



**DETERMINANTS OF GLOBALIZATION AND ITS IMPACTS ON INCOME
INEQUALITY AND ECONOMIC GROWTH**

By

NURSHILA BINTI AHMAD

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
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Doctor of Philosophy**

March 2021

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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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By

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March 2021

Chairman : Associate Professor Wan Azman Saini bin Wan Ngah, PhD
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This dissertation consists of three empirical exercises, all of which are related to globalisations and its impacts on economic activities.

The first objective of this dissertation is to examine the impact of globalisation on income inequality in developing countries. It formally tests whether globalisation has differential impacts on income at different level using a panel data set from 50 developing countries during the 1990-2017 period. Methodologically, it departs from the existing literature by exploiting panel quantile regression analysis. This methodological approach allows us to test the impact of globalisation on income at different level. There are three indicators of globalisation used in this study namely, economic globalisation (i.e., trade plus finance), trade globalisation, financial globalisation. Overall, the results reveal that the impact of economic globalisation on income gap is negative such that as countries become more globalised, income gap becomes narrower. However, further analyses on disaggregated index suggest that trade globalisation widens the income gap but financial globalisation appears to have a reducing effect on income gap.

The uncertainty surrounding FDI theories and empirical approaches has created the notion that few FDI determinants are truly robust. Economic freedom to be seen as an important determinant of FDI, yet a variety of economic freedom components exist and their influences on FDI remain uncertain. Therefore, the second objective of this dissertation aims to identify robust determinants of foreign direct investment (FDI) inflows. Exploiting a panel of 94 countries covering the 1980 to 2017 period, this study deals with model uncertainty using Sala i-Martin's Extreme Bounds Analysis (EBA) to identify factors that are

robustly related to FDI inflows. The results reveal there exist a robust relationship between a few variables and FDI inflows, with average coefficient signs consistent with the Sala-i-Martin's Cumulative Distribution Function (CDF) criteria. In total, this study considers 19 potential determinants and the results suggest that education, debt, outward FDI, trade, trade freedom and tax revenue are robust determinants of FDI inflows in the countries.

It has been widely accepted that the impact of FDI inflows on growth is not automatic but depends on other factors available in the host countries. Therefore, the third objective of this study is to examine the role of intelligence (i.e., IQ scores) in moderating the impact of FDI on economic growth. It hypothesizes that only countries with sufficiently high level of intelligence would benefit from FDI inflows. To test the hypothesis, a data set from 58 countries over the 1976-2017 period is utilised. Methodologically, this study adopts a regression specification which rely on threshold-effect that permits FDI to have a nonlinear impact on growth. The findings reveal that the positive impacts of FDI on growth “kick in” only after a given threshold level of IQ scores is attained by the host countries. Below the threshold level, FDI has no impact on growth. This finding is consistent with absorptive capacity hypothesis. In this context, high level of intelligence seems to foster a healthy economic environment that facilitates the adoption and diffusion of new technology associated with FDI inflows, thereby nurturing the economic ingredients necessary for economic development.

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

PENENTU GLOBALISASI DAN KESANNYA TERHADAP KETAKSAMAAN PENDAPATAN DAN PERTUMBUHAN EKONOMI

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Disertasi ini terdiri daripada tiga latihan empirikal, berkaitan dengan globalisasi dan kesannya terhadap kegiatan ekonomi.

Objektif pertama disertasi ini adalah untuk mengkaji kesan globalisasi terhadap ketidaksamaan pendapatan di negara sedang membangun. Menggunakan set data panel dari 50 negara sedang membangun dalam tempoh 1990-2017. Secara metodologi, lanjutan daripada kajian lepas dengan menggunakan analisis regresi kuantil. Pendekatan metodologi ini membolehkan kita menguji kesan globalisasi pada tahap pendapatan yang berbeza. Terdapat beberapa pembolehubah globalisasi yang digunakan dalam kajian ini iaitu, globalisasi ekonomi (iaitu perdagangan ditambah kewangan), globalisasi perdagangan dan globalisasi kewangan. Secara keseluruhan, hasil menunjukkan bahawa kesan globalisasi ekonomi terhadap jurang pendapatan semakin berkurang, dimana apabila negara menjadi lebih global, jurang pendapatan menjadi semakin sempit. Walaubagaimanapun, analisis lebih lanjut mengenai indeks berasingan menunjukkan bahawa globalisasi perdagangan meningkatkan jurang pendapatan tetapi globalisasi kewangan nampaknya mempunyai kesan pengurangan pada jurang pendapatan.

Ketidakpastian mengenai teori FDI dan pendekatan empirikal telah mewujudkan tanggapan bahawa beberapa faktor penentu FDI benar-benar sah. Oleh itu, objektif kedua disertasi ini bertujuan untuk mengenal pasti penentu aliran masuk pelaburan langsung asing (FDI) yang sah. Mengeksploitasi data panel 94 buah negara pada tempoh 1980 hingga 2017, kajian ini menangani ketidakpastian model menggunakan Analisis Batas Ekstrem (EBA) menurut Sala i-Martin untuk mengenal pasti faktor-faktor penentu aliran masuk FDI. Hasilnya menunjukkan terdapat hubungan yang sah antara beberapa pemboleh ubah dan aliran

masuk FDI, dengan tanda-tanda pekali rata yang konsisten dengan kriteria Fungsi Pengagihan Kumulatif (CDF) Sala-i-Martin. Secara keseluruhan, kajian ini mempertimbangkan 19 penentu yang berpotensi dan hasilnya menunjukkan bahawa pendidikan, hutang, Aliran keluar FDI, perdagangan, kebebasan perdagangan dan cukai pendapatan adalah penentu aliran masuk FDI di negara terlibat.

lanya telah diterima secara meluas bahawa kesan aliran masuk FDI terhadap pertumbuhan tidak automatik tetapi bergantung pada faktor lain yang terdapat di negara tuan rumah. Oleh itu, objektif ketiga kajian ini adalah untuk mengkaji peranan kepintaran (skor IQ) dalam menentukan kesan FDI terhadap pertumbuhan ekonomi. Melalui hipotesis bahawa hanya negara-negara dengan tahap kecerdasan yang cukup tinggi akan mendapat keuntungan dari aliran masuk FDI. Bagi menguji hipotesis, satu set data daripada 58 negara dalam tempoh 1976-2017 digunakan. Secara metodologi, kajian ini mengadopsi spesifikasi regresi yang bergantung pada ambang-kesan yang memungkinkan FDI memberi kesan tidak linier terhadap pertumbuhan. Hasil kajian menunjukkan bahawa kesan positif FDI terhadap pertumbuhan "bertindak balas" hanya setelah tahap ambang skor IQ dicapai oleh negara tuan rumah. Di bawah ambang, FDI tidak memberi kesan pada pertumbuhan. Penemuan ini selaras dengan hipotesis kapasiti serapan. Dalam konteks ini, tahap kecerdasan yang tinggi nampaknya memupuk persekitaran ekonomi yang sihat yang memudahkan penggunaan dan penyebaran teknologi baru yang berkaitan dengan aliran masuk FDI, sehingga dapat mengukur prestasi ekonomi yang diperlukan untuk pembangunan ekonomi.

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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ARDL	Autoregressive Distributed Lag
ASEAN	Association of Southeast Asian Nations
CDF	Cumulative Distribution Function
DCs	Developing countries
DVAR	Differenced Vector Autoregressi
EBA	Extreme Bound Analysis
EFWI	Economic Freedom of the World Index
EPT	Electric Paradigm Theory
EU	European Union
FDI	Foreign Direct Investment
GCI	Gross Capital Formation
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GMM	Generalized Method of Moments
HCI	Human Capital Index (HCI)
IMF	International Monetary Fund
IQ	Intelligence Quotient
KOFEC	Globalisation Index
KOFFI	Financial Globalisation Index
KOFTRI	Trade Globalisation Index
MENA	Middle East North Africa
MNCs	Multinational Corporation
OECD	Organisation for Economic Cooperation and Development
OIC	Organisation of Islamic Cooperation and Development

OLI	Electric Paradigm / Internalization
OLS	Ordinary Least Square
ODA	Official Development Assistance
PLCM	Product Life Cycle Model
PQR	Panel Quantile Regression
R&D	Research and Development
UNCTAD	United Nations Conference on Trade and Development
VECM	Vector Error Correction Model
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

1.1 Study Overview

The fact that some countries are richer and able to grow faster than other countries is a major challenge for many economies (Armstrong & Mcgee, 1985; Reynolds, 1986; Durlauf & Quah, 1998; Durlauf & Quah, 1999; Blankenburg, 2003; Kehoe & Ruhl, 2010; Mends-Brew et al. 2012; Majumder & Santra, 2016; Freeman, 2018). It has been widely accepted that technological factors alone are not enough to explain the differences in cross-country economic performance. In recent literature, productivity differences appear to be one of the key explanation for the differences and technological progress plays an important role in influencing productivity (Kokko et al., 1996; Agarwal & Prasad, 1997; Blomström & Sjöholm, 1999; Eapen, 2013; Du et al., 2014; Fujimori & Sato, 2015; Choi & Baek, 2017; Zhang, 2017). In neo-classical model, technological progress is assumed to be exogenous to the overall productivity improvement, and output growth is driven mainly by improvement in capital-labor ratio (Solow, 1956; McQuinn & Whelan, 2007).

