

The University of Adelaide

Exploring the Trade and
Economic Growth Nexus in
ASEAN and SADC

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Declaration

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Abstract

This dissertation consists of two chapters dedicated to the understanding of the effects of trade (import and export of goods and services) on economic growth. Chapter 2 seeks to understand the effects of trade on the economic growth of the 26 economies in the Association of South East Asian Nations (ASEAN) and the Southern African Development Community (SADC). The second part examines the relationship between economic growth and trade amid this set of high and low growth economies. The first part of Chapter 3, seeks out the enablers of trade in services in ASEAN and SADC and the second part, investigates the link between trade in services and economic growth in the same configuration.

Chapter 2 is divided into two parts. The first part of the study builds on work by Robert M. Solow (1956) and Trevor Swan (1956), who developed an endogenous growth model independently of each other, which later came to be known as the Solow-Swan growth model. It identifies eight independent variables which could potentially affect economic growth in the 26 economies of ASEAN and SADC between 2000 and 2018. They are regressed using the following methods: Ordinary Least Squares (OLS), Random and Fixed Effects (under the Hausman Test). In the second part of this research, to enhance the understanding of the entire distribution, a quantile regression approach, which was first introduced by Koenker and Basset (1978), is employed. The five chosen quantiles are – 5th, 25th, 50th, 75th and 95th.

The FE results for the import and export models, which were preferred under the Hausman Test, suggest a significant and positive correlation between imports and exports, capital goods accumulation and government effectiveness and economic growth. They also suggest a significant and negative correlation between natural resources rent, Foreign Direct Investment (FDI), Official Development Assistance (ODA) and internet (proxy for technological advancement) and economic growth for this set of economies. The quantile regression results suggest that effect of trade diminishes as the economies become wealthier.

Chapter 3 considers the effects of nine independent variables on the import and export of trade in services, in ASEAN and SADC between 2000 and 2018. The OLS and FE and RE (under the Hausman Test) regression methods are employed. The results show that that the nine variables have an effect on the regions' services' imports and exports but not all of them are statistically significant.

The second part of Chapter 3 also builds on the Solow-Swan growth model work, instrument variables are constructed, and the following regression methods are employed; OLS, FE, RE and 2-Stage Least Squares (2SLS) (fixed effect) to estimate the effects of trade

in services on economic growth in both configurations over the period of 18 years (2000 to 2018). The results point to a positive link between trade in services and economic growth in ASEAN and SADC. Importantly, the results suggest that services imports have a greater impact on the economic growth of these 26 economies. This is counterintuitive according to economic theory, which has a negative view of imports. However, some empirical studies point to the beneficial effect of services imports, they find that services function as inputs to the production of other services and the goods production process.

I dedicate this to my mother and father – my inspiration.

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Chapter 1

Introduction

1.1 Background

An economy's ability to increase its living standards is relies on its capacity to raise its output per worker (Krugman, 1994); this underlines a link between living standards and productivity. It also explains the different levels of living standards globally. One of the measurements widely used to measure the standard of living in an economy, is the Gross Domestic Product (GDP). It is the market value of goods and services produced within an economy at market prices, by nationals and foreigners alike (Argandona, 2016).

The measurement of economic growth over time relates to an expansion (either positive, zero or negative) of the national income, which is usually expressed as either Gross Domestic Product (GDP), Gross National Product (GNP), Gross National Income (GNI) and expressed in relative and absolute size, per capita (Haller, 2012). GDP measures the value of final goods and services produced by a country during a period (OECD, 2009), whereas GNP includes net property income from abroad¹, whilst GNI includes GDP and net receipts from abroad of compensation of employees, property income and net taxes less subsidies on production. The use of GDP spread globally after the Bretton Woods Conference in 1944, which led to the creation of the World Bank and International Monetary Fund².

There are three different approaches used in calculating GDP; income, expenditure; and production. Countries calculate their GDP in their own currency and for comparison purposes, they use a common currency - usually the United States Dollar (US\$) (OECD, 2009). There is also published research that highlight the limitations of GDP as a measurement of economic growth; however, this subject is beyond the scope of this thesis.

There are six factors, which have been identified as the main determinants of economic growth; efficiency and demand, in addition to the four supply factors; capital goods, human resources; natural resource endowment; and technology (Boldeanu and Constantinescu, 2015). The level of economic growth depends on the accumulation of these factors, which in turn depends on the level of investments in them, with the exception of natural resource endowment.

¹ <https://www.economicshelp.org/blog/3491/economics/difference-between-gnp-gdp-and-gni/> - viewed 10 January 2020.

² Council for Foreign Relations - <https://www.cfr.org/article/gdp-and-economic-policy> - viewed 10 January 2020.

There is a considerable amount of economic literature, which suggest a link between international trade and economic growth. For example, work by Dollar (1992); Ben-David (1993 and 1996); Alcala and Ciccone (2004) argue that openness to trade is linked to economic growth and productivity. Literature in the 1970s and 1980s focuses on the benefits of exports to economic growth which was inspired by the rapid growth of the East Asian economies during that period (see discussions by Balassa, 1977 and 1978, Krueger, 1978 and 1981, and Findlay 1995). However, Stiglitz and Yusuf (2001) and World Bank (2003) point out that trade in combination with other factors such as high levels of domestic savings and human capital accumulation in addition to the stable macroeconomic environment allowed for technological transfer.

Perspectives relating to the impact of services on the economic growth has evolved over time and could be divided into three distinct phases. In the late 1960s, they were associated with low growth and productivity (Baumol and Bowen, 1967 and Fuchs, 1968). From the late 1970s, literature emerged on their contribution to the growth of the productive sectors - Hill (1977) and later Bhagwati (1984). Recent works by Li, Greenway and Hine (2002), Hoekman and Mattoo (2008), Baldwin (2012), Young (2014), Lanz and Maurer (2015), van der Marel and Saez (2016), Roy (2019) and WTO (2019), indicate their positive effects on economic growth.

The services sector has the largest share of the global economy. The data shows that the service sector makes up between 49 per cent (in South Asia) and 77 per cent in North America (WTO, 2019). It also suggests that the services sector consists of two thirds of the global GDP, while providing half of the global employment. The data also shows that the services sector has a significantly higher share of GDP in High Income economies and have a greater share of employment (between 69 per cent and 75 per cent) compared to the low- and middle-income economies (between 54 per cent and 43 per cent).

1.2 ASEAN and SADC

The Association of South East Asian Nations (ASEAN) was established in 1967 by the ASEAN Declaration (Bangkok Declaration), initially signed by five economies³. By the end of December 2018, the membership comprised of the following ten economies: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Singapore, Thailand, Philippines and Vietnam.

³ ASEAN Website <https://asean.org/asean/about-asean/overview/#> - viewed 31 December 2019

As part of its aims and objectives, ASEAN was created to accelerate economic growth in the region, expand trade, promote connectivity amongst its members and raising living standards⁴. In terms of goods trade, ASEAN established its Free Trade Area (FTA) in 1992 and in 1998, it established the ASEAN Framework Agreement on Services.

The Southern African Development Community (SADC) was established in 1992 and by the end of December 2018 the membership comprised of 16 economies; Angola, Botswana, Comoros, DR Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

The SADC Treaty (1992) which establishes the organisation, sets out the objectives of the Organisation, which are to achieve development and economic growth, alleviate poverty, enhance the standard and quality of life (see SADC website). The SADC Free Trade Agreement (FTA) came into force by 2008, but trade in goods is complicated by the existence of the Southern African Customs Union (SACU), which is made up of five SADC members; Botswana, Lesotho, Namibia, Swaziland and South Africa.

Since 1998, ASEAN members have concluded ten “packages” of services commitments, an agreement on movement of natural persons and seven Mutual Recognition Agreements (MRAs) relating to; accountancy; architectural; engineering; medical practitioners; and surveying qualifications (see ASEAN website). It is already in the process of negotiating upgrades to its existing FTAs to include services chapters such as the ASEAN-Australia-New Zealand FTA, ASEAN-China FTA and ASEAN-Japan Economic Partnership (ASEAN, 2019). The SADC “Protocol on Trade in Services” was established in 2012 and set negotiation priorities in six sectors: communication services, construction services, energy-related services, financial services, tourism services, and transport services⁵. In July 2018, SADC members adopted the list of service sector commitments, which guarantees levels of market access and national treatment in addition to several pro-competitive regulatory principles.

The ASEAN region is more advanced in terms of the establishment of legislative and institutional frameworks than SADC, the data indicates that ASEAN’s services trade performance was superior to SADC’s between 2000 and 2018. During this period, the value of ASEAN’s service imports was between US\$ 87.9 billion and US\$ 391.8 billion compared

⁴ ASEAN Website <https://asean.org/asean/about-asean/overview/> - viewed 31 December 2019

⁵ SADC website- <https://www.sadc.int/themes/economic-development/trade-services/> - viewed 31 December 2019

to SADC which was between US\$ 14.1 billion and US\$ 62 billion. Whereas the value for ASEAN's exports was US\$ 68.9 billion in 2000 and peaked at US\$ 426.1 billion in 2018. In comparison, the value of SADC's exports during this period ranged between US\$ 9.4 billion and US\$ 31.5 billion.

In terms of the contribution of the services sector to GDP in both ASEAN and SADC, the levels varied between economies from 2000 to 2018. In the case of SADC, the sector's contribution to GDP (average (mean)) for the more developed economies; Mauritius, Seychelles, South Africa exceeded 60 per cent annually. For the Least Developed Countries (LDCs)⁶ – Angola, Democratic Republic of Congo, Lesotho and Tanzania, the average level of contribution was between 36 per cent and 54 per cent annually. In ASEAN, the services sector's annual average contribution to Singapore's GDP was 68 per cent whereas for the other members it averaged between 30 per cent and 56 per cent annually, depending on their level of economic development.

1.3 Modelling

Chapter 2 is divided into two parts; it first attempts to understand the effects of trade (import and export of goods and services) and other identified variables on economic growth in ASEAN and SADC using an augmented neo-classical endogenous Swan-Solow growth model (1956). The second part seeks to understand the effects of trade and the other variables such as Capital goods accumulation, Foreign Direct Investment (FDI), Official Development Assistance (ODA) on these 26 high and low growth economies using the conditional quantile regression method, first introduced by Koenker and Basset (1978). For the purpose of this research, five quantiles are selected; 5th, 25th, 50th (median); 75th and 95th.

Chapter 3 is also divided into two parts; in the first part; two log-linear models (import and export) are created based on the literature to identify the determinants of trade in services in ASEAN and SADC between 2000 and 2018. In the second part, again using an augmented Swan-Solow endogenous growth model (1956), to ascertain the effects of trade in services on economic growth in this group of 26 economies. To mitigate against possible endogeneity, a two-stage least squares (2SLS) method is employed. In the first stage, Foreign Direct Investment (*FDI*) is instrumented using seven Instrumental Variables (IVs); Rule of Law, Control of Corruption, Political Stability, Voice and Accountability, Trade Openness, Human Capital and Government Effectiveness.. The instrument was built using existing literature.

⁶ United Nations LDC classification: <<https://unctad.org/topic/least-developed-countries/list>>, viewed 22 October 2019

The fitted value is incorporated into the second stage of the regression. They indicate a positive contribution of trade in services to economic growth amongst these 26 economies.

1.4 Motivation

There are limited published studies which investigate the effects of trade and trade in services on economic growth in ASEAN and SADC. The literature on the contribution of these two topics is largely based on evidence from high-income economies or the data from these 26 economies are often included as a subset of a larger data sample. It also contributes to the existing but limited trade in services literature which seeks to understand the determinants of services for both regions, and it also advances the understanding of the determinants of trade in services. Bearing in mind that ASEAN is the world's fifth largest economy with a combined GDP of US\$ 3 trillion (ASEAN, 2019) and SADC is the largest regional trade grouping in southern Africa and encompasses a market of 345 million – one-quarter of Africa's population (SADC, 2018).

