, Maurice and Alan M. Taylor 2005. *Global Capital Markets: Integration, Crisis, and Growth*. Cambridge University Press.
- Ocampo, J.A. 2003. Capital Account and Countercyclical Prudential Regulations. In French-Davis, R. F et al. (eds). *From Capital Surges to Drought*. Springer

- OECD. *Attracting Foreign Direct Investment for Development*. Paper presented at the Global Forum on International Investment, Shanghai, China, December 5–6, 2012.
- OECD. *Environmental performance reviews: Italy 2013 highlights*. Paris: Organisation for Economic Co-operation and Development; 2013.
- Ohno, S. (2010). Determinants of foreign capital inflows: evidence from resource rich countries.
- Okada, K. (2013). The interaction effects of financial openness and institutions on international capital flows. *Journal of Macroeconomics*. 35: 131-143.
- Omri A. (2013). CO2 emissions, energy consumption and economic growth nexus in MENA countries: evidence from simultaneous equations models. *Energy Econ*. 40: 657–64.
- Omri, A., Daly, S., Rault, C. H., & Chaibi, A. (2015). Financial development, environmental quality, trade and economic growth: what causes what in MENA countries? *Energy Economics*. 48: 242–252.
- Omri, A., Khuong, N. D., & Rault, C. (2014). Causal interactions between CO2 emissions, FDI, and economic growth: Evidence from dynamic simultaneous-equation models. Original Research Article *Economic Modeling*. 42: 382–389.
- Osada, M and saito, M. (2010). *Financial integration and economic growth: An empirical analysis using international panel data from 1974-2007*. In: Bank of Japan Working Papers Series No. 10-E-5, Tokyo.
- Osano, H., M and Koine, P., W. (2016). 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: 1-25.
- Ozcan, B (2013). The nexus between carbon emissions, energy consumption and economic growth in Middle East countries: a panel data analysis. *Energy Policy*. 62: 1138–47.
- Ozturk, I. (2010). A literature survey on energy-growth nexus. *Energy Policy*. 38: 340-9.
- Pao, H.T and Tsai, C.M. (2011). Modeling and forecasting the CO2 emissions, energy consumption, and economic growth in Brazil. *Energy*. 36: 2450–2458.
- Pao, H.T and Tsai, C.M. Multivariate Granger causality between CO₂ emissions, energy consumption, FDI (foreign direct investment) and GDP (gross domestic product): Evidence from a panel of BRIC (Brazil, Russian Federation, India, and China) countries. *Energy*. 36: 685–93.
- Papaioannou (2009). What drives international financial flows? Politics, Institutions, and other determinants. *Journal of Development Economics*. 88: 269-281.

- Paramati, S. R., Roca, E., and Gupta, R (2016). Economic integration and stock market dynamic linkages: evidence in the context of Australia and Asia. *Applied Economics*. 48(44) 4210-4226.
- Payne, J.E. (2009). On the dynamics of energy consumption and output in the US. *Appl Energy*. 86: 575–7.
- Perego, E. R and Vermeulen, W. N (2016). Macro-economic determinants of European stock and government Bond correlation: A tale of two regions. *Journal of Empirical Finance*. 37. 214-232.
- Pinar, M and Volkan, E. (2018). Institutions and information flows, and their effect on capital flows. *Information Economics and Policy*. 43: 34-47.
- Plassmann, F and Khanna, K. (2006). Household income and pollution implications for the debate about the environmental Kuznets curve hypothesis. *J Environ Dev*. 14: 22–41.
- Podkaminer, L (2016). Economic Disintegration of the European Union: Not Unavoidable, But Probable. *Acta Oeconomica*. 66: 49–60.
- Porter, M and Van Der Linde, C. (1995). Toward a new conception of the environment–competitiveness relationship. *J. Econ. Perspect*; 9(4): 97–118.
- Porter, M. (1991). America's Green Strategy. *Scientific American*; 264(4): 168.
- Portes, R and Rey, H. (2005). The determinants of cross-border equity flows. *Journal of International Economics*. 65 (2): 269–296.
- Prasad, E. Rajan, R. and Subramanian, A. (2007). Foreign capital and economic growth. *Brookings Papers on Economic Activity*. 2007 (2): 153–230.
- Prasad, E. S., Rajan, R. G., and Subramanian, A. (2007). Foreign capital and economic growth. *Brookings Papers on Economic Activity*. 38: 153-230.
- Pyun, J. H and An, J (2016). Capital and credit market integration and real economic contagion during the global financial crisis. *Journal of International Money and Finance*. 67; 172–193.
- Rafindadi, A. A. (2016). Does the need for economic growth influence energy consumption and CO2 emissions in Nigeria? Evidence from the innovation accounting test Renewable and Sustainable Energy. *Reviews*. 62: 1209–1225.
- Răileanu-Szeles, M and Albu, L (2015). Nonlinearities and divergences in the process of European financial integration. *Economic Modelling*. 46: 416–425.
- Rana, S., & Phillips, G. M. (2016). Are US growth and value stocks similarly integrated with the world markets? A test across business cycles. *Applied Economics*, 48(53), 5168-5185.