In recent literature, endogenous growth models were developed to deal with technological progress and structural change (Barro and Sala-i-Martin, 1995; Romer, 1990; Grossman and Helpman, 1991; Grossman and Helpman, 1994; Aghion and Howitt, 1992; Kejak, 1998; Carlaw and Lipsey, 2003). This model introduced a new concept related to human capital, skill, and knowledge and ideas in dealing with endogenous technological change (Verspagen, 1992; Eicher, 1996; La Torre and Marsiglio, 2010). The model also considers innovation as a major source of productivity growth which allows countries to sustain their growth in the long run (Martin and Sunley, 1998; Bovenberg and Smulders, 1996; de la Croix, 2015; Ugur, 2016). Several studies have shown that countries benefit considerably from the international spillover and therefore, globalisation is viewed as an important ingredient for economic development. Indeed, many countries have a large source of productivity growth coming from abroad (Keller, 2004; Javorcik, 2004; Lagendijk and Hendrikx, 2009). The theory highlights imports and foreign direct investment (FDI) as important channels to gain access to foreign technology (Findlay, 1978; Wang and Blomstrom, 1992; Kugler, 2006). Technology is embodied in capital and intermediate goods, and the direct import of these is one of the possible channels of technological transmission (Grossman and Helpman, 1991; Eaton and Kortum, 2001; Caselli and Wilson, 2004; Lee, 2006). However, it has been widely accepted that the impact of globalisation on economic performance is not fully understood.

1.1.1 Globalisation and Income Inequality

Globalisation is viewed as an important channel that helps developing countries to engage with the rest of the world to improve their economic growth and solve some of the domestic issues like poverty. In the past, developing countries were unable to access the world economy due to restrictions imposed on free flows of goods and capital. In recent years, many developing countries began to take steps to open their markets by removing tariffs and freeing up their economies. With this development, developed countries are able to invest in the developing countries, a process that has been described as a continuous paradigm shift of cross-border economic, social and political exchanges (Celik and Baldes, 2010). This established a transfer channel for goods, services, labour, capital and technology, and has integrated the domestic market and the individual into the international financial system.

When this integration occurs within global legal systems, globalisation allows developing countries to access efficient foreign technologies through international trade policies and FDI (Alderson & Nielsen, 1999; Wei & Wu, 2001; Choi, 2006; Lee et. al., 2007; Meshi & Vivarelli, 2009; Berg & Nilson, 2010; Ha, 2012; Lim et al., 2015). Countries that had previously lagged now have better access to the world market as a result of globalisation. For example, three decades ago, the living standards in South Korea resembled those of Ghana. However, South Korea currently has a gross national income equivalent to that of Portugal. Similarly, Thailand and Myanmar demonstrated similar living standards after the war, but Thailand is now regarded as twenty-five times richer than Myanmar.

The extent of a country's interdependence with the rest of the world is measured by the KOF Globalisation Index, a scale developed by the ETH Zurich. The KOF Index covers a variety of aspects of globalisation, encompassing economic, social and political dimensions (Kearney & Policy, 2006; Dreher et al., 2008; Potrafke, 2015; Gygli et al., 2018; Gygli et al., 2019; Pleninger & Sturm, 2020). This index classifies countries using a standardised globalisation index (Dreher et al., 2006). Figure 1.1 demonstrates the expansion of globalisation in the world and in developing countries between 1970 and 2018. It assesses two forms: globalisation and economic globalisation. In illustrating the expansion of globalisation over the period, the green line represents world globalisation and the blue line represents developing countries. As shown in the graph, the developing countries on the index still rank below the global average in both forms of globalisation (i.e. globalisation and economic globalisation). Thus, a great potential to globalise remains, implying that globalisation has the potential to stimulate gains in growth.

Besides, economic globalisation can be divided into sub-dimensions, namely trade globalisation (e.g., trade in goods, trade in services and trade partner diversity) and financial globalisation (e.g., foreign direct investment, portfolio investment, international debt, international reserves and international income payments).

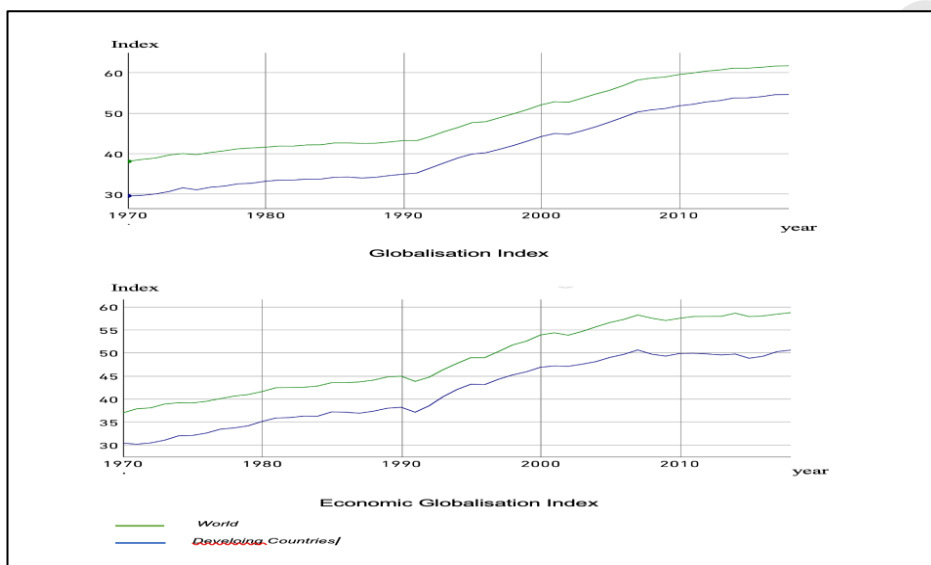


Figure 1.1 : Globalisation and Economic Globalisation Index
(Source: KOF Index of Globalisation, 2018)

It has been widely accepted that both trade and finance are equally important in driving economic activities. Figure 1.2 shows that trade and financial globalisation rose from the beginning of 1970 until 2017. From 1970 to 1983, the trade globalisation index was higher than that of financial globalisation. This explains the importance of trade for developing countries as it was viewed as a driving force to promote economic growth. However, trade and financial globalisation appear to have been equally important in the period 1994 to 1998, following which, financial globalisation seems to have become more important than trade.