1.5 Dissertation objective

This dissertation attempts to answer four main questions:

1. Does trade (import and export) have an impact on the 26 economies of ASEAN and SADC?
2. What is the effect of trade (imports and exports) on the economic growth of these 26 economies, which are a mix of high and low growth economies?
3. What are the determinants of trade in services in ASEAN and SADC?
4. Is there a link between trade in services and economic growth amongst these 26 economies?

1.6 Structure of the Dissertation

This dissertation is divided into four chapters. Chapter 2 examines the effects of trade on economic growth and its effects amongst these 26 high and low growth economies between 2000 and 2018. Chapter 3 investigates the determinants of import and exports of trade in services in ASEAN and SADC between 2000 and 2018. The second part explores the link between trade in services and economic growth in ASEAN and SADC, during the same time period. Chapter 4 is the concluding remarks.

Chapter 2

An analysis of the effect of Trade on Economic Growth in ASEAN and SADC between 2000 and 2018.

2.1 Introduction

The relationship between trade and economic growth has been theorized as far back as the 18th century. Adam Smith (1776) connects international trade to division of labour, he opines that the division of labour is extended once nations establishes trade with each other because the international market is larger than the domestic market (Schumacher, 2012). This increases the nation's wealth and its population. David Ricardo's (1817) comparative theory suggests that international trade mutually benefits two nations through specialisation (Frieden and Rogowski, 1996). Whilst the Heckscher–Ohlin–Samuelson model (1954) further developed the comparative advantage theory, it proposes that international trade is beneficial to economies if they trade in the goods which they have an abundant resource base (Siddiqui, 2016). It posits that developing economies should specialise and export labour-intensive goods and developed economies should specialise in capital-intensive goods, highly skilled capital goods and technology.

However, empirical studies fail to establish a conclusive link between trade and economic growth. For instance, work by Balassa (1977) and (1978), Krueger *et al.* (1978) and (1981), and Findlay (1995) find that trade is positively linked to economic growth, based on their analysis of the “miracle” South East Asian economies which pursued export push strategies in the 1970s and 1980s. Although, analysis by Stiglitz and Yusuf (2001) and World Bank (2003) find that trade in combination with other factors such as high levels of domestic savings, human capital and technology transfer and a stable macroeconomic environment, contributed to their economic growth. Vohra (2001) finds that trade is beneficial in economies where there is a certain level of development. Research by Gries and Redlin (2012) and Were (2015) finds that the link between trade and economic growth in low-income economies is insignificant.

The first motivation for this chapter is to determine whether there is a link between trade and economic growth amongst the ASEAN and SADC economies by utilizing the Solow-Swan (1956) growth model. The second motivation is to further the understanding of the different factors which affect these 26 high and low growth economies. This work seeks to add to the extensive literature that exists on understanding the determinants of economic growth. However, it differentiates itself by adding to the scarce literature analysing economic

growth using a quantile regression method, which was first introduced by Koenker and Basset (1978) and specifically applying it to the data from this set of economies. This would assist policymakers in both regions in making specific policy interventions rather than general ones to improve or for the high growth economies to maintain their performance.

To understand the determinants of economic growth amongst these 26 economies, I identify imports and exports and an additional eight variables; population growth, human capital, gross fixed capital formation, natural resource rent (as a percentage of Gross Domestic Product (GDP)), foreign direct investment (FDI), Overseas Development Assistance (as a ratio of Gross National Income (GNI)), Government Effectiveness and internet penetration (proxy for technological advancement). Three models are created; Trade (sum of imports and exports), import and export and regressed using the Ordinary Least Squares (OLS), Random and Fixed Effects (under the Hausman test) methods. The trade model is used for benchmarking purposes.

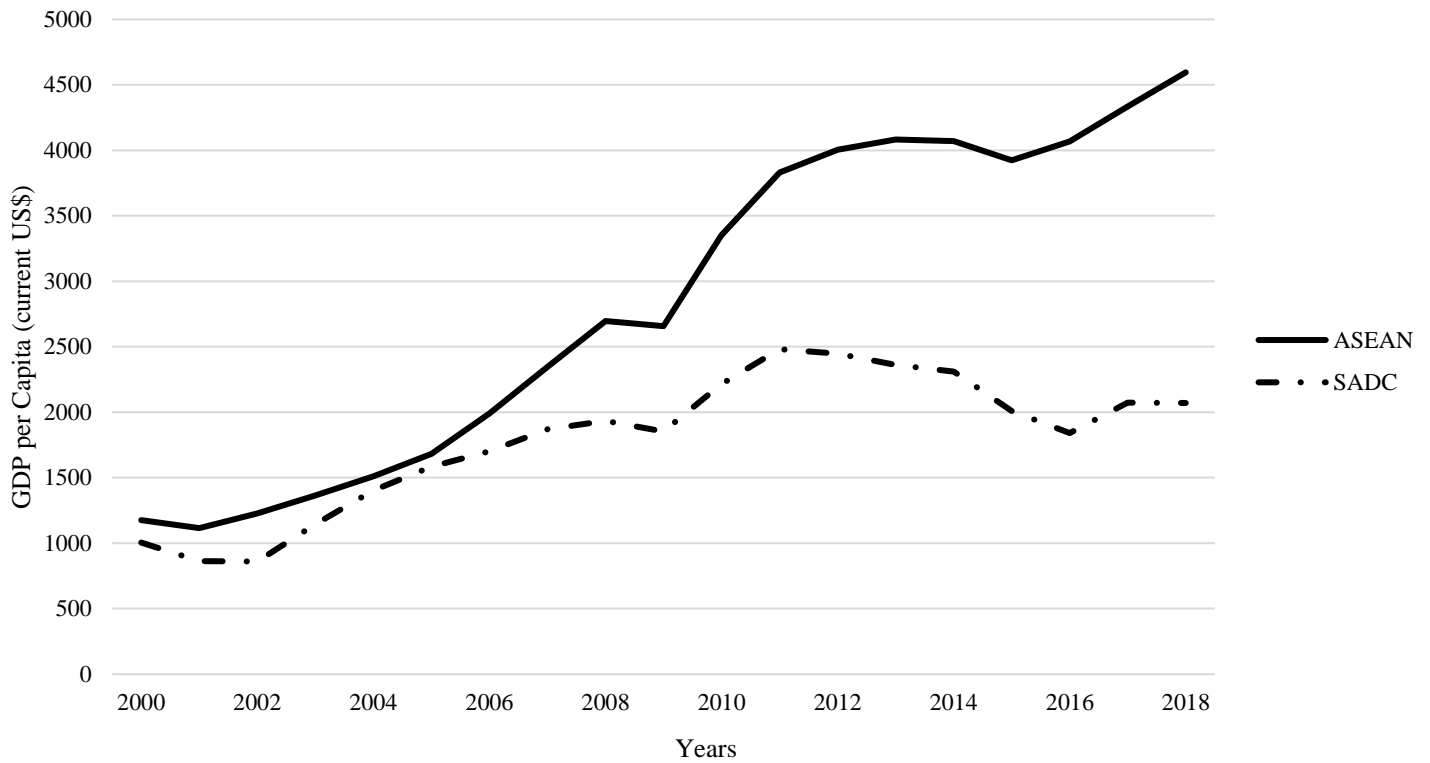
In the second part of this study, I use the same two models and regress them using the unconditional fixed effect quantile regression method. Five quantiles are chosen – 0.05, 0.25, 0.5, .75 and .95. This method is more efficient in identifying the effects of the variables on economic growth according to their performance (Barreto and Hughes, 2004). In both parts of the study, the results suggest a positive link between trade (import and export) and economic growth, however, the quantile results suggest that as the ASEAN and SADC economies grow, they become less dependent on trade.

This chapter is divided into six sections; the next section will provide the regions' key trade and economic indicators between 2000 and 2018, the third section is a literature review on trade and economic growth, the fourth section contains the theoretical framework, the fifth section discusses the models and results and the six section is the conclusion. The results are available in Tables 2.1, 2.2 and 2.3.

2.2 Key economic and trade indicators in ASEAN and SADC between 2000 and 2018

Figure 2.1 shows the aggregated Gross Domestic Product (GDP) per capita in ASEAN and SADC between 2000 and 2018. The data indicates that in 2000, ASEAN's aggregate GDP per capita was US\$ 1,176 and rapidly rose to US\$ 1,682 in 2005. In 2006, we can observe that it began a sharp increase until 2009, reaching US\$ 2,657. It recovered a year later, but was interrupted slightly in 2015, its upward trajectory resumed in 2016 to reach US\$ 4,595 in 2018.

Figure 2.1: Aggregate Gross Domestic Product (GDP) per capita in ASEAN and SADC between 2000 and 2018



Source: Author's calculations using World Bank's World Development Indicators data (2000-2018)

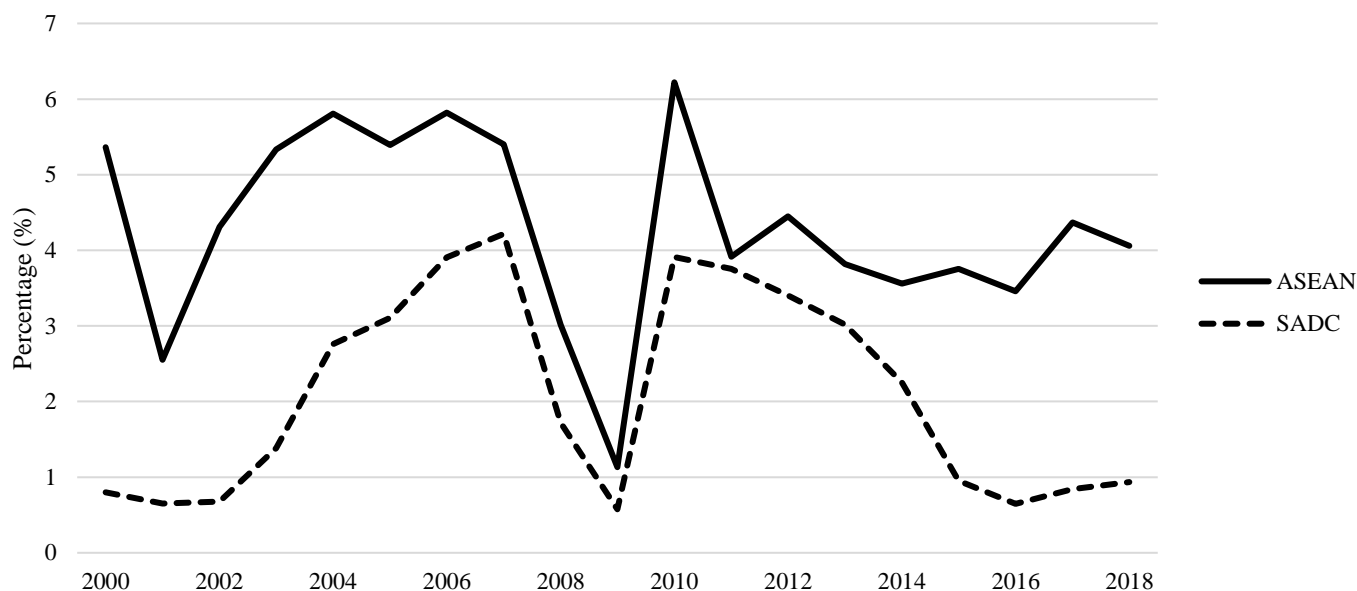
The data presented in Figure 2.1 also indicates that in 2000, SADC's aggregated GDP per capita in 2000 was US\$ 1,005, it however dipped in the next two years to reach US\$ 860 in 2002. It recovered in 2003 and rose to US\$ 1,934 in 2008 and fell a year later to US\$ 1,853. It rose again to reach US\$ 2,481 in 2011 - its peak for this period, it gradually declined to reach US\$ 1,841 in 2016. A year later it recovered slightly and settled at US\$ 2,071 in 2018.