- Reinhardt, D., Ricci, L. A., and Tressel, T. (2013). International capital flow and development: financial openness matters. *Journal of International Economics*. 91: 235-251
- Reinhart, Carmen, Rogoff, Kenneth, 2004. Serial default and the "paradox of rich to poor capital flows. *American Economic Review Papers and Proceedings*; Vol. 94 (2): 53-59.
- Robalino-López, R., Mena-Nieto, A., García-Ramos, J.E., and Golpe, A. A. (2015). Studying the relationship between economic growth, CO2 emissions, and the environmental Kuznets curve in Venezuela (1980-2025). *Renewable and Sustainable Energy Reviews*. 41: 602-614.
- Rodrik, D (1999). Sense and Nonsense in the Financial integration Debate. *Foreign Policy*, No. (107) 19-37.
- Romulo, A. C. Raul, L. M., and Filipe, L. B. (1997). What determines capital inflows? An empirical analysis for Chile. *Series 181*. Manila: Asian Development Bank.
- Rughoo, A and Sarantis, N (2012). Integration in European retail banking: Evidence from savings and lending rates to non-financial corporations. *Journal of International Financial Markets, Institutions, and Money*. 22: 1307-1327.
- Rughoo, A and You, K (2016). Asian financial integration: Global or regional? Evidence from money and bond markets. *International Review of Financial Analysis*. 48: 419-434.
- Saafi, S., Mohamed, M. B. H., and Ben Doudou, M. (2016). Causal Nexus between Financial Integration and Economic Growth: Does Nonlinearity Matter? *Journal of Economic Integration*. 31(4): 817-854.
- Saboori, B and Slaiman, J. (2013). Environmental degradation, economic growth, and energy consumption: Evidence of the environmental Kuznets curve in Malaysia. *Energy Policy*. 60: 892-905.
- Sadorsky P. (2010). The impact of financial development on energy consumption in emerging economies. *Energy Policy*. 38: 2528-35.
- Saidi, K and Hammami, S. (2015). The impact of energy consumption and CO2 emissions on economic growth: Fresh evidence from dynamic simultaneous-equations models. *Sustainable Cities and Society*. 14: 178-186
- Saidi, K, Hammami, S. (2015). The impact of CO2 emissions and economic growth on energy consumption in 58 countries. *Energy Rep*. 1: 62-70.
- Salahuddin, M and Gow, J. (2014). Economic growth, energy consumption and CO2 emissions in Gulf Cooperation Council countries. *Energy*. 73: 44-58