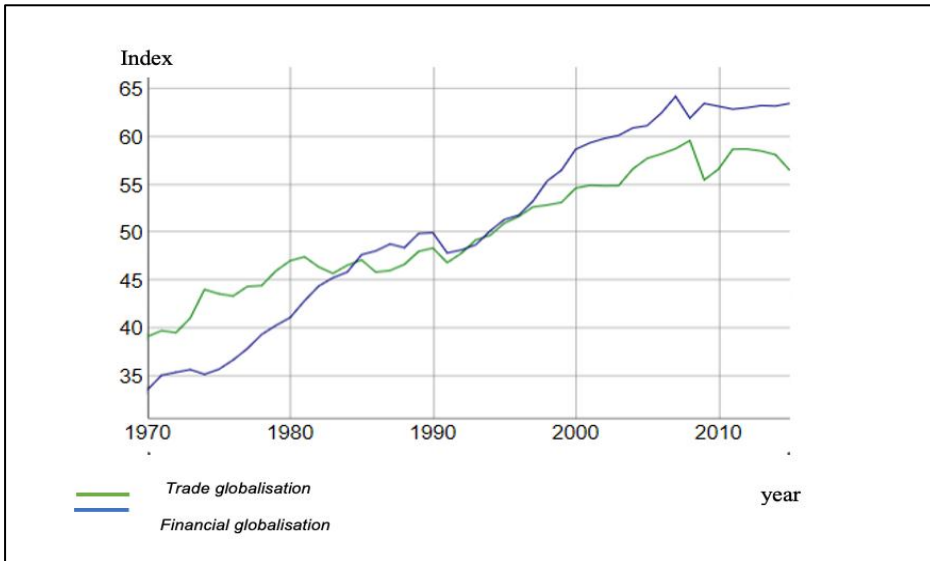


Figure 1.2 : Trade and Financial globalisation index 1970 – 2017
 (Sources: KOF Index of Globalisation, 2017)

Moreover, increased rates of globalisation have been explained by real GDP per capita on average in developing countries. Figure 1.3 outlines the distribution of real GDP per capita and economic globalisation in developing countries from 1990 to 2018. The largest average income gains were found in Estonia, rising by an average of \$10,441.04 and €31,013.00 per capita and year, respectively. Meanwhile, real GDP per capita in Burundi, on average the lowest GDP per capita, was around \$847.1619 in 1990. By 2017, it had fallen to \$743.921 (a drop of \$103.241). Furthermore, in economic terms, financial globalisation helps to improve the growth rate in developing countries through direct or indirect channels. The direct impact of financial globalisation may be explained by activities such as the augmentation of domestic savings, reductions in the cost of capital, the transfer of technology from advanced to developing countries and the development of domestic financial sectors.

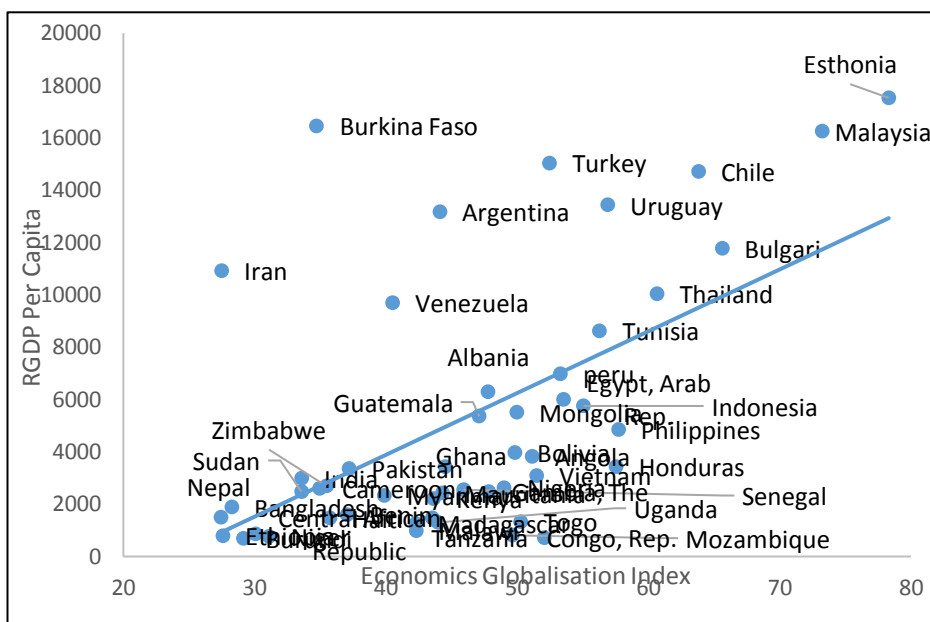


Figure 1.3 : Real GDP per capita and economic globalisation
 (Source: KOF Swiss Economic Institute)

Indirect channels of financial globalisation include greater production specialisation (e.g. risk management), macroeconomic policies, competition between institutions and the discipline effect of globalisation. Figure 1.4 shows the average distribution of real GDP per capita and financial globalisation in developing countries from 1990 to 2018. In 1990, the average real GDP per capita gains in Nepal before globalisation were only around \$986.633, while in Estonia they were as large as \$10,441.04. The rise in globalisation up to 2017 improved real GDP per capita in Nepal and Estonia by around \$2,450.139 and \$31,013.48, respectively.

In order to explain the relationship between income distribution and trade globalisation, Figure 1.5 presents plotted data of real GDP per capita and trade globalisation in selected developing countries used in this study and covering the period 1990 to 2017. The scatter plot shows a positive slope or positive correlation in the relationship between income and trade globalisation in these countries. Moreover, the empirical analysis indicated that the impact of trade globalisation on unequal distribution was heterogeneous and can be explained by low-level income and high-level income.

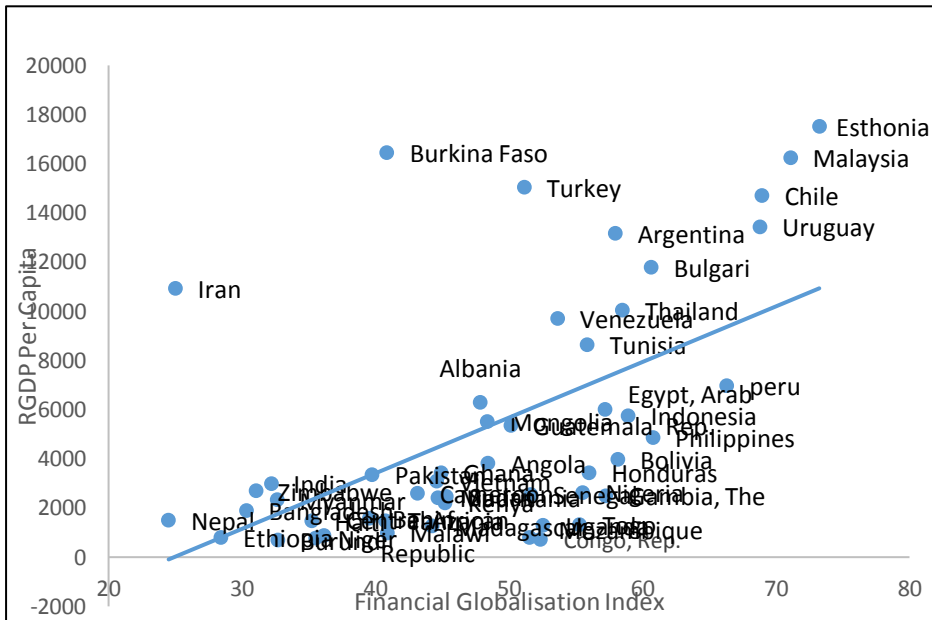


Figure 1.4 : Real GDP per capita and financial globalisation
(Source: KOF Swiss Economic Institute)

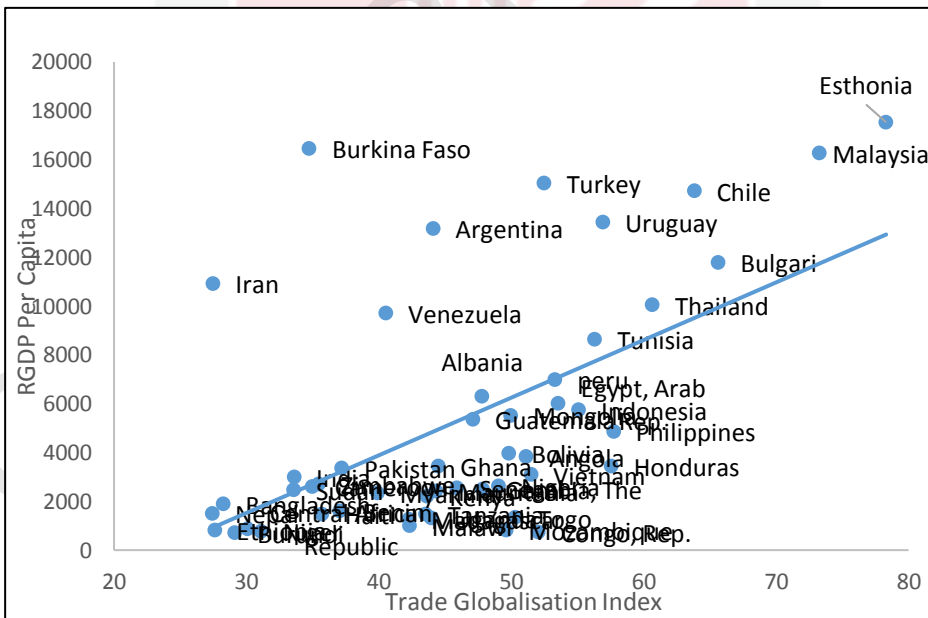


Figure 1.5 : Real GDP per capita and trade globalisation
(Source: KOF Swiss Economic Institute)

Additionally, the application in real terms is not as clear as might be expected, as it depends on a country's capability to absorb the process of globalisation. This capability includes changing people's habits and working environments worldwide, which brings both new opportunities, challenges and threats. However, another widespread view regards the economic impact of globalisation as possibly overestimated. One reason is that globalisation increases the inequality between the rich and poor, so the benefits of globalisation are not universal; the richer are getting rich and the poor are becoming poorer (Boulding, 1973; Akay & Martinsson, 2011; Banerjee & Duflo, 2011; Inekwe et al., 2018; Tian & Liu, 2020). This unequal distribution further describes people within the leading economic group as winners and those in the lowest-ranking group as losers (Kuznets, 1955; Lee et al., 2007).