Figure 2.2 indicates ASEAN and SADC's aggregate annual GDP per capita growth between 2000 and 2018. It shows that in 2000 ASEAN's aggregate annual GDP per capita growth 5.4 per cent and it hovered between 5.4 percent and 5.8 percent until 2007. It experienced a sharp decline to reach 3 per cent in 2008 and fell further to 1.1 per cent in 2009. However, it rebounded to reach 6.2 per cent in 2010 – its peak within this period. It declined to 3.9 per cent in 2011 and swung between 4.4 per cent and 3.5 per cent between 2012 and 2017. It then settled at 4.1 per cent in 2018.

Figure 2.2 also indicates that SADC's aggregate annual GDP per capita growth was less than 1 per cent between 2000 and 2002. In 2003, it rose to above the one-percentage mark to reach 1.4 per cent and continued its ascension to reach 4.2 per cent in 2007 – its peak for this period. A year later it fell sharply to reach 1.7 per cent and fell further to reach 0.6 per cent in

2009. It rebounded in 2010 and it remained above the three-percentage mark until 2013. In 2014, it declined to reach 2.3 per cent and between 2015 and 2017, it was below one percent and settled at 0.9 per cent in 2018.

Figure 2.2: ASEAN and SADC’s Aggregate Annual GDP per Capita Growth* between 2000 and 2018*



Notes*: based on constant 2010 U.S. dollars.

Source: Author’s calculation using World Bank WDI data (2000-2018)

Figure 2.3 presents the gross fixed capital formation (GFCF) in ASEAN and SADC between 2000 and 2018. GFCF is defined as the acquisition of produced assets (including purchases of second-hand assets), including the production of such assets by producers for their own use, minus disposals⁷⁸. The main factors, which explain the differences in the level of economic development between economies is the amount of technological innovation embodied within the new capital and the level of investment made either by the public or private sector, in the long run (OECD, 2011).

We can observe that between 2000 and 2018, the GFCF for SADC was significantly lower than for the ASEAN region during this period. It was US\$ 38.5 billion in 2000 for SADC, whereas for ASEAN it was US\$ 149.6 billion – US\$ 111 billion in excess of SADC. Within a seven-year period (2000-2007), the figures indicate that the gross capital formation more than

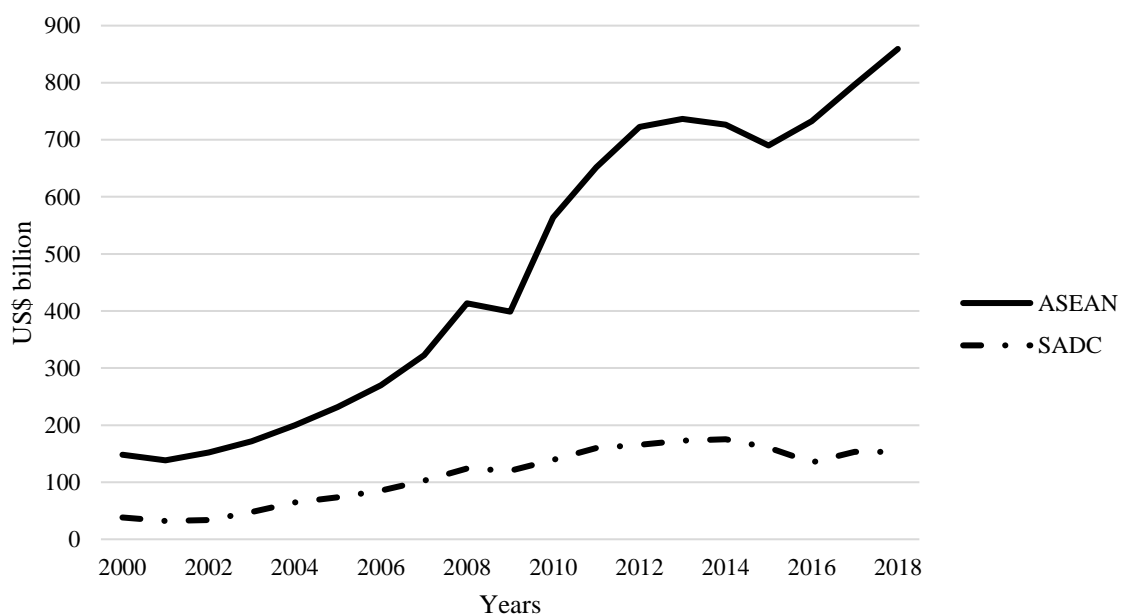
⁷ <https://data.oecd.org/gdp/investment-gfcf.htm> - viewed 20 January 2022.

⁸ In addition, the relevant assets relate to assets that are intended for use in the production of other goods and services for a period of more than a year.

doubled for ASEAN to reach US\$ 323.1 billion, similarly, within the same period it doubled for SADC to reach US\$ 103.5 billion.

The figures also indicate a significant increase for ASEAN between 2009 and 2010 from US\$ 394.9 billion to US\$ 561.8 billion. From 2011 to 2013, it increases for the ASEAN region but at a declining rate, and it eventually declines in 2014 and by 2015, it reaches US\$ 687 billion. It then surges from 2016 and reaches US\$ 859.2 billion in 2018. Whereas, for SADC, the figures indicate an increase of approximately US\$ 20 billion annually from 2009 to 2011 to reach US\$ 161.4 billion, it then increases by US\$ 5.3 billion in 2012, between 2012 and 2014 there is an increment of US\$ 9.1 billion, however, by 2015 it reached US\$ 161.4 billion – a decrease of US\$ 14.3 billion from 2014. In 2016, its decline continues but recovers over the next two years to reach US\$ 153.1 billion in 2018.

Figure 2.3: Gross Fixed Capital Formation in ASEAN and SADC between 2000 and 2018



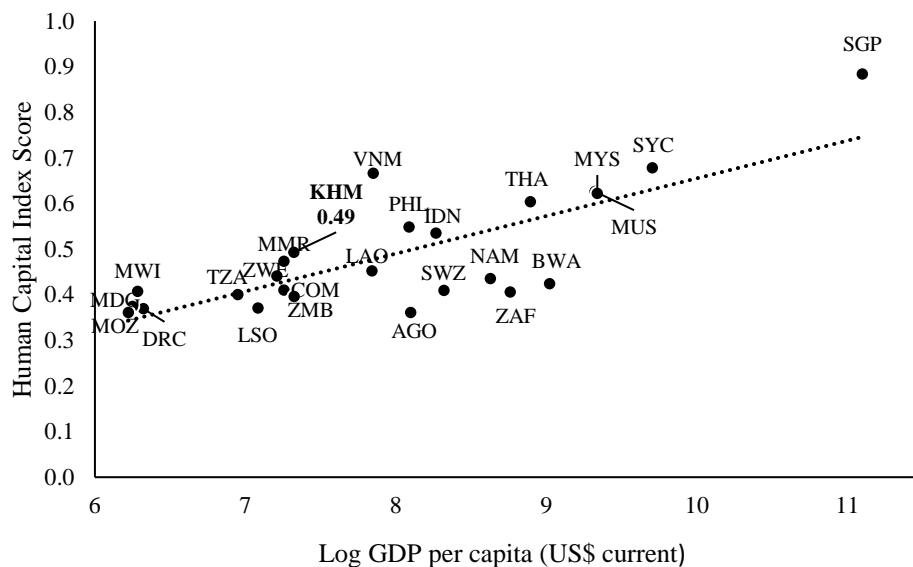
Source: Author’s calculation using World Bank WDI data (2000-2018)

In 2018, the World Bank developed a human capital index, which measures primarily the future productivity of a child born in 2018 as a worker; it is scored between 0 and 1 (being maximum productivity).

To build the education part of the index, it incorporates expected number of school-attending years and adjusted quality of education (based on test scores). For the health part, it uses adult survival rates and the rate of stunting for children under the age of 5, as two proxies because there is no defined overall health indicator, according to the World Bank (2018).

Figure 2.4 presents the Human Capital Index scores and their relationship with GDP per capita (US\$). As expected, there is a positive correlation between the two. They also show that the lower income economies are clustered around the tail end of the trend line, whilst the higher income economies are clustered on the opposite side. As a practical example, if we use Cambodia (KHM), which received a score of 0.49, it signifies that, children born in 2018 in that country would only achieve a maximum of 49 per cent productivity based on the current investment education and health. In other words, the prevailing health and education standards in that country would cost 51 per cent of its national income, through lost productivity. The correlation between the HCI scores and GDP per capita is at 0.77 (Pearson’s correlation), which suggests that a strong positive relationship between the two variables.

Figure 2.4: Human Capital Index 2018 for ASEAN and SADC



Source: Author’s calculation using World Bank WDI and Human Capital Index (HCI) Scores

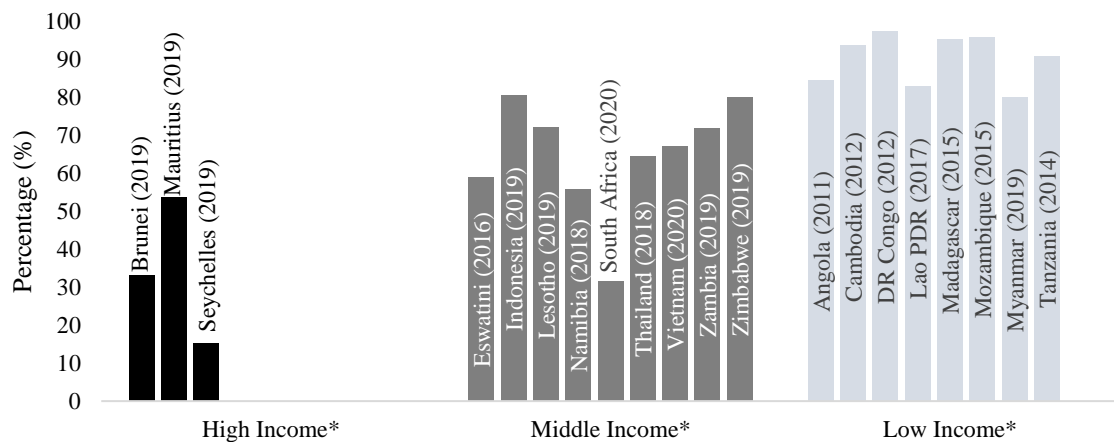
High prevalence of informal employment has detrimental effects to the productive capacity of an economy. More often than not, the self-employed and employees in the informal sector of the economy are engaged in low-productivity jobs without the legal and social protection, at the same time, there are disincentives such as onerous legislation, taxes and social protection schemes to formalize the jobs and allow businesses to grow (World Bank, 2018).

It is worth mentioning that the informal sector’s contribution to government revenue in the form of taxes is minimal because the economic activity is undocumented, such revenue could be used to implement social protection programmes or improve the general wellbeing of the population through the improved provision of services such as education and health or infrastructure projects (World Bank, 2019).

From the data provided in Figure 2.5 we can observe that the largest proportion of employment in the informal sector is in the low-income economies, according to the latest statistics available. There are five low-income economies; Cambodia, DR Congo, Madagascar, Mozambique and Tanzania, which had in excess of 90 per cent of their total labour force employed in their domestic informal sectors. The other three low-income economies had between 80 and 84 per cent of their total labour force in their domestic informal sectors.