- Salahuddin, M., Alam, K., and Ozturk, I. (2016). The effects of Internet usage and economic growth on CO₂ emissions in OECD countries: A panel investigation. *Renewable and Sustainable Energy Reviews*. 62: 1226–1235
- Salahuddin, M., Gow, J., and Ozturk, I. (2015). Is the long-run relationship between economic growth, electricity consumption, carbon dioxide emissions and financial development in Gulf Cooperation Council Countries robust? *Renewable and Sustainable Energy Reviews*. 51: 317–326
- Salim, R.A and Rafiq, S. (2012). Why do some emerging economies proactively accelerate the adoption of renewable energy? *Energy Econ*. 34: 1051–7.
- Saville, A and White, L (2016). Bringing Pankaj Ghemawat to Africa: Measuring African Economic Integration. *South African Journal Economics and Management Science*. 19(1) 82-102.
- Savva, C., S and Aslanidis, N (2010). Stock market integration between new EU member states and the Euro-zone. *Empir Econ*. (39) 337–351.
- Sbia, R., Shahbaz, M., & Hamdi, H. (2014). A contribution of foreign direct investment clean energy, trade openness, carbon emissions and economic growth to energy demand in UAE. *Economic Modelling*. 36: 191–197.
- Schmalensee, R., Stoker, T.M., and Judson, R.A. (1998). World carbon dioxide emissions: 1950–2050. *Rev Econ Stat*. 80: 15–27.
- Seker, F., Ertugrul, H. M., and Cetin, M. (2015). The impact of foreign direct investment on environmental quality: A bounds testing and causality analysis for Turkey. *Renewable and Sustainable Energy Reviews*. 52: 347–356.
- Sepehri, A and Moshiri, S. (2004). Inflation-growth profiles across countries: Evidence from developing and developed countries. *International Review of Applied Economics*. 18: 191-207.
- Shaari, M. S., Hussain, N. E., Abdullah, H., and Kamil, S. (2014). Relationship among foreign direct investment, economic growth and CO₂ emission: A panel data analysis. *International Journal of Energy Economics and Policy*. 4: 706–715.
- Shafik, N and Bandyopadhyay, S. *Economic growth and environmental quality: timeseries and cross-section evidence*. Background Paper for the 1992 World Development Report. Washington DC: The World Bank 1992.
- Shahbaz, M., Hye, Q.M.A., Tiwari, A.K., and Leitão, N.C. (2013). Economic growth, energy consumption, financial development, international trade and CO₂ emissions in Indonesia. *Renewable and Sustainable Energy Reviews*. 25: 109–121.
- Shahbaz, M., Mallick, H., Mahalik, M.K., and Loganathan, N. (2015). Does financial integration impede environmental quality in India? *Ecol Indic*. 52: 379–93.

- Shahbaz, M., Nasreen, S., Abbas, F., and Omri, A. (2015). Does foreign direct investment impede environmental quality in high, middle, and low-income countries? *Energy Economics*. 51: 275–287.
- Shahbaz, M., Tiwari, A.K., and Nasir, M. (2013). The effects of financial development, economic growth, coal consumption and trade openness on CO₂ emissions in South Africa. *Energy Policy*. 61: 1452–1459.
- Shao, Y (2018). Does FDI affect carbon intensity? New evidence from dynamic panel analysis. *International Journal of Climate Change Strategies and Management*. 10: 5-26.
- Sharma, S.S. (2011). Determinants of carbon dioxide emissions: empirical evidence from 69 countries. *Applied Energy*. 88: 376–382.
- Shell, H. G., and Zheng, L. (2015). The interaction effects of financial integration and institutions on international capital flows. *International Journal of Economic and Finance*. 7: 12-22.
- Shen, C., H., Lee, C., C., and Lee, C., C. (2010). What makes international capital flows promote economic growth? An international cross-country analysis. *Scottish Journal of Political Science*. 57: 515-546.
- Shen, Lee, and Lee (2010). What makes international capital flows promote economic growth? An international cross-country analysis. *Scottish Journal of Political Economy*. 57: 5115-546.
- Siamwalla, A., Vajragupta, Y., and Vichyanond, P. (1999). *Foreign capital flows to Thailand: determinants and impact*. Thailand Development Research Institute Working Paper;
- Šimović, P., P., Tkalec, M., Vizek, M., and Lee, J (2016). Time-varying integration of the sovereign bond markets in European post-transition economies. *Journal of Empirical Finance*. 36: 30–40.
- Smyth, R. (2013). Are fluctuations in energy variables permanent or transitory? A survey of the literatures on the integration properties of energy consumption and production. *Appl Energy*. 104: 6532-6550.
- Srinivasan, T., N (2013). Trends and Impacts of Real and Financial Financial integration in the People's Republic of China and India since the 1980s. *Asian Development Review*. 30(1):1–30.
- Sufian, F and Habibullah M. S (2012). Financial integrations and bank performance in China. *Research in International Business and Finance*. 26: 221-239.
- Sufian, F and Habibullah, M. S (2012). Financial integration and bank efficiency nexus: Symbiosis or Parasites? *Review of Development Finance*. 2: 139-155.