Many developing countries benefit from globalisation, although many of these nations are lagging. Thus, Milanovic (1999; 2007) explained the global income inequalities phenomenon using an elephant chart. This simple graph shows the income gains from the poorest to the richest at each level of the global income distribution over a 20-year period, for example, 1980 to 2008. The World Inequality Report (2018) updated this elephant graph to include the latest data. As Figure 1.6 shows, the trunk of the elephant is elongated, with the top 1% reporting 27 per cent of the total growth in revenues from 1980 to 2016. In the bottom 50%, however, the emerging countries' growth represented 12% of overall growth. Therefore, the poorest countries were excluded from development at 10%. This graph explains that income levels compensate for the disparities in living costs between various countries.

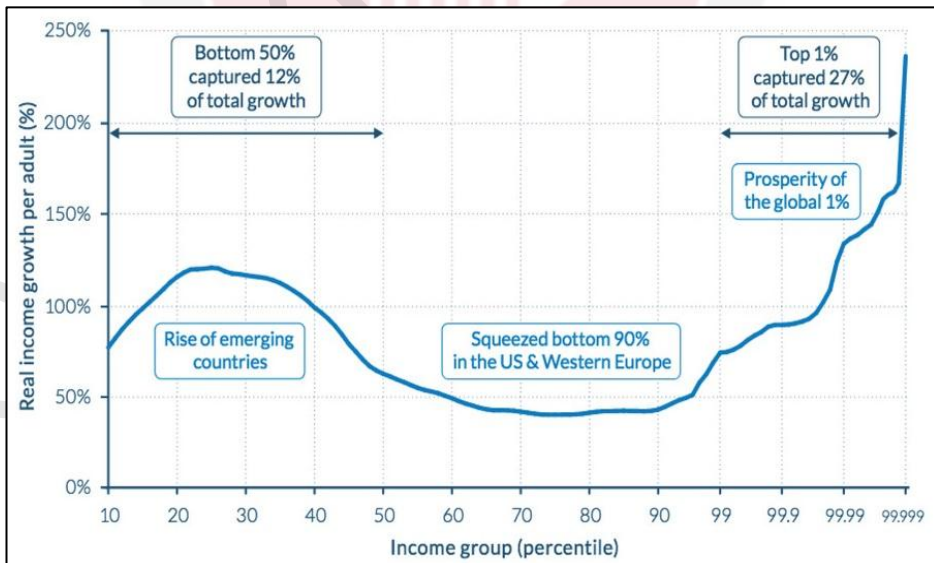


Figure 1.6 : The elephant chart of global inequality and growth, 1980-2016
(Sources: World Inequality Report, 2018)

The top position does not indicate equal distribution between countries. An important reason is the income gap limited growth, as the prospects and opportunities created by the globalisation process may not always be fully exploited. Therefore, it is important to conduct a more thorough and systematic analysis of the interaction between globalisation and income inequality, considering the existing debates concerning these variables. Moreover, using empirical analysis, it is argued that the impact of globalisation on unequal distribution is heterogeneous and can be explained by low-level income and high-level income. The focus on low-level income will absorb inequality more than high-level income. This paper used quantile regression empirically to prove the heterogeneous results of globalisation.

1.1.2 Determinant of Foreign Direct Investment

It is widely accepted that foreign direct investment (FDI) is one of the main sources of capital inflow and a driving force behind economic growth in many countries. FDI helps to improve trade, creates employment opportunities and aids in the transfer of technology and knowledge (such as technical performance, management skills and productivity output) in the host countries. Therefore, developing countries, emerging economies and countries in transition have increasingly come to regard FDI as a key driver of economic development and modernisation (Kotkowski, 2014; Szalavetz, 2017).

Since the late 1980s, global flows of FDI have been rising significantly. For many decades, the majority of FDI flows have been received by developed economies. However, in recent years, the share of FDI flows going to developing and transition economies has increased (Agarwal et al., 2017). Figure 1.6 shows the FDI inflows for developed economies and developing economies between 1980 and 2017. In 2017, developing and transition economies received almost twice as much FDI as they initiated (UNCTAD, 2019). Figure 1.7 shows global foreign direct investment inflows between 2005 and 2019. Because of the efforts of many countries to raise their FDI, global FDI inflows rose from \$1,324 billion in 2014 to \$1,540 billion in 2019, a rise represented by the green line.

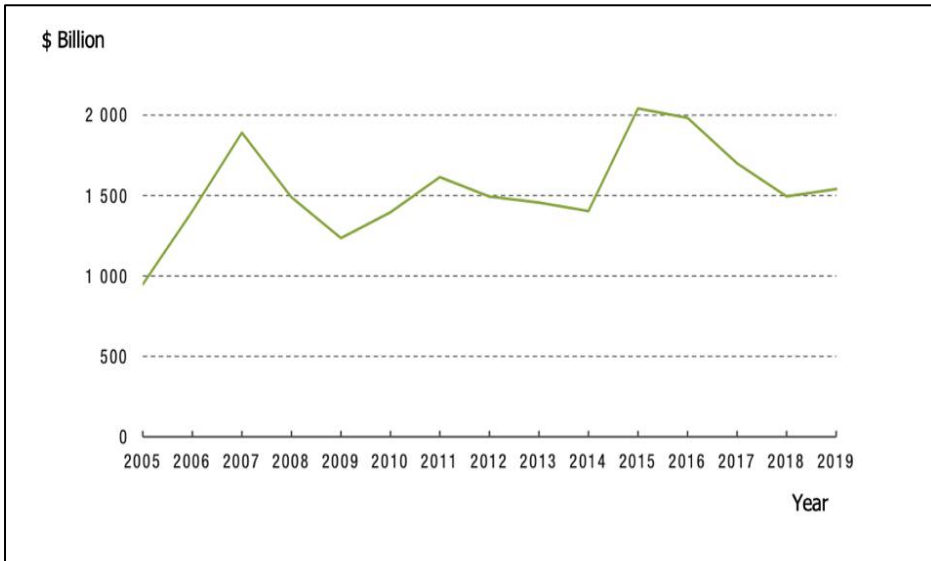


Figure 1.7 : World foreign direct investment inflows

(Source: United Nations Conference on Trade and Development Statistical Database)

Multinational enterprises (MNEs) are often deemed the primary influencers of the economic process in host countries. They integrate production processes across national boundaries by transferring capital and technology (Osano & Koine, 2016). MNEs expand their activities to different foreign economies for various reasons, such as the desire to exploit economies of scale, the use of a specific advantage or simply because their competitors are engaged in similar activities. On the other hand, different economies also engage in policy competition by altering their major economic policies, such as corporate taxes, labour market conditions, subsidies, tariff boundaries and privatisation policies, in order to improve their economic conditions in order to attract foreign investment (Bhasin & Murthy, 2018). Consequently, most countries have reduced their foreign capital movement restrictions to attract MNC participation, both politically and financially. Table 1.1 shows 54 economies introduced 107 new policy measures affecting foreign investment in 2019, FDI being a key tool to raise investments in almost all emerging and transitioning economies (UNCTAD 2020). This number had dropped since 2004, when 79 countries were recorded as making changes to investment restrictions and regulations.

In 2019, investment policies were expressly designed to facilitate and liberalise investment. In this year, many countries introduced policy measures to liberalise promote or facilitate foreign investment. These covered various sectors, including mining, energy, transportation, finance and telecommunication. Alternatively, some countries expanded their investment incentive regimes, intending to attract more foreign investment.