It also indicates that the middle-income economies; Indonesia, Zambia and Zimbabwe had between 70 and 80 per cent of their total force employed in their respective informal sectors. Whereas, South Africa had the lowest proportion of its labour force employed in its informal sector – 31.5 per cent. For the high-income economies, the data indicates that informal sector employment of the total workforce in Brunei was 30.9 per cent, Mauritius 53.5 per cent and Seychelles 15.1 per cent. The data indicates that total employment in the informal sector in developed economies, range between 19.5 per cent and 14.4 per cent.

Figure 2.5: Total Labour Force in informal employment in ASEAN and SADC (latest data)



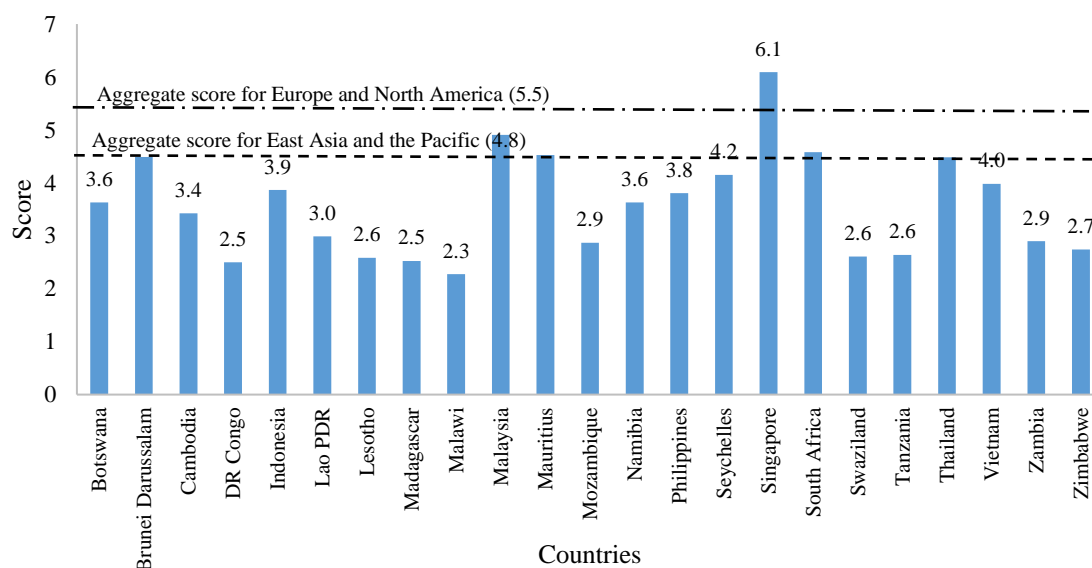
Notes: (1) *World Bank classification of income levels
 (2) Data missing for omitted countries
 (3) Data for the latest available year indicated in parentheses (-)

Source: International Labour Organization (ILO) (2011-2020)

The Technology Readiness as compiled by the World Economic Forum (WEF) scores economies on the basis of seven indicators; (i) Availability of latest technologies; (ii) Firm level technology absorption; (iii) FDI and technology transfer; (iv) Internet Users; (v) Broadband internet subscriptions; (vi) Internet bandwidth; and (vii) Mobile broadband subscriptions per 100 population. It publishes this report every two years.

Figure 2.6 presents the scores obtained by both ASEAN and SADC members for 2017. It indicates that Singapore (6.1) recorded the highest score amongst the membership of both regional configurations. The score even surpassed that of the aggregate score for both Europe and North America (5.5) and East Asia and the Pacific (4.8) – the most developed regions in the world. Malaysia’s score (4.9) is slightly higher than for the aggregate score for the East Asia and Pacific region. The data also indicates that most of the low-income economies have scored below 3. The data also indicates that the ASEAN region overall has a better score than the SADC region, which suggests that the latter has technology deficits that need to be addressed in order for their economies to be more productive in the long run. We also find that the same economies with the prevalence of high employment in the informal sector, scored the lowest in this index, this reinforces the point that the informal sector is associated low productive occupations, which does not contribute positively to the economies’ growth.

Figure 2.6: Technology Readiness Index Score for ASEAN and SADC 2017



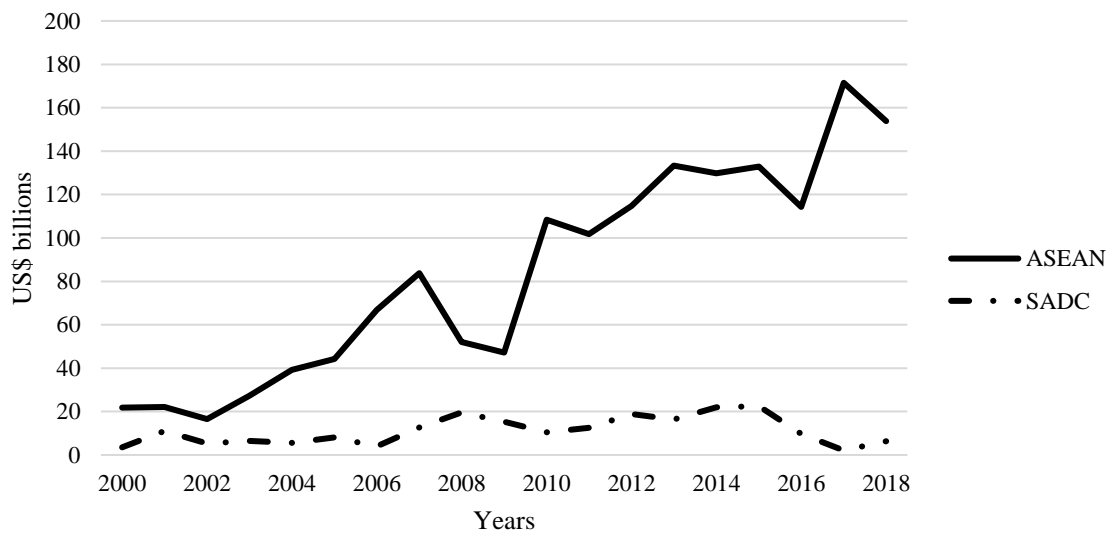
Source: Global Competitiveness Report (WEF) (2017)

Note: Data missing for Angola and Myanmar.

The net foreign direct investment (FDI) data (Figure 2.7), indicates how the level of disparity between SADC and ASEAN. In 2000, the net FDI into ASEAN amounted to US\$ 21.9 billion compared to SADC, which was US\$ 3.46 billion. For SADC, it remained below US\$ 10 billion until 2007, reaching US\$ 12.6 billion and in 2008 it reached US\$ 19.6 billion but declined to US\$ 15.3 billion. In 2014, it passed the US\$ 20 billion mark and reached US\$ 22.5 billion in 2015 – its peak for this period. However, it declined sharply in 2016 and 2017 but then rebounded to reach 6.4 billion in 2018.

Following a decline in 2002, ASEAN’s net FDI inflows experienced an upward trajectory until 2007, reaching US\$ 83.8 billion. In 2008, it declined to US\$ 52.1 billion and a year later it fell by a further US\$ 4.9 billion. Between 2010 and 2016, it oscillated between US\$ 101.8 billion and US\$ 133.3 billion. In 2017, it reached its peak for this period – US\$ 171.5 billion but declined to reach US\$ 153.9 billion.

Figure 2.7: FDI net inflows (US\$ billions) in ASEAN and SADC between 2000 and 2018

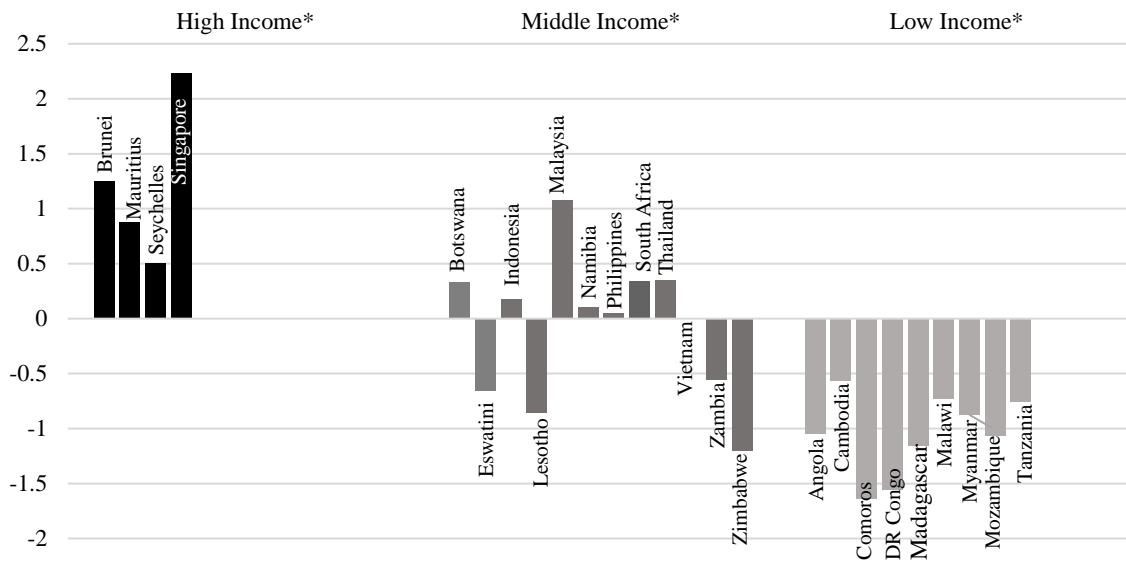


Source: Author’s calculation using World Bank WDI data (2000-2018)

The World Bank’s World Governance Indicators (WGI) database provides a reflection on the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Figure 2.8 shows the Government Effectiveness scores obtained in 2018 based on income levels as classified by the World Bank. Economies are provided with scores of between 2.5 (for the most effective) and -2.5 (for the least effective).

It indicates that out of the 26 economies, Singapore scored the highest with 2.23, whereas the lowest was Comoros with a score of -1.63. We can observe that for the high-income economies the scores are all positive, in contrast, all the low-income economies received negative scores. The scores for the middle-income economies were mixed with Malaysia scoring the highest (1.07) and Zimbabwe scoring the lowest (-1.2).

Figure 2.8: Government Effectiveness Scores for ASEAN and SADC Members, 2018



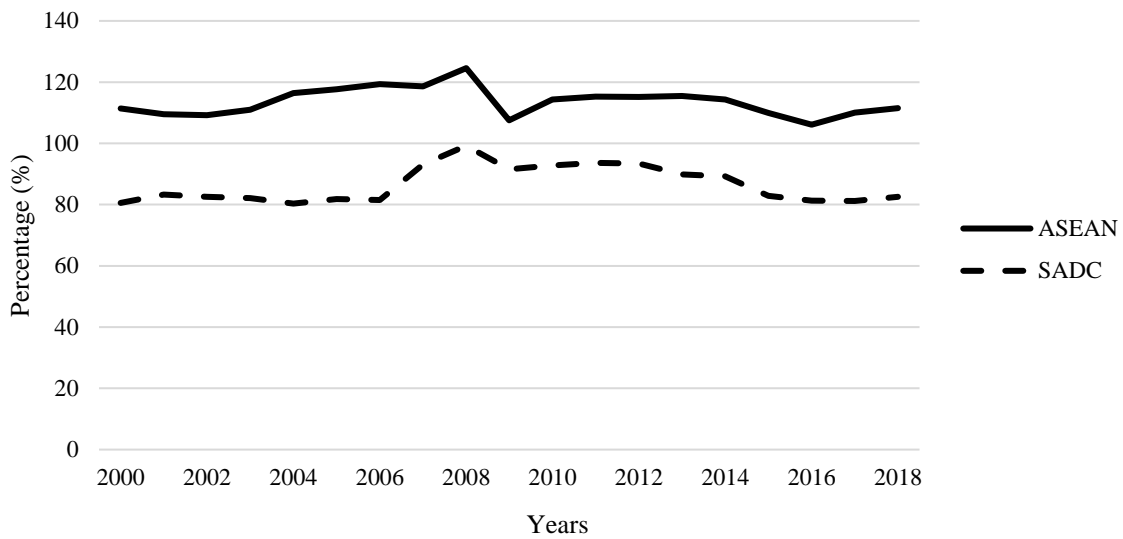
Note: *World Bank classification of income levels

Source: World Bank World Governance Indicators (WGI) 2018

Figure 2.9 indicates the aggregate trade-to-GDP ratio of ASEAN and SADC between 2000 and 2018. It shows that between 2000 and 2006, SADC's trade-to-GDP ratio was hovering just above 80 per cent. It rose sharply in 2007 to reach 93.1 per cent. A year later, it reached its peak of 99.2 per cent but fell to 91.6 per cent in 2009. From 2010, it remained steady until 2014, it then fell to 82.9 per cent, a year later, then settled at 82.6 per cent.