- Summers, L. H. *The Right Kind of IMF for a Stable Global Financial System.*” Speech presented at the London School of Business, London, U.K., 14 December 1999.
- Suri, V and Chapman, D. (1998). Economic growth, trade and the environment: implications for the environmental Kuznets curve. *Ecological Economics* 25:195–208.
- Tai, C., T (2007). Market integration and contagion: Evidence from Asian emerging stock and foreign exchange markets. *Emerging Markets Review*. 8: 264–283.
- Tamazian, A., Chousa, J.P., and Vadlamannati, K.C. (2009). Does higher economic and financial development lead to environmental degradation: Evidence from BRIC countries? *Energy Policy*. 37: 246–253.
- Tang, D (2016). Has the Financial Integration affected the European Union (EU) trade with the New Member Countries from Central and Eastern Europe (CEEC) during 1994–2013? *The Journal of Economic Asymmetries*, 13: 8–20.
- Teulon, F., Guesmi, K., and Mankai, S (2014). Regional stock market integration in Singapore: A multivariate analysis. *Economic Modelling*. 43: 217–224.
- Tiba, S., & Omri, A. (2017). Literature survey on the relationships between energy, environment and economic growth. *Renewable and Sustainable Energy Reviews*, 69, 1129–1146.
- Tiwari, A.K., Shahbaz, M., and Hye, Q.M.A. (2013). The environmental Kuznets curve and the role of coal consumption in India: cointegration and causality analysis in an open economy. *Renew Sustain Energy Rev*. 18:519–27.
- Ullah, I and Arshad-Khan, M. (2017). Institutional quality and foreign direct investment inflows: evidence from Asian countries. *Journal of Economic Studies*. 44: 1030-1050.
- UN. *Kyoto protocol to the United Nations framework convention on climate change*. New-York: United Nations; 1998.
- United Nations Conference on Trade and Development (2019).
- Van Ewijk, S. E and Arnold, I. J. M (2015). Financial integration in the euro area: Pro-cyclical effects and economic convergence. *Economic Modelling*, Vol. 44; 335–342.
- Van Zon, A and Mupela, E (2016). Connectivity and Economic Growth. *Macroeconomic Dynamics*, Vol. 20; 2148–2172.
- Villarreal, C. C and Bielma, L. H (2017). Economic integration, economic crises and economic cycles in Mexico. *Contaduría y Administración*. 62: 85–104.
- Villaviacencio, A. L and Mignon, V. (2011). On the impact of inflation on output growth: Does the level of inflation matters? *Journal of Macroeconomics*. 33: 455-464.

- Vithessonthi, C and Kumarasinghe, S (2016). Financial development, international trade integration, and stock market integration: Evidence from Asia. *Journal of Multinational Financial Management*. 35: 79–92.
- Vo, X. V. (2018). Determinants of capital flows to emerging economies: Evidence from Vietnam. *Finance Research Letters*; Vo, X. V. (2018). Determinants of capital flows to emerging economies: Evidence from Vietnam. *Finance Research Letters*. 27: 23-27.
- Vo, X., V and Daly, K., J (2007). The determinants of international financial integration. *Global Finance Journal*. 18: 228-250
- Vo, X., V and Daly, K., J (2007). The determinants of international financial integration. *Global Finance Journal*. 18: 228-250.
- Voronkova, S (2004). Equity market integration in Central European emerging markets: A cointegration analysis with shifting regimes. *International Review of Financial Analysis*. 13: 633– 647.
- Wang, D.T., Gu, F.F., Tse, D.K., and Yim, C.K. (2013). When does FDI matter? The roles of local institutions and ethnic origins of FDI. *Int Bus Rev*. 22: 450–65.
- Wu, G., Sun, Y., and Li, Z. (2012). The Crowding-In and Crowding-Out Effects of FDI on Domestic Investment in the Yangtze Delta Region. *China: An International Journal*. 10: 119-133.
- Yang, H., Xiong, Y. and Ze, Y. (2013). A Comparative Study of Determinants of International Capital Flows to Asian and Latin American Emerging Countries. *Procedia Computer Science*. 17: 1258–1265.
- Yoa, K & Zheng, X. P (2016). A comparison of market integration in Nineteenth-century China and Japan. *Australian Economic History Review*. 56, No. 3.
- Yu, C (2015). Evaluating international financial integration in a center-periphery economy. *Journal of International Economics*. 95: 129–144.
- Yu, I. W., Fung, K. P., and Tam, C. S (2010). Assessing financial market integration in Asia – Equity markets. *Journal of Banking & Finance*. 34: 2874–2885.
- Zarsky, L. (1999) *Havens, halos, and spaghetti: Untangling the evidence about foreign direct investment and the environment*. OECD paper: CCNM/EMEF/EPOC/CIME (98)5.
- Zhang, J. (2008). *Foreign Direct Investment, Governance, and the Environment in China: Regional Dimensions* Unpublished Doctoral Dissertation, Department of Economics, School of Social Sciences, the University of Birmingham.
- Zhang, Y.J. (2011). The impact of financial development on carbon emissions: an empirical analysis in China. *Energy Policy*. 39: 2197–203.