Table 1.1 : National regulatory changes, 2004-2019

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of countries that introduced changes	79	77	70	49	40	46	54	51	57	60	41	49	59	65	55	54
Number of regulatory changes	164	144	126	79	68	89	116	86	92	87	74	100	125	144	112	107
Liberalization/promotion	142	118	104	58	51	61	77	62	65	63	52	75	84	98	65	66
Restriction/regulation ^a	20	25	22	19	15	24	33	21	21	21	12	14	22	23	31	21
Neutral/indeterminate	2	1	-	2	2	4	6	3	6	3	10	11	19	23	16	20

(Source: UNCTAD, Investment Policy Hub, 2020)

Note: "Restriction" means a policy measure that introduces limitations on the establishment of foreign investment; "regulation" means a policy measure that introduces obligations for established investment, be it domestically controlled or foreign-controlled

However, attracting and promoting FDI is a complex process. In general, most developing countries are competing for similar types of FDI. However, some of these countries, mainly due to the differing sizes of their economies, possess more natural advantages or other factors that enable them to attract more FDI (UN, 2003). The most dramatic experience arising from the reformation of countries is the growing value of FDI inflow that contributes to GDP in most countries. Figure 1.8 shows the net inflow of foreign direct investment as a percentage of gross domestic product in 2019. As the graph illustrates, FDI inflows exceeded 2% of GDP in many economies in Eastern Europe; the Caucasus region; Latin America and the Caribbean; Western, Middle and Eastern Africa; and South-East Asia and Oceania. East Asia, as well as the oil-exporting economies of South America, Africa and West Asia, experienced rates below 1%.

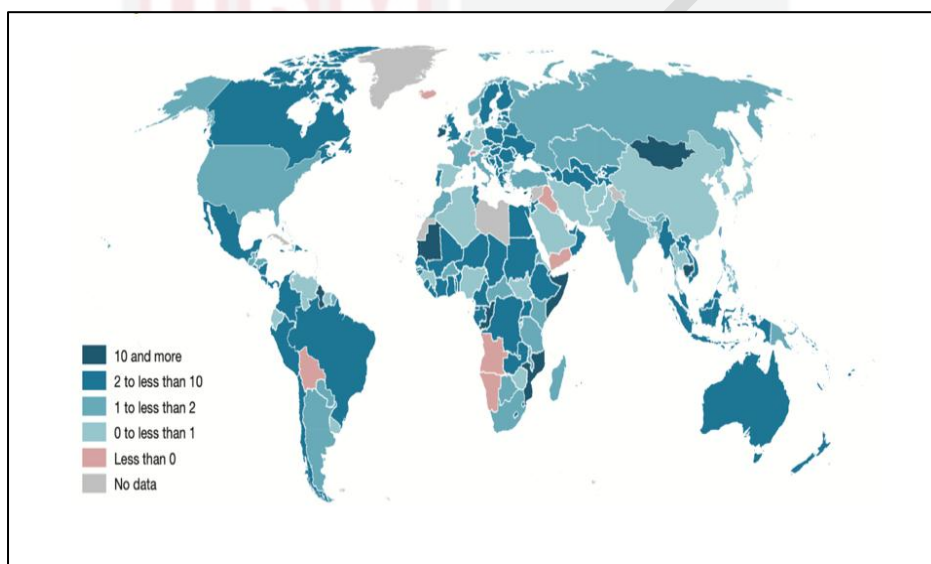


Figure 1.8 : Foreign direct investment, 2019
(Source: Heritage Foundation, 2021)

In fact, freedom of cross-border exchange may help domestic firms to penetrate international markets that would attract significant levels of FDI. That is, the economic freedom factor is a determinant of the attractiveness of a country to FDI inflows. However, the significance of economic freedom in attracting more FDI at the beginning of the growth period does not sufficiently explain this growth, but positive changes in economic freedom may. Figure 1.9 indicates that economic freedom continues to grow; between 1995 and 2021, the average economic freedom rating rose to 6.98.

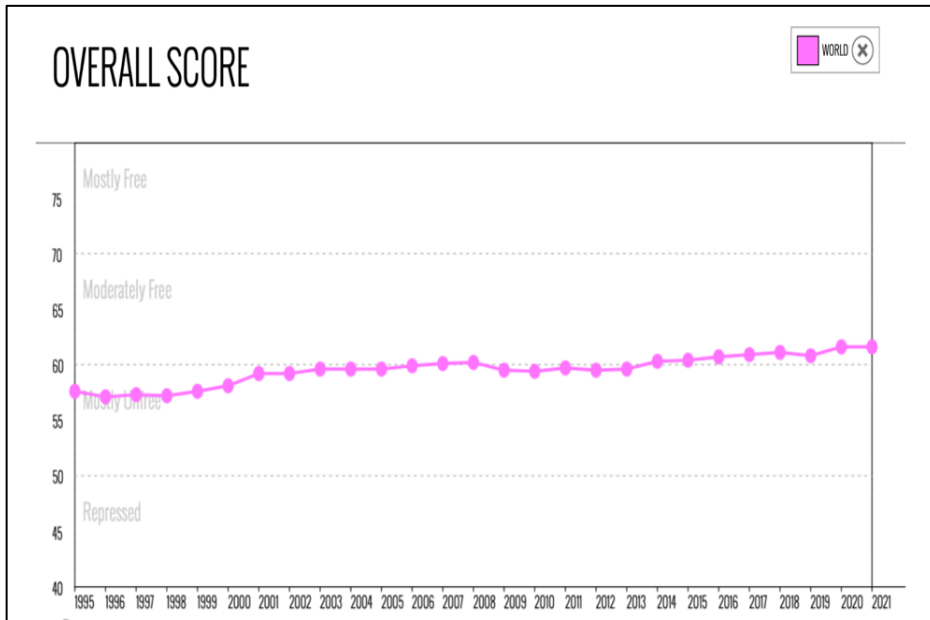


Figure 1.9 : Economic Freedom, 1995 – 2021
 (Source: Heritage Foundation, 2021)

Despite this, various economic freedom factors alone may not accurately represent FDI. In fact, economic growth may be faster in a country in which economic freedom is being denied. Given the significance of these factors, the Heritage Foundation defines economic freedom as an aspect of human liberty concerned with the individual's material independence in relation to the state and other prearranged groups.

This term, which was defined in relation to the Economic Freedom Index (EFI), encompasses business freedom, the investment climate, the openness of trade and the monetary and fiscal environment in the index, as shown in Figure 1.10. Economic freedom, in its ideal form, provides for the absolute right to property ownership; best-practice freedom of movement for labour, capital and goods; and the total absence of coercion or restraint on economic liberty beyond what is necessary to protect and preserve liberty itself. The fundamental objectives of guaranteeing economic freedom are, firstly, to promote entrepreneurship and, secondly, to decentralise and liberalise business and economic conditions by decelerating government interference. Although many studies have been conducted on this topic, economic freedom is an important determinant of FDI and its impact can be generalised into a single freedom index (Hossain, 2016; Moussa et al., 2016).