It also indicates that in 2000, ASEAN's trade-to-GDP ratio was 111.4 per cent and continue its upward trajectory until 2008, reaching its peak of 124.6 per cent. It experienced a steep decline between 2008 and 2009, reaching 107.5 per cent. Between 2010 and 2014, it plateaued and by 2016 it fell to its lowest point 106.1 per cent, it then picked up and settled at 111.5 per cent in 2018. The data suggests that during the Global Financial Crisis (GFC) (2008 - 2009), ASEAN faced a much steeper decline its trade-to GDP ratio than SADC, suggesting that ASEAN is more exposed to the volatility of international markets, which needs to be investigated further and beyond the scope this research.

Figure 2.9: Trade (as a percentage of GDP) in ASEAN and SADC between 2000 and 2018



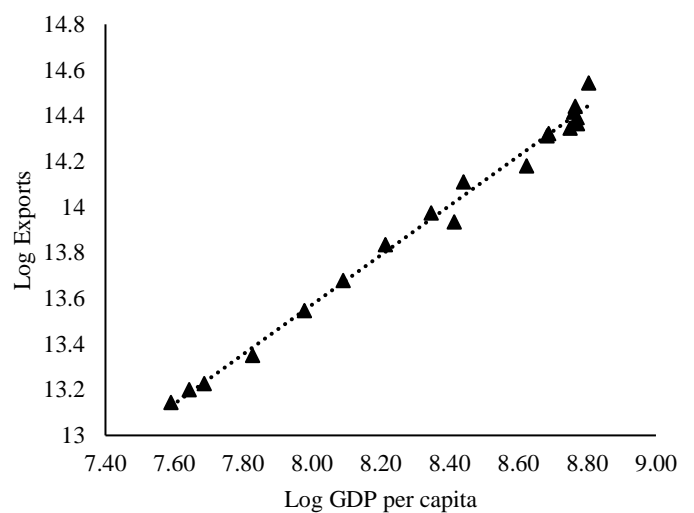
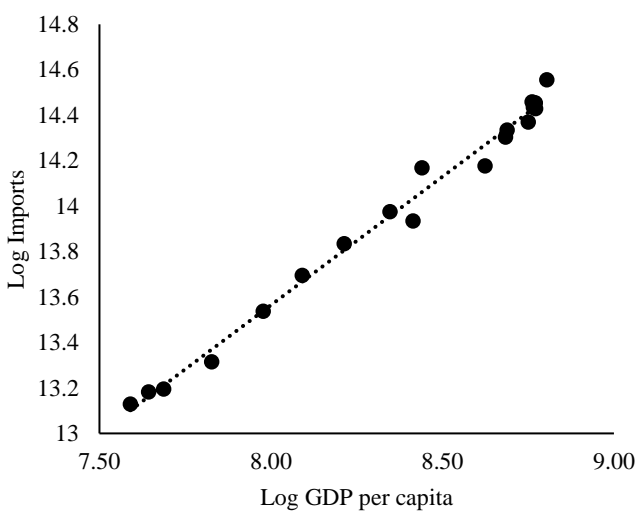
Source: Author’s calculations using World Bank’s World Development Indicators data (2000-2018)

Figures 2.10 (a) and (b) show the combined natural logarithm of the aggregate GDP per capita (ASEAN and SADC) plotted against combined aggregate imports and exports between 2000 and 2018. The correlation between imports and GDP per capita is at 0.995 (Pearson’s correlation), whereas the correlation between exports and GDP per capita is at 0.996 (Pearson’s correlation), which suggests a strong positive correlation between the regions’ trade and economic growth. Despite that, there is no suggestion of causation.

Figures 2.10 (a) and (b): Combined Aggregate Trade and Economic Growth in ASEAN and SADC between 2000 and 2018

(a) Imports

(b) Exports



Source: Author’s calculations using World Bank’s World Development Indicators data (2000-2018)

2.3 Literature and Empirical Review

2.3.1 Trade and Economic Growth

The relationship between trade and economic growth has been well documented, however, the theoretical models and the empirical analyses have not successfully established a definitive link between the two (Kim and Lin, 2009). Trade theory posits that benefits from trade can be accrued through the difference in comparative advantage and an increase in international trade (Yanikkaya, 2003). Adam Smith's (1776) absolute advantage theory and David Ricardo's (1817) comparative advantage theory suggest that trade has a positive effect on economic growth (Frieden and Rogowski, 1996). The Heckscher–Ohlin–Samuelson model (1954) point to two effects of international trade integration and the domestic labour market; (1) the higher output increases exports and therefore increases demand for labour in the export sector; and (2) Substitution effect resulting from international trade which displaces labour from the import sector to the export sector because of increased import competition (Van Ha and Tran, 2017).

Literature in 1970s and 1980s, inspired by the “miracle economies of South East Asia” viewed “export push” and trade in general as an “engine for growth” (Balassa, 1977 and 1978, Krueger, 1978 and 1981, and, Findlay, 1995). Work by Stiglitz and Yusuf (2001) and World Bank (2003) suggest that trade in combination with several factors such as high levels of domestic savings and human capital accumulation in a stable macroeconomic environment facilitated the technological transfer which led to increased productive growth. The role of Japan, which emerged as a “major growth pole” in the post-war era should not be discounted, through the export of its technology and FDI expansion into the East Asian economies, helped foster extensive growth in the region (Didier and Pinat, 2013).

A study by Makki and Somwaru (2004) using data from 66 economies between 1971 and 2000, indicate that foreign direct investment (FDI) and trade significantly contribute towards economic growth. Their work also points to a positive interaction between FDI and trade which stimulates domestic investment. Research by Haq and Luqman (2014) involving nine Asian economies - using data from 1972 to 2012, employing a neo-classical growth model suggest that international trade enhances human capital accumulation and contributes positively to economic growth through human capital accumulation. Similar work by Heitger (1987) and Lussier (1993) using neo classical growth models suggest that the export of goods and services are an essential element of economic growth. In their study on the impact of

international trade by BRICS⁹ economies on South Africa between 1980 and 2012, NCube and Cheteni (2015) find that in addition to being the main contributing factor to economic growth, trade is positively linked to the accumulation of human capital, appreciate of real exchange rate and gross domestic capital formation.

The proponents of the export-led growth (ELG) hypothesis claims that export expansion is one of the main determinants of economic growth (Medina-Smith, 2001). Studies have shown that the benefits are not accrued equally. Work by Dollar (1992); Ben-David (1993 and 1996); Alcala and Ciccone (2004) argue that openness to trade is linked to economic growth and productivity. Having examined the impact of trade liberalization amongst 122 economies, Sachs, and Warner (1995) conclude that the best export performers have high levels of trade liberalization. Freund and Bolaky (2008) find trade openness improves the standard of living and encouraged export growth in 126 economies. Chang, Kaltani and Laoyza (2009) find that trade openness implemented in conjunction with other complementary could stimulate export growth amongst 82 economies. A study by Dava (2012) on effects of trade liberalization on GDP growth amongst seven SADC Members finds that their economies could potentially grow by up to 4.1 per cent annually.

Zahonogo (2017), looking at the data of 42 sub-Saharan African economies between 1980 and 2012 finds positive links between trade and economic growth. However, research by Vohra (2001)¹⁰ suggests that exports benefit economies, which have some level of development. Hanson (1982), a proponent of the imports-led growth (ILG) hypothesis, suggests that economic growth can be driven by the imports of capital goods and infrastructure development. In their analysis of six South East Asian economies, a study by Hye, Shahida and Wee-Yap (2013) find that the ELG hypothesis is supported for five economies except Pakistan, whereas the ILG hypothesis applies to all six of them. Other studies also acknowledge the importance of imports in economies where the manufacturing sector is export focused (Esfahani, 1991, Serletis, 1992; Riezman, Whiteman and Summers, 1996, Liu, Song and Romilly 1997).

Gries and Redlin (2012) find a positive a relationship between trade openness and economic growth in their analysis of data between 1975 and 2017 for 158 developed and developing economies. Whilst finding long-term beneficial effects of trade openness, they also

⁹ Grouping of the following countries: Brazil, China, India, South Africa and Russia.

¹⁰ Examine the examine the role of export-growth linkage in India, Pakistan, the Philippines, Malaysia, and Thailand on the basis of time series data from 1973 to 1993.

find evidence of its negative effect of trade openness in low-income economies in the short run. Kim's (2011) research on 61 economies between 1960 and 2000 finds that the benefit of trade is skewed towards high income economies. Were (2015) using data over a period between 1991 and 2011, based on a sample of 85 economies¹¹, concludes that trade positively impacts the developed and developing economies, however, it is insignificant with respect to LDCs. This is attributed to their lack of trade diversification, coupled with low value addition and little share of manufacturing exports and limited market access. Her research also points to trade as being the main determinant of FDI and encourages domestic investment even in the LDC economies. Nevertheless, studies by Thirlwall (2000); Aksoy and Salinas (2006), Wacziarg and Welch (2008); Favley, Foster and Greenaway (2012), and Salinas, Gueye and Korbut (2015) suggest that economies which are more open tend to grow faster.

Acemoglu, Johnson and Robinson (2001) and Rodrik, Subramanian and Trebbi (2004) raise the importance of institutions across economies which support the development of trade. They find that by discounting institutions in their gravity equations, trade has no statistically significant impact on economic growth. Although, research by Alcalá and Ciccone (2004), utilizing variables in Purchasing power parities (PPP) terms instead of nominal value, find that trade and institutions contribute positively to productivity. Findings by Dollar and Kraay (2003) suggest that trade is more important to economic growth in the short and long runs, whereas the importance of institutions tend to be more important for economic growth in the long run. Using a set of instruments such as volume of rainfall in a bid to avoid estimation bias, Brückner and Lederman (2012) find that trade causes growth in the Sub-Saharan African region. A similar study by Noguer and Siscart (2005) using a number of geographical controls suggest a positive link between trade and growth.

The accumulation of capital goods refers to the stock of physical assets created in the past for current and future production (Acha, Salter and Davies, 2004). We can also say that these goods are not for direct consumption but are used to produce final goods or services for consumers. These goods can be classified into three main categories¹²; (i) constructs (e.g. offices, dams); (ii) plant and machinery (e.g. telecommunication networks); and (iii) raw materials and semi-finished products used in the production process. Eaton and Korthum (2000) make the point that direct measures for trade and production in capital goods are not

¹¹ A mix of developed, developing and Least Development Countries (LDCs).

¹² Acha, Salter and Davies (2004)

available; in order to approximate capital goods, the output of non-electrical equipment, electrical equipment and instruments industries are used as a proxy.