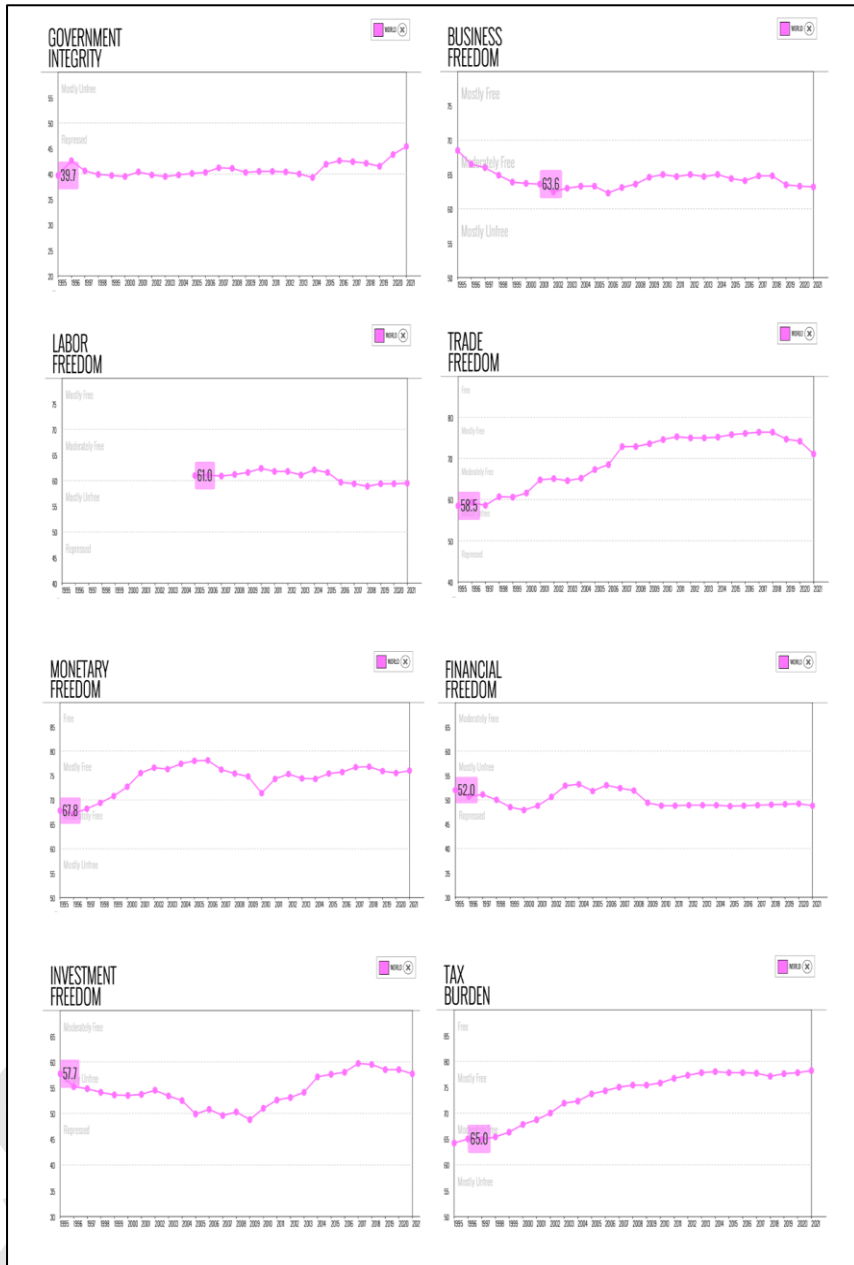


Figure 1.10 : Foreign direct investment, net inflow as share of GDP, 1970 – 2021 (Source: Heritage Foundation, 2021)

Since the early 1980s, developing and transitioning countries have been the most active in adopting new policies, which have led to fewer restrictions on FDI flows. This pattern became more evident in the 1990s. In 2016, 58 countries and

economies established 124 policy measures that would affect external investment. Such new legislative and political conditions are commonly used to encourage the development of new businesses and reduce risk in emerging economies. MNCs also regularly update their policies to adapt to changes in trading environments. The prevalent trend of FDI is for it to be a source of direct investment in capital but a substantial channel of capital labour is distributed in countries through MNCs (Grossman & Helpman, 1995). FDI also tracks flows from economies driven by advanced technology into economies that are middle ranking in their use of technology. FDI has also generated investment among economies that make extensive use of high-level technology. Additionally, the growth theory of the 1980s predicted that technological progress and FDI would permanently affect a host country through technology transfer and spillover (Lipsey et al., 1999; Kok & Ersoy, 2009; Petri, 2012).

1.1.3 Growth, FDI and Intelligence

The effect of foreign direct investment (FDI) on growth has been rigorously debated in economic literature. Growing interest in this field also encompasses the application of recent policies that have been developed to attract more FDI inflows. Since the beginning of the 1980s, many foreign capital flow restrictions have been lifted by both developed and developing countries. As Figure 1.11 illustrates, global FDI inflows increased dramatically, from \$57 billion in 1982 to \$1,540 billion in 2019. In fact, over recent decades, the global FDI growth rate has outpaced those of global trade and GDP (UNCTAD, 2020).

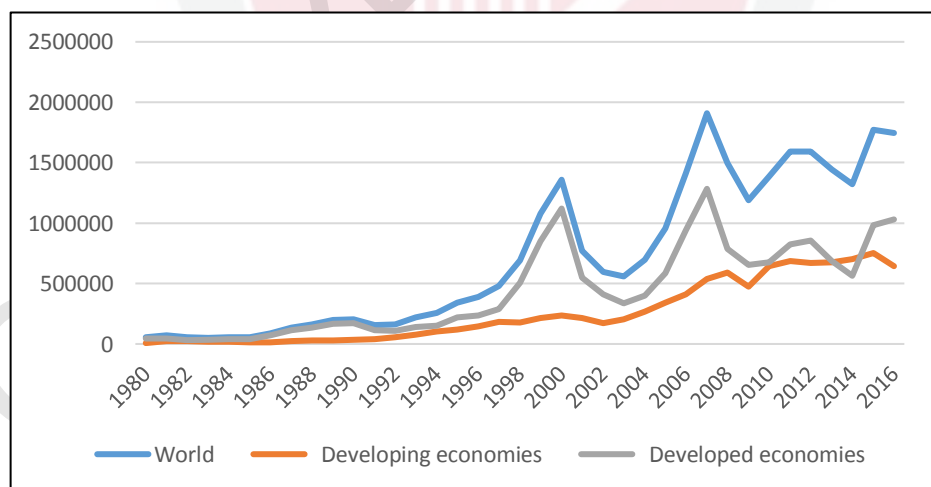


Figure 1.11 : FDI inflow: global and by group of economies, 1980 – 2019
(Source: UNCTAD, 2020)

The reason behind the increased effort to attract more FDIs is the widespread belief that FDI has numerous positive effects. These include productivity gains; the transfer of new technology; the introduction of new processes, management techniques and technical know-how to the local market; better employee training and enhanced international production networks (Dunning, 1958; Caves, 1971; Rugman, 1979; Kogut, 1983; Sethi et al., 2003). Additionally, many argue that FDI can improve the stages of economic growth due to its resource-seeking and efficiency-seeking approach, as well as the market- and labour-intensive production processes involved (Sethi et al., 2003). In fact, FDI is less volatile than other financial flows such as short-term capital, so it is considered favourably as a long-term investment in that respect (Albuquerque, 2003; Azman Saini et al., 2010; Eichengreen et al., 2018). Hence, theoretical literature suggests that FDI inflows benefit the host country significantly, although empirical studies on the FDI–growth relationship have produced mixed results (Alfaro, 2004; Charlton & Davis, 2007; Alfaro et al., 2009).

Some studies in the related literature have found that FDI exerts a positive growth effect on the recipient countries (Li & Liu, 2005; Chaudhry et al., 2017; Musibau et al., 2019; Abouelfarag & Abed, 2019). An alternative suggestion is that no evidence (Alvarado et al., 2017) can be found for any effect of FDI on growth. Earlier literature on the FDI–growth nexus identified absorptive capacity as a key explanation for the ambiguous results. Indeed, the growth effect of FDI may be weak in countries with poor (low) absorptive capacity (Kim, et al., 2015). In fact, FDI spillovers do not occur automatically as a result of the presence of MNCs but when host countries possess certain qualities that enable them to maximise the benefits of FDI inflows (Girma, 2005; Smith & Thomas, 2017; Morales & Moreno, 2020). In earlier literature, several factors were recognised as important elements of absorptive capacity, such as economic freedom, the quality of human capital (e.g. intelligence level), trade policies, the financial market and economic development.

Meanwhile, various works in the literature emphasise the role of human capital in terms of education (that is, at primary, secondary and tertiary institutions) and intelligence, and the connection these factors have with the financial market. However, the focus has been primarily on the direct effect on economic growth. Hence, this is not the first article to examine the role of intelligence (i.e., IQ level) in prosperity. Previous studies of national intelligence (IQ levels), also known as average cognitive ability (Rindermann, 2007), have assessed its impact on respective national levels of socio-economic development. Countries with IQs higher than average have efficient economies that generate more productivity than those of countries with lower IQs (Ervik, 2003; Richardson, 2004; Lynn & Vanhanen, 2005; Jones & Schneider, 2006; Dickerson, 2006; Jones, 2012). Although the IQ–productivity connection has been well established, several recent empirical studies found that IQ is also significant in boosting growth across various nations (Lynn & Vanhanen, 2002; Lynn et al., 2016).

Figure 1.12 shows IQ levels for selected countries that have been used in these studies, 58 countries in total. Statistically, China recorded the highest global IQ level of 104.59, while South Korea was positioned among the low-level IQ countries, at 52.48. These IQ scores also indicate a direct link with economic growth by impacting potential multinational partnership absorption (e.g. direct or indirect). This disseminates knowledge instead of FDI border spills, since cross-country ties allow an excess of significant sources of knowledge to stimulate developments more quickly than domestic companies alone.

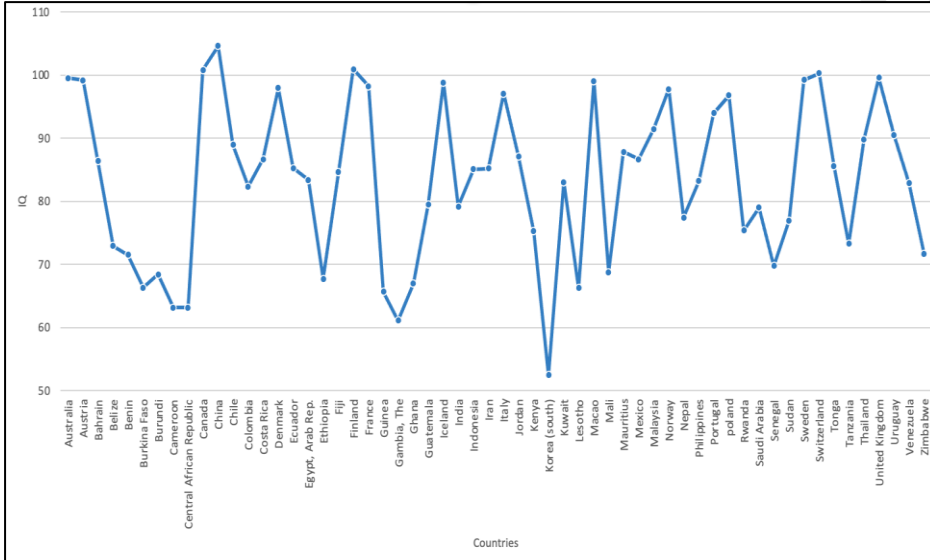


Figure 1.12 : National Intelligence (IQ)
(Source: Lynn and Vanhanen, 2012)

Existing FDI frameworks allow MNCs to make investment decisions in accordance with specific strategic targets (Sethi et al., 2003). This assumes that societies with higher cognitive skills are more innovative and capable of perceiving and exploiting any production new opportunities offered by FDI. This perspective is consistent with characteristics that define general intelligence: the capacity to reason deductively or inductively, think abstractly, synthesise information and use analogies. Intelligence also refers to the ability to subsequently apply these processes to new situations or situations and solve problems (Rosander et al., 2011; Waterhouse, 2013).

Figure 1.13 illustrates an intelligence ranking of selected countries (developed and developing). The most common intelligence ranking was the 80-89 IQ range, which applied to 29% of the countries. The joint-second most common range for countries was at approximately 20.68%, exhibiting levels of IQ from 70 to 79 and from 90 to 99. The least common ranking, at 10.38%, was in the range of 100 to

110. Intelligence levels are a form of innovation that entails endowing existing resources with a new capacity for wealth creation in economic activities. This process capitalises on opportunities and restabilises the economy. Furthermore, intelligence contributes to the economy and the well-being of societies through job creation and innovative activities.

The concept of the external efficiency of the education system builds on the theory of human capital, which postulates that all things being equal, education tends to augment skills and productivity, as well as raise lifelong earnings (Sala-i-Martin, 2011). The external efficiency of the education system means the ability to limit misallocations of the supply of and demand for skilled labour. There is a consensus that in most countries, significant mismatches exist between the output of the education system (the skilled labour supply) and the nature of the demand for skilled workers in the labour market (Sala-i-Martin, 2011). The quality training the labour force receives with regard to the economic activity requirements, as captured by the level of external efficiency, is crucial in attracting FDI.

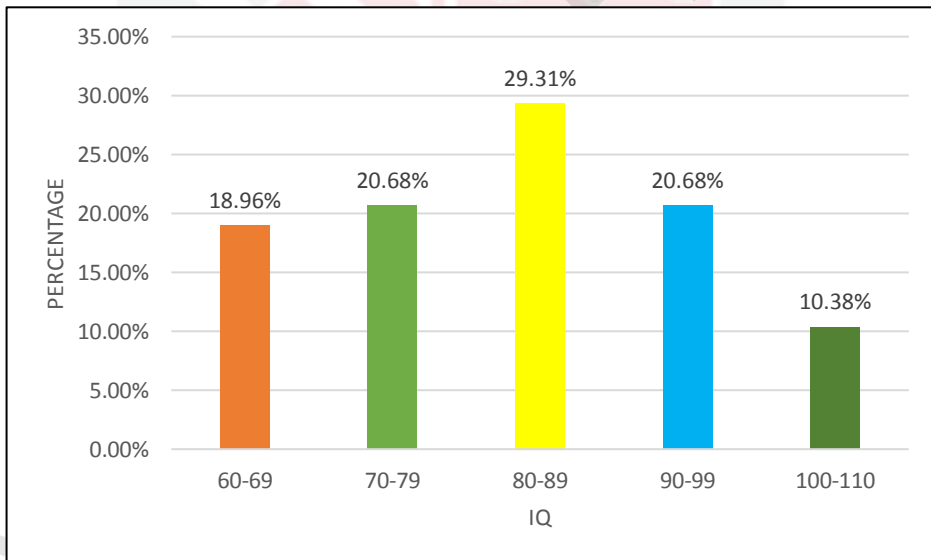


Figure 1.13 : Intelligence score
(Source: Lynn and Vanhanen, 2012)

To the best of the authors' knowledge, this study is the first to make a causal link between the external efficiency of human potential (e.g. IQ level) and FDI. To illustrate the association between intelligence and FDI, a scatter plot between IQ level and FDI is provided. Figure 1.14 supports the argument that overall intelligence is positively associated with FDI. For instance, a high level of IQ indicates a high FDI capacity in the majority of host countries. However, a

country with low levels of IQ may also attract high FDI contributions for other reasons. A moderate level of IQ means the amount of FDI may still improve innovation and policy design in the host country.

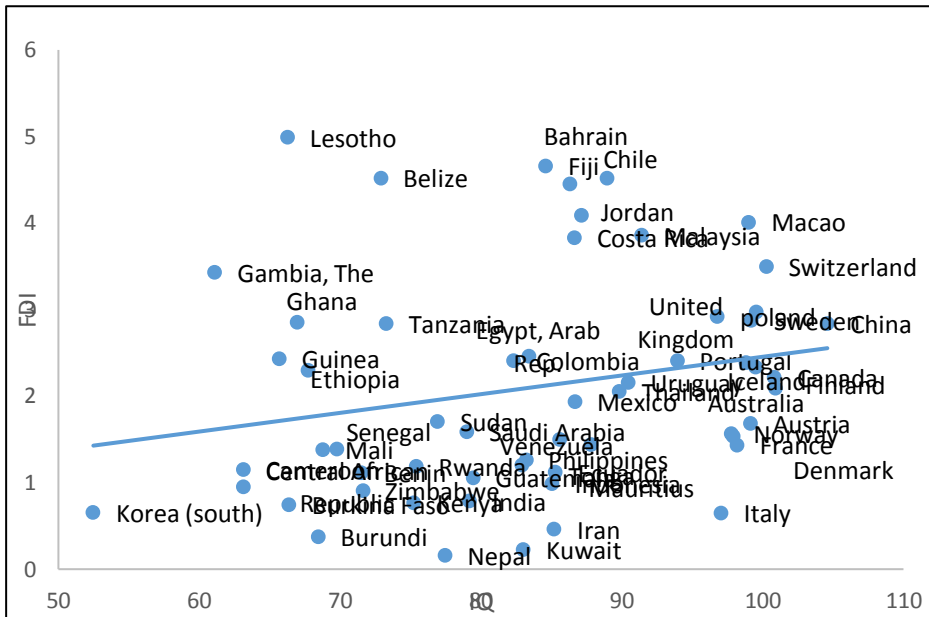


Figure 1.14 : Intelligence and FDI
(Source: Lynn and Vanhanen, 2012)

Table 1.2 shows the leading ten highest intelligence scores and the ten lowest intelligence scores among the countries selected in this study. Following this distribution, it is clear that the country recording the highest IQ level score was China, followed by Finland, Canada, Switzerland, the United Kingdom, Australia, Sweden, Austria, Macao and Iceland. In the current situation, lower levels of intelligence are sufficiently serious to prevent the potential growth of countries.