However, based on the current methodology used, research has shown that the accumulation of capital goods is essential for economic growth (Roy, 2009). Work by Cavallo and Landry (2018) indicate that between 1975 and 2016, imports of capital goods into the United States increased its total output by 5 per cent per hour. They also point out that the annual average contribution of capital goods imports to the growth in equipment investment rose from 23.8 per cent in the 1980s to 96.6 per cent from 2008 onwards. Barro's (1991) results suggest that the growth maximising level of public capital stock should be 61 per cent of private capital stock.

Bridging the technological gap is seen as an essential pre-requisite to achieving long-term growth. According to Fagerberg (1987), "catch-up theorists" suggest that developing economies, which are below the technological frontier, can achieve the same productivity levels as industrialised economies by adopting foreign technologies in domestic production. However, Habiaryemye (2013) maintains that adopting foreign technology domestically does not necessarily result in industrialisation and economic growth, capital investments need to be directed (through policy) and the infrastructure needs to be adequate, in order, to facilitate technological absorption. The main factors, which explain the difference between economies is the amount of technological innovation which is embodied within the new capital and the long run the level of investment made either by the public or private sector (OECD, 2011). Grossman and Helpman (1991), Rivera-Batiz and Romer (1991) and Eaton and Kortum (2002) find that there is positive association between imports with greater tech-content and economic development.

The "spill over" effect caused by international trade has received some attention in the literature. Technology is one of the key drivers of long-term economic growth (Agbozo *et al.*, 2016). Neoclassical models such as the one developed by Solow (1956)¹³ considered technological change as an exogenous variable, suggesting that long-run economic growth depended solely on technical changes (Loo and Soete, 1999). Grossman and Helpman (1991) point out that trade provides economies with a wider range of inputs and Ben Habib and Spiegel (1994) suggest that trade facilitates the technology adoption from foreign economies,

¹³ In fact, Solow estimated that 90% of US output was a result of technological change according to O'Sullivan (2019), < <https://www.mercatus.org/bridge/commentary/how-technology-affects-economic-growth> >- viewed 15 January 2020.

especially for the ones at the lower levels of development. In addition, Sun, and Heshmati's (2010) study of 31 Chinese provinces between 2002 and 2007, find that high tech exports are enabling China to reap the rewards of integrating in international trade. Foreign Direct Investment (FDI) can enable the diffusion of technology from foreign parent companies to subsidiaries which in turn can spill over to other domestic firms and through labour turnover (Aizenman and Sushko, 2011).

Whilst the effects of technological spill over feature prominently in the literature, the effects of knowledge spill over have gained some attention. Thangavelu and Rajaguru (2004) suggest that workers gain new knowledge by unbundling the technology embedded into imported intermediate goods and machines, which is likely to increase their productivity. Technical knowledge can also be diffused through migration and even short-term business travel (Oettl and Agrawal, 2008).

Borensztein, De Gregorio and Lee (1998) and Blomstrom, Globerman and Kokko (2000) suggest that the precondition for FDI-induced economic growth relies on the adequacy of the human capital stock in the host economy. In addition, the pre-requisite for offshoring of production and tasks depends firstly on the host economy's attractiveness, potential for future growth and the availability of a skilled labour force, which cost less than in the investor's home economy (Elia, Narula and Massini, 2019). Jadoon, Abdur Rashid and Azeem (2015) on the impact of trade liberalization on the human capital and economic growth by using panel data from eight selected Asian economies¹⁴, find that trade-led growth is more significant in the economies, which have higher skilled labour and can absorb new technologies, in addition to trade openness.

Economic growth models often include output as a function of capital, labour and technology (Barro and Sala-i-Martin, 2004). The introduction of new technology to the production goods and service delivery, especially artificial intelligence (AI), robotics, quantum computing, 3D printing, internet of things, is stirring debate amongst many economists regarding the future of employment, which affects the level of demand for goods and services in the economy. Work by Leontief (1983), Manyika *et al.* (2013), Ford (2015) and Pham *et al.* (2018) suggest that advancement in technology has the potential to displace jobs and create mass unemployment, stagnate median wages and increase income inequality.

¹⁴ India, Indonesia, Japan, Malaysia, Pakistan, Singapore, South Korea and Sri Lanka

However, work by Vermeulen *et al.* (2018) point to a structural change in employment, whereby, technology displaces workers from one sector in the economy and “mopped up” by another. Moreover, a study by Bessen (2017) using data from 1820 to 2007 for the US textile, steel and automotive industries postulates that the use of computer technology would boost jobs growth in the non-manufacturing sector. Analysis by Kharlamova, Stavtyskyy and Zarotiadis (2018) based on European Union (EU) Member States’ data over two time periods (2006 to 2017 and 2010 to 2017), conclude that the impact of inequality arising from technological change is less amongst the more economically developed members.

International trade plays a significant role in the production channel because global buyers can influence a greater efficiency in the production processes, superior level of quality and more resilience to supply shocks (Keesing and Lall, 1992, Piore and Ruiz Durán, 1998, Schmitz and Knorringa, 2000). Exporters also can also receive feedback from importers (Blundell, Griffith and Reenen, 1995). However, Helpman (2008) argue that the technology, capital, institutions, and skills used to improve the production goods tend to favour particular industries and that greater technological and knowledge spill overs are more likely to create supply chains.

2.3.2 Other determinants of economic growth

FDI is a form of cross-border investment whereby residents of one country gain managerial power or exercise significant managerial discretion over businesses in another country either through: ownership, joint venture, or greenfield investment (World Bank, 2019). The direct effects of FDI relate to the accumulation of capital inflows, which contribute to increased employment and productivity (Nantharath and Kang, 2019). The indirect effects of FDI are related to its spillovers into the broader economy such as the linkages between foreign and domestic firms, technology transfer, access to markets and resources (Anwar and Nguyen, 2010; Denisia, 2010).

A study by Dollar (1992) which investigates the sources economic growth using a cross-sectional analysis among 95 economies between 1976 and 1985 finds that stable real exchange regime and a lower degree of protection encourages technological diffusion and foreign direct investment (FDI). In Fischer’s (1992) analysis of economic growth in Sub-Saharan African and Latin American economies between 1970 and 1985, finds a positive correlation between economic growth and human capital, investment, and budget surplus, concluding that macroeconomic stability is necessary.

FDI and trade have a substitute or a complimentary effect with each other (Su, Nguyen and Christophe, 2019). Trade may be influenced on FDI through export expansion resulting from investment or trade impacts investment through the establishment of services abroad and the resulting liberal trade regime in place to facilitate export expansion (Katseli, 1992, Petri, 1994, and Sakyi and Egyir, 2017). In addition, Mundell (1957) suggests that trade may act as a driver for investment and a determinant of production. However, Aizenman and Noy (2006) suggests that the level of FDI is conditional on the level of international trade and in turn the existence of FDI potentially enhances international trade. In addition, Donghui *et. al* (2018) suggest that expanding trade activities and increased trade liberalization can positively stimulate demand locally which encourages the growth of large-scale industries through FDI inflows.

Work by Eriş and Ulaşan (2013), Musila and Yiheyis (2015), Trejos and Barboza (2015) suggest that trade enhances economic growth through knowledge spill overs, technology transfer and competitiveness. The relative ease by which foreign investors can import and export, increases the attractiveness of the host economy, particularly developing economies (OECD, 2002). This allows the foreign investors to strengthen their international networks of related enterprises and increase the prominence of foreign subsidiaries' strategies for distribution, sales and marketing.

The positive relationship between FDI and trade openness has been documented in several studies. Grossman and Helpman (1991) and Sala-I-Martin and Barro (1995) indicate that economies with greater openness facilitates greater absorption of technology compared to ones with lower levels. However, a study by Kim, Lin and Suen (2013) suggests that trade negatively impacts FDI in economies with low-human-capital, which are less-financially-developed, or more corrupt.

Bornschieer and Chase-Dunn (1985) find that if economies are too reliant on FDI, it tends to have a negative impact on economic growth because FDI creates monopolistic industrial structures. It is also unclear whether the benefits provided by Governments justify the fiscal incentives for maintaining Export Processing Zones (EPZs) or the risk of creating an uneven playing field between domestic and foreign enterprises and of creating international bidding wars for these incentives (OECD, 2002).

Utilizing an extended model created by Mankiw, Romer, and Weil (1992), Knight, Loayza, and Villanueva (1993) find positive relationship between economic growth and investment, physical and human capital, and trade openness. They also found a negative relationship between population growth and economic growth. They use a panel regression

method for two samples made up data from 81 and 59 economies. Barro's (1999) analysis of 100 economies between 1960 and 1995 finds a negative correlation between economic growth and government consumption, total fertility rate, and inflation. He also finds a positive correlation between economic growth investment share, growth rate of terms of trade, years of schooling, rule of law, democracy, and international openness. In his later work, Barro (2003) makes similar findings when investigating determinants of economic growth amongst a panel of 87 developing and developed economies.

Research on the effects of poor education attainments and health, directly affects society and economy. Employment status is a major social determinant of health and well-being (McKee-Ryan *et al.*, 2005) and education levels are among the key determinants of employment status (Schuring *et al.*, 2013). Work by Kwong and Dae-Bong (2009), suggest that human capital can be divided into two categories. The first category is the use of a human as a factor of production and the second, is to consider a human as a creator who frames knowledge, skill, experience, and competencies. The second category is vital for economic growth. A study by Howieson and Iannelli (2006) find that the familial educational and labour market disadvantage is reproduced across generations. Therefore, it is important to break that cycle and build a productive workforce over time. The modelling exercise uses the human capital index score obtained under the Penn World Tables (PWT 10.0).

The relationship between foreign aid and economic growth has been documented extensively in the literature. Hansen and Tarp (2001) suggest that the studies could be divided into three generational categories. The first generation, explore the link between aid and savings influenced by the Harrod-Domar model, they imply that savings accrued from aid positively influences growth. The second, examine the aid-investment-growth and focus less on effects of savings. The third generation, incorporate regressors which aim to capture the policy environment (Veiderpass and Andersson, 2007).

A third generational study by Burnside and Dollar (2000) use a two-stage least squares (2SLS) method to investigate the relationship between foreign aid and economic growth amongst 56 economies between 1970 and 1993 (in six four time periods). Their findings suggest that foreign aid does not in itself stimulate economic growth and is heavily reliant on the implementation of a high degree of good governance and trade openness. As a follow-up study and using other variables, Collier and Dollar (2002) point to the importance of the policy environment. Dalgaard and Hansen (2001) claim that Burnside and Dollar's (2000) study is sensitive to outliers and by removing them, they find that aid has no effect on growth. However, Easterly, Levine and Roodman (2004) in expanding the data used by Burnside and Dollar

(2000) find that aid effectiveness is dependent on a conducive policy environment. Collier and Dehn (2001) find that well-timed aid assists the beneficiaries in absorbing negative economic shocks. Hansen and Tarp (2004) find that aid negatively associated with growth for beneficiaries which lie within the tropics, on average. Chang and Mendy (2012) in their investigation on relationship between openness and economic in 36 African economies between 1980 and 2009 find that for economies in the Mid and Northern African regions there is a positive relationship between foreign and economic growth. Clemens, Radelet and Bhavnani (2004) suggest that aid assists long-term economic growth if it is allocated to democracy, the environment, education, and health. Aid focussed towards budgetary and productive sector support can boost short-term economic growth. They also find that humanitarian and emergency aid have no impact on growth.

Using provincial data, Chen and Feng (2000) find that private enterprises, education and foreign trade are positively associated with China's economic growth. They also show that inflation and state-owned enterprises are negatively associated with economic growth. Acemoglu, Johnson and Robinson (2005), stress on the primary importance institutions to economic outcomes that provide adequate property rights and the presence and perfection of markets in a society, because they have a bearing on economic incentives to the society. Using data from 117 economies between 1980 and 2000, Jalilian, Kirkpatrick and Parker (2006) suggest a strong positive relationship between regulatory quality and economic growth.

Government-instituted policies, laws and regulations' influence on economic growth cannot be understated and neither can governments' efficiency (Mintz and Wilson, 2000, Gylfason, 1997)¹⁵. For example, government expenditure has a significant part to play in influencing economic growth. There are number of studies which point to an increase in economic growth resulting from government expenditure - Beraldo, Montolio and Turati (2009), Bojanic (2013), Kapunda and Topera (2013), Taiwo and Abayomi (2011) and Wang (2011). In contrast, studies by Ghura and Hadjimichael (1995), Kweka and Morrissey (1996), Nurudeen and Usman (2010), Chang, Huang and Yang (2011), Carter, Ndambiri et al., (2012), Carter, Craigwell, and Lowe (2013), point to a negative economic growth resulting from government expenditure. However, work by Sinha (1998) and Kollias, Manolas, and Paleologou (2004) suggest a negligible link between government expenditure and economic

¹⁵ Barro (1996) estimated system of equation with instruments and found that rule of law and democracy are important factors for economic growth.

growth. Mitchell (2005) points out that some government spending is necessary for the successful operation of the rule of law.

This study uses the Government Efficiency (GE) index developed by the World Bank under the World Governance Indicators. The index captures a number of variables such as perceptions of the quality of the public service, quality of the civil service and its degree of independence from political pressures.

Studies by Landau (1983), Devarajan, Swaroop and Zou (1993); Cashin (1995) and Kneller, Bleaney and Gemmel (1999), suggest that financing such infrastructure and building human capital expenditure result in growth retardation. Kimaro, Keong and Sea (2017) claim that, borrowing funds from the domestic private investors implies that the private sector is left with insufficient financial resources to finance their investment projects necessary for economic growth.

Natural resources can be defined as stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing (WTO, 2010). In theory, they should be able to benefit the economy, through its exploitation and trading it with another. Economies such as Australia, Canada and the United States, in their preliminary stages of economic development benefited greatly from the exports of primary commodities (North and Thomas, 1973, Auty and Mikesell, 1998). In their analysis of 149 economies between 1996 and 2010, and controlling for the quality of institutions, Moshiri and Hayati (2017) find a positive effect between economic growth and an abundance of natural resources. Similar, research undertaken by Gelb (1988), Ranis (1991), Lal and Myint (1998), Ross (1999) and, Auty (2001), support their findings.

In contrast, several studies have pointed to the negative impact of natural resource abundance on economic growth. Sachs and Warner (1995) using data from 1971 to 1989 of 97 developing economies find that the resource-scarce ones have a higher economic growth rate than the resource-rich ones. Research by Ades and Tella (1999), Barro (1999), Ross (2001), Jensen and Wantchekon (2004), and Collier and Hoeffler (2005), suggest that natural resources are more likely to create political instability, induce corruption and hinder the functioning of democratic institutions.

This phenomenon is commonly referred to as the “resource curse”. Work by Poelhekke and Ploeg (2007), Alexeev and Conrad (2009), Barbier (2007) document this phenomenon in several resource-rich economies. However, Carmignani and Chowdhury (2010) conclude, that the natural resource curse phenomenon is true only for the Sub Saharan

African (SSA) economies. Studies by Abrahamian (2010) and Hayat and Tahir (2019) have also indicated that over reliance on income from natural resources exposes economies to global price volatility resulting from the global boom and bust business cycle.

Another negative effect of natural resource abundance, which has been subsequently documented, is “Dutch Disease”. It refers to the tendency of an appreciation of the real exchange rate following the discovery of a valuable commodity or during commodity price booms, rendering traditional industries internationally uncompetitive (Hendrix and Holland, 2014). In addition, Gylfason (2001) suggests that a booming resource sector might also crowd out public and private investments in education, or human capital. Although, work by Spatafora and Warner (2001) suggests that Dutch Disease is a development and is an issue that is specific to certain economies. Whilst Elissaios and Reyer (2004), Bravo-Ortega and De Gregorio (2002) and Ding and Field (2005) stress on the importance of allocative efficiency in resource-rich economies, enabled through human capital and sound institutional frameworks to ensure economic growth.

2.4 Theoretical Framework

2.4.1 Solow-Swan Growth Model

As previously mentioned, this research will employ the Solow-Swan Growth Model (1956) in determining the effects of trade and services on economic growth in both ASEAN and SADC member states. This section will provide an explanation of the model.

The neo classical Solow-Swan growth model developed independently by Robert M. Solow and Trevor Swan (1956). Prior to the Solow-Swan Growth Model, the most common approach to economic growth was the use of the Harrod-Domar model, which was developed independently by Harrod (1939) and Domar (1946), this model assumed fixed-coefficient production technologies¹⁶. Solow criticized the Harrod-Domar model to analyse long-run problems with the usual short-run classical analysis and demonstrated why the Harrod-Domar model was not an attractive place to start (Ferrara and Guerrini, 2008).

The model is explained using the references from both Solow and Swan (1956). It attempts to explain long-term economic growth by looking at capital accumulation, labour or population growth, and increases in productivity, which is commonly referred to as technological progress.

¹⁶ For more information on the Harrod-Domar Model, please see Sato (1964) and Hochstein (2017).

It specifies two factors of production; Labour (L) and Capital (K) and two economic agents; firms and households, all within a closed economy. In this closed economy with no government, only one good is produced, and it is either consumed or used as an investment. As a Cobb-Douglas production function, the model can be expressed as follows:

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \quad (1)$$

Where (t) denotes time, $1 - \alpha$ (is the elasticity of output with respect to Capital (K)¹⁷, and Y_t represents total production. A_t refers to labour-augmenting technology, thus L_t represents effective labour. To explain the model further, we will break it down in three parts; (i) Supply side; (ii) Demand side; and (iii) Convergence and Steady State.

We first consider the aggregate output (Y) within a given period of time (t) as a function of the factor inputs - Capital (K) and Labour (L). They can be represented as follows:

$$Y = AF (K_t L_t) \quad (2)$$

From the equation above, A denotes the productivity enhancing technology and, in this case, we assume that there is constant return to scale with respect to the inputs. For instance, if you double the inputs, the output will automatically double and can be expressed as follows; $2Y = 2(K_t L_t)$. It is important to note that output (Y) is a positive function of both factor inputs - Capital (K) and Labour (L). In reality, it is unlikely that both factor inputs would increase at the same time and by the same time. In this case, based on the Diminishing Returns to factor inputs – for fixed Labour (L), an increase in Capital (K) would lead a smaller increase in output in output (Y) and similarly, for a fixed Capital (K) an increase in Labour (L) would result in a smaller increase in output (Y).

At this juncture, it is important to derive consumption and output per worker. When we think about the wealth of a country, we consider the consumption and output per person (or per capita), for example, India produces a higher GDP than the Netherlands, however, the income received by people in the Netherlands, on average is higher than in India and consequently smaller economies like Switzerland or the Netherlands have a higher output per worker than larger economies like China and India¹⁸. Therefore, it is important to capture this, and it can be derived as follows;

¹⁷ Includes all durable physical inputs such as buildings, machinery and tools.

¹⁸ Barro and Sala-i-Martin (2004)

$$\frac{Y}{L} = F\left(\frac{K}{L}\right) \div 1A = L \cdot f(k) \quad (3)$$

Where $k \equiv \left(\frac{K}{L}\right)$ is the capital per worker, $\left(\frac{Y}{L}\right)$ is the output per worker and we assume in this model constant returns to scale of the input factors, therefore A (technology) is equal to $f(k \cdot 1A)$. This allows us to express income per worker as;

$$y = f(k) \quad (4)$$

From the equation above, y represents GDP per capita and $f(k)$ represents the Capital per labour ratio. This implies that economies with lower capital stocks (k) will grow faster.

The households within this closed model, own the capital which they lease out to the firms and are endowed with labour, which they provide to the firms¹⁹. The households, in this model, consume the good produced by the firm or invest their money elsewhere. This can be expressed as follows;

$$Y = C + I \quad (5)$$

Where, Y represents total income, C is consumption, and I is investment. The savings rate (s) would be a portion of the income received by the household. Therefore, investment would be a combination of both savings and income. This can be expressed as follows; $I = sY$ and consumption (C) would be the difference between income (Y) and investment (I), which can be summarized in the following equation: $C = Y - sY = (1 - s)Y$. Based on the equations for both investment (I) and consumption (C), it is clear that the savings rate would determine the allocation income. In order to derive investment per capita, we use the following equation: $i = sy = sf(k)$ and for consumption per capita; $c = (1 - s)f(k)$.

It is important to note that the size of the Solow-Swan growth model assumes that there is no population growth, and that labour supply is fixed (Solow, 1956). Therefore, in this model the GDP per capita growth will only occur as a result of an increase in the capital stock - Capital (K) at time (t), this can be expressed as follows;

$$\frac{Y_t}{L} = F\left(\frac{K_t}{L}\right) \div 1A \quad (6)$$

As we have seen above (in equation 5), the savings rate (s) acts to constrain the household's budget, therefore, restricting its investment in capital. At the same time, every

¹⁹ Sims (2012)

year the capital deteriorates at a certain rate (δ), capital accumulation can, thus, be expressed as follows;

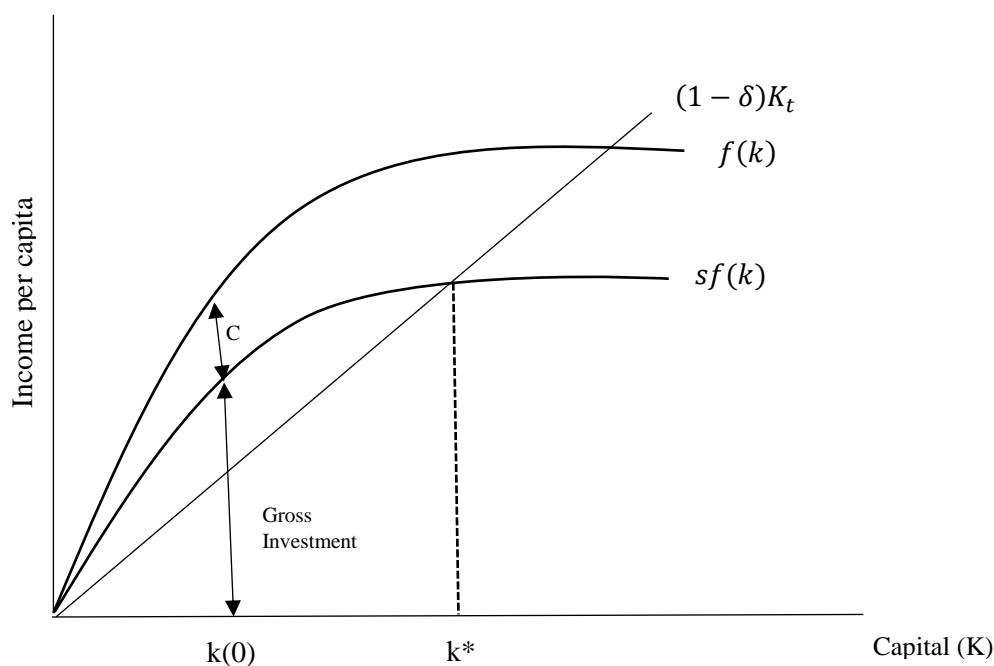
$$K_{t+1} = I_t + (1 - \delta)K_t \quad (7)$$

In this growth model, the firms do not make profits and we can also safely assume that the investment rate is also the saving rate²⁰, as we have seen earlier Investment (I) is constrained by the household budget which is determined by the savings rate (s); $I = sY_t$. The model presupposes that there is only one household, which supplies one unit of labour to the firm. So therefore, $Y_t = AF(K_t, 1)$, we can then define as, $F(K_t, 1) = f(K_t)$. We then add the capital accumulation equation and get the primary equation of the Solow-Swan growth model:

$$K_{t+1} = sAf(K_t) + (1 - \delta)K_t \quad (8)$$

Based on the equation above, the economy is in a steady state so long as both sides are equal to zero. In this case the savings rate per capita (or worker) is just enough to cover the cost of depreciation of the capital stocks per capita. The model suggests that that if an economy is not currently in a steady state, it will eventually converge to a point where there is constant output per worker over time. It should be noted that different economies have different levels of capital stock, therefore the economies will constantly be seeking their equilibria. The model is presented graphically in Figure 2.11.

Figure 2.11: Convergence and Steady State (Solow-Swan Model)



²⁰ Sims (2012)

From Figure 2.11, we can observe that $k(0)$ represents the initial capital stock that is present in the economy. The vertical distance between curve $sf(k)$ and the X-axis represents gross investment by the household. Consumption (C) is depicted by the vertical distance between the investment ($sf(k)$) curve and the income ($f(k)$) curve. The equilibrium or steady state of the economy (k^*) is reached at the point where the investment curve ($sf(k)$) dissects the effective depreciation curve ($(1 - \delta)K_t$).

2.4.2 Quantile Regression

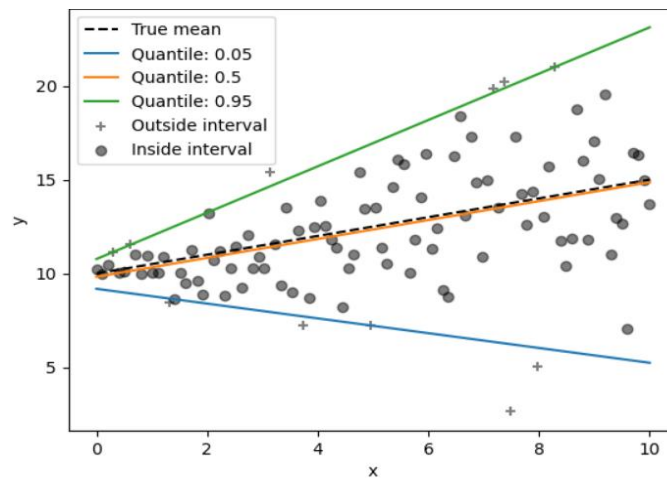
As mentioned in the introduction, the second part of this chapter seeks to better understand the general distribution of the determinants of the regions' economic growth using the import and export models (in Table 2.1). Like in the previous section, most empirical studies focus on explaining the average causal effects, but the mean cannot provide an explanation of the entire distribution of the dependent variable unless it is a dummy variable (Bilici, 2014).

Linear regression represents the dependent variable, as a linear function of one or more independent variables, subject to a random 'disturbance' or 'error' term (Allen *et al.*, 2009). In addition, regular linear regression attempts to find the conditional mean of the different values of the dependent variable across the selected independent variables. Whilst this is a useful exercise, quantile regression adds value to studies related to economic growth because the effects of certain determinants that have been incorporated in the model may not be fully captured for economies which grow fast or slow (Barreto and Hughes, 2004). It also offers policymakers a tool to make specific policy interventions to improve output performance depending on their economies' growth pace. Mello and Perelli (2003) also suggest that quantile regression is a suitable methodology to utilize when assessing determinants of economic growth because it points to level of heterogeneity amongst the different economies and effects of the policy variables on them according to their position on the conditional growth distribution.

The conditional quantile regression method, which was first introduced by Koenker and Basset (1978) is considered as an extension of the classical linear regression method, but it is more comprehensive because instead of measuring the impact of the explanatory variable at the centre of the dependent variable, it also measures it at both tail ends (Ali *et al.*, 2021). In addition, it seeks to extend these ideas to the estimation of conditional quantile functions – models in which quantiles of the conditional distribution of the response variable are expressed as functions of observed covariates (Allen *et al.*, 2011).

Based on the example of a perfect symmetrical distribution of 100 samples presented in Figure 2.12, we can observe that the true conditional mean and the true conditional median coincide. We also see that as the noise increases on the 5 per cent and 95 per cent quantiles, the slopes are different and the interval between them widens with increasing x . There is also an indication of the samples that are within, above or below the two quantile estimators (5% and 95%), they are denoted by the following data points which are denoted by the following sign (+).

Figure 2.12: Quantiles of heteroscedastic Normal distributed target



Source: https://scikit-learn.org/stable/auto_examples/linear_model/plot_quantile_regression.html

The conditional quantile equation as proposed by Buchinsky (1998b), can be written as follows:

$$y_i = x'_i \beta_\theta + u_{i\theta} \quad (9)$$

Where, y is the dependent variable, x is the vector for explanatory variables, β_θ is the vector of unknown parameters which is to be estimated and $u_{i\theta}$ is an unknown error term. It is assumed the error term satisfies the constraint:

$$Quant_{ui}(\theta|x_i) = 0 \quad (10)$$

We then solve the estimator β_θ as follows:

$$\hat{\beta}_\theta = \arg \min_{\beta_\theta} \left[\sum_{i: y_i > x'_i \beta_\theta} \theta |y_i - x'_i \beta_\theta| + \sum_{i: y_i < x'_i \beta_\theta} 1 - \theta |y_i - x'_i \beta_\theta| \right] \quad (11)$$

From the solution in (5), we obtain the θ^{th} conditional quantile $Q_{\frac{Y}{X}}(\theta) = x\beta_{\theta}$. This enables us to ascertain the effects of the explanatory variables at different percentiles of the dependent variable. Depending on the magnitude of research, there can be as many estimators of β as values of $\theta \in (0,1)$, it can also be the mean as with OLS ($\theta = 0.5$) (Dufrenot, Mignon and Tsangarides, 2009).

2.5 Methodology and Model Specifications

2.5.1 Linear Regression

The primary objective in this chapter is to ascertain the effects of trade (imports and exports of goods and services) on economic growth in ASEAN and SADC between 2000 and 2018. The neo-classical Solow-Swan growth model (1956) as outlined in the theoretical framework (Section 2.4) seeks to explain economic growth through the accumulation of capital, labour, and an emphasis on technological progress. Therefore, as we are following the model as a theoretical model, we adopt the standard Cobb-Douglas production function:

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \quad (12)$$

Where (t) denotes time, $\alpha(1 - \alpha)$ is the elasticity of output with respect to capital K , and $Y(t)$ represents total production. A refers to labour-augmenting technology, thus L represents effective labour.

Since the objective of the study is to find the effects of trade on economic growth and the Cobb-Douglas production is used as the analytical framework, we assume that economic growth is driven by the accumulation of physical and human capital, international trade, and technological progress. Therefore, the equation is as follows:

$$Y_t = K_t^\alpha T_t^\alpha (A_t L_t)^{1-\alpha} \quad (13)$$

Where again (t) denotes time, $\alpha(1 - \alpha)$ is the elasticity of output with respect to capital K , and $Y(t)$ represents total production. T represents international trade, while A again refers to labour-augmenting technology, thus L represents effective labour. From equation (2) we impose a constant return to scale and by transforming our empirical methodology into a natural logarithm, it takes the following form:

$$\ln YPC_{it} = \alpha_0 + \alpha_1 \ln K_{it} + \alpha_2 HC_{it} + \alpha_3 \ln T_{it} + \alpha_4 D_{it} + \mu_i + \varepsilon_{it} \quad (14)$$

In equation (14), $\ln YPC$ is the natural logarithm of Gross Domestic Product (per capita) which represents economic growth. $\ln K$ is the natural logarithm of capital accumulation. Human capital is denoted by HC , which represents effective labour. $\ln T$ is the natural logarithm of international trade. D represents the vector of other controlled variables. μ_i is the fixed country effects and ε is the error term. We write equation (15) in full as follows:

$$\ln YPC_{it} = \alpha_0 + \alpha_1 (\ln T / \ln IMP / \ln EXP)_{it} + \alpha_2 HC_{it} + \alpha_3 \ln K_{it} + \alpha_4 NAT_{it} + \alpha_5 FDIGDP + \alpha_6 ODAGNI_{it} + \alpha_7 GE_{it} + \alpha_7 Internet_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (15)$$

Where i is the country at time t .

- $\ln YPC$ is the natural logarithm of GDP per capita (in current US\$) as provided by the World Bank's WDI database.
- $\ln T$ is the natural logarithm of trade (sum of imports and exports), $\ln IMP$ is the natural logarithm of the sum of goods and services imports and $\ln EXP$ is the sum of goods and services exports; obtained from the United Nations Committee and Development (UNCTAD) database.
- HC is human capital index - based on years of schooling and returns to education obtained from the Penn World Tables PWT 10.0.
- $\ln K$ is the natural logarithm of the gross fixed capital formation (in current US\$) as obtained from the World Bank's WDI database.
- NAT denotes natural resource endowment represented by total natural resources rent as a percentage of GDP, as provided under the World Bank's WDI database.
- $FDIGDP$ is the foreign direct investment inflow in (current US\$ millions) as ratio of GDP, data obtained from the World Bank's WDI database.
- $ODAGNI$ denotes Official Development Assistance received in (current US\$) as ratio of Gross National Income (GNI) – obtained from the World Bank's WDI database.
- GE is the score attributed under the World Governance Indicators (WGI) for Government Effectiveness developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- $Internet$ refers to the percentage of the population that use the internet, data provided by the International Telecommunications Union (ITU) – a proxy for technological advancement.
- γ_t denotes time fixed effects.

- μ_i denotes country i fixed effects.
- ε represents the error term in the model.

The import and export models have been regressed using the Ordinary Least Squares (OLS), Random (RE) and Fixed Effects (FE) (under the Hausman Test) estimation techniques, whilst utilizing the Stata statistical software (version 17.0). The FE results were preferred under the Hausman Test. The results are discussed in Section 2.5.3.

2.5.2 Quantile Regression Models

Several economic growth and trade studies apply quantile regression. They include; effects of trade liberalisation on economic growth (Foster, 2008); impact of institutional environment on international trade in regional Spain (Marquez-Ramos, 2016); effects of international trade on employment in Vietnam (Van Ha and Tran, 2017); effectiveness of Aid for Trade (AfT) on the beneficiaries' export performance (Martínez-Zarzoso, Nowak-Lehmann and Rehwald, 2017); and Mohsin *et al.* (2021) study the effects for external debt on the growth of South East Asian economies.

We apply the Koenker and Basset's (1978) conditional quantile regression estimation technique to equation (4) and select five quantiles following Ha and Tran (2017) and Mohsin *et al.* (2021), for this study, the following are chosen; - 0.5, 0.25, 0.5, 0.75, and 0.95 . For the purpose of this exercise, the fixed quantile regression command (xtqreg) is utilized to estimate the following models whilst using the Stata statistical software (version 17.0):

$$Q_{\tau}(\ln YPC_{it}) = \alpha_0^{\tau} + \beta_1^{\tau}(\ln IMP/\ln EXP) + \beta_2^{\tau}HC_{it} + \beta_3^{\tau}\ln K_{it} + \beta_4^{\tau} NAT_{it} + \beta_5^{\tau}FDIGDP + \beta_6^{\tau}ODAGNI_{it} + \beta_7^{\tau}GE_{it} + \beta_7^{\tau}Internet_{it} + \mu_i + \varepsilon_0^{\tau} \quad (16)$$

Where i is the country at time t .

- $\ln YPC$ is the natural logarithm of GDP per capita (in current US\$) as provided by the World Bank's WDI database.
- $\ln IMP$ is the natural logarithm of the sum of goods and services imports and $\ln EXP$ is the sum of goods and services exports; obtained from the United Nations Committee and Development (UNCTAD) database.
- HC is human capital index - based on years of schooling and returns to education obtained from