Further, to capture the indirect effects of FDI on economic growth, this paper outlines how recent literature has highlighted the importance of human capital in the growth process (Lynn, 2012). This research emphasises that the impact of FDI inflows on growth is not automatic, but depends on the IQ level in the host countries. This argument is based entirely on the fact that a low level of IQ (i.e., intelligence level) can limit a nation's or firm's capacity to capture and absorb new technology from multinational corporations (MNCs), which would contribute strongly to economic growth.

Table 1.2 : Highest intelligence score and lowest intelligence score

Highest Intelligence Score	Low Intelligence Score
1. China	1. Korea (South)
2. Finland	2. Gambia
3. Canada	3. Cameroon
4. Switzerland	4. Central African Republic
5. United Kingdom	5. Guinea
6. Australia	6. Lesotho
7. Sweden	7. Burkina Faso
8. Austria	8. Ghana
9. Macao	9. Ethiopia
10. Iceland	10. Burundi

(Sources: Lynn and Vanhanen, 2006)

1.2 Problem Statement

Ever since the publication of Adam Smith's book in 1776 entitled *An Inquiry into the Nature and Causes of the Wealth of Nations*, understanding economic growth has been one of the important national agenda. Over the years, economists have attempted to uncover the causes of growth and inquired on the policies that countries can adopt in order to maintain and promote it. Nevertheless, explaining why some countries grow faster than others is a complex issue, and the literature on this subject is filled with many controversies.

In the literature, globalisation appears to be one of key determinant for growth. Over the past few decades, globalisation is getting stronger across the globe as many countries open up their borders for more trade and foreign capital. Since then, the real impact of globalisation on the economy has been extensively analysed and debated in the literature. One of the aspects that receive significant attention is whether the globalisation has any impact on income inequality across countries. Unfortunately, the literature on the impact of globalisation on income inequality is filled with many controversies and the findings are largely inconclusive. The mixed findings found in the literature is partly due to measurement of inequality and the methodology employed in the research. Most of the studies focussing on the impact of globalisation on income inequality have relied on Gini coefficient. This study extends the the literature by providing a new way of testing the impact of globalisation on income inequality. This study applies panel generalized quantile regression which allows us to decompose the impacts of globalisation across different spectrum of income level. Specifically, this modelling strategy allows us to investigate the possible differential impact of globalisation on income at different level.

FDI is viewed as one of the important sources of capital for many countries to finance their development agenda. Several theories predict that FDI contributes to economic growth via several positive externalities such as the diffusion of new technology, productivity gains, the introduction of new processes, management techniques, and technical know-how in the local market, employee training, and international production networks. Based on the belief that FDI may bring many positive benefits, many countries have eased restrictions on the flows of foreign capital and offered various types of incentives in order to attract FDI. As a result, FDI flows surged significantly over the past few decades. However, the data reveals that increases in FDI inflows are not uniform across countries or regions as few countries are able to attract more FDI than the others. Among the regions, Asia and Latin America appear to be the most popular destination for MNCs but African region seems to be struggling in attracting FDI inflows. Several studies have explored the factors that may influence FDI flows and many factors has been identified in the literature. However, the literature is surrounded by the problem of uncertainty when a factor, which appears to be important in few studies, turn out to be unimportant in other studies. Generally, the literature fails to identify the true and robust determinants of FDI as there is no a widely accepted set of explanatory variables that can be considered as true determinants of FDI. Drawing on recent literature which emphasises on the importance of institutional quality in the development process, this study extends the literature by examining whether economic freedom is a robust determinant of FDI. Various components of economic freedom will be tested as they may have different influence on FDI inflows.

Another important observation related to FDI is that not all FDI recipients seem to benefit from FDI inflows. A review of both theoretical and empirical literature reveals that the positive effects of FDI on growth are not automatic consequences of MNCs presence. Evidence shows that that only few countries have successfully benefited from FDI inflows. However, there are evidence which reveal that the growth-effect FDI is either negative or neutral. Several reasons have been identified to explain such finding and absorptive capacity appears to be the most popular in recent literature. According to this viewpoint, FDI may not have a positive growth effect in nations with low absorptive capacity because FDI spillovers is not automatic but occur only when host countries have attained a certain level of quality that enables them to reap positive FDI spillovers. In order to gain a better understanding of the nature of the FDI-growth relationship, this study draws on recent literature that emphasizes the importance of human capital in the development process. In particular, this study extends the literature to highlight the possible role of intelligence (i.e. IQ scores) in moderating the impact of FDI on economic growth and to formally test whether countries with sufficiently high level of intelligence would benefit from FDI inflows. Being an important component of human capital, there are several reasons to expect that countries with higher levels of IQ will have greater absorptive capacity, and thus allow them to reap more benefits from FDI spillovers. Generally, IQ level provides insight into the characteristics of an organisation's learning potential. By having a group of well-educated workers and high skilled labor, the process of blended learning in knowledge and skills-

intensive industries will meet the demands of multinational firms involved in high-technology industries.

1.3 Objectives of the Study

The main objective of this study is to investigate several issues related to globalisation. In particular, this study aims:

1. To examine the impact of globalisation on income inequality in developing countries.
2. To identify robust determinant of foreign direct investments inflows with a special emphasis on various components of economic freedom.
3. To examine the role of intelligence (i.e. IQ scores) in moderating the impact of FDI on economic growth.

1.4 Significance of the Study

Over the past many decades, the impact of globalisation on income inequality in developing countries is one of the the most debated issue. Previously, the significant role of globalisation in influencing income inequality has been poorly understood. Most of the empirical studies show that globalisation has increased income inequality in developing countries, inconsistent with Ricardo's theoretical prediction which states that integration might benefit poor countries. Nevertheless, the literature on the impact of globalisation on income inequality has been largely inconclusive with mixed findings. Most of the study on income inequality have used Gini coefficient as a measure of income inequality. This study contributes to the literature by providing a new way of testing the impact of globalisation on income inequality. This study applies panel generalized quantile regression which allows us to decompose the impact of globalisation on income at different level. It allows us to inmvestigate the heterogenous impact of globalisation on income and test whether the impact is different across high- and low-income groups.

Due to increasing globalisation across the globe, understanding what factors determine foreign direct investment (FDI) remains one of the top priorities for economists and policymakers. A large number of literatures have been conducted to identify the determinants of FDI, given that there is no a widely accepted set of explanatory variables (e.g theories and empirical) that can be considered to be the true determinants of FDI. Given a large number of possible determinants proposed by theory, it is impossible to nest all of them in a grand specification in a general-to-specific approach. Generally, the literarure failed to identify the true and robust determinants of FDI. The literature suggests economic freedom as a possible FDI determinant. However, the results in the

literature appears to be very sensitive to this factor, indicating a lack of robustness in the influence of economic freedom on FDI inflows. Moreover, the literature fail to address various types of economic freedom indicator which may have different impacts on FDI flows. For this reason, this study contributes to the literature by examining the impacts of various types economic freedom index on FDI inflows. We attempt to identify robust redeterminants of FDI by relying on Extreme bound analysis (EBA) developed by Sala-i-Martin (1997).

FDI is an important element of globalisation in recent years as indicated by it increasing trend. Many countries offer various types of incentives in order to attract multinational corporations (MNCs) because they believe that FDI has a number of positive spillover effects, including increased productivity, new technology transfers, the introduction of new processes, management techniques, and technical know-how in the local market, employee training, and international production networks. However, the literature suggests that not all countries benefited from MNCs presence because the positive spillovers linked to FDI is not automatic but depends on the ability of the host country to absorb it. Several factors have been identified as essential parts of absorptive capacity such as economic freedom, human capital quality, trade policy, financial markets, and economic development, among others. This study contributes to the literature by drawing on the literature that emphasises the importance of human capital in economic development. According to this viewpoint, host countries must have human capital that are able to understand and work with new technology. This study fills the gap by investigating the possible role of intelligence (i.e. IQ level) of the population in the host country in realizing the positive impact of FDI on growth. We formally test whether countries with sufficiently high level of intelligence would benefit from FDI inflows.

The rest of the paper is structured as follows; Section 2 offers a brief review of the literature on globalisation and income inequality, foreign direct investment (FDI), economic growth, and intelligence in terms of theory and empirical analyses. Next, Section 3 describes the data and methodology used. Section 4 analyses data and present the results. Finally, Section 5 provides conclusions, and policy implications as well as the directions for future research.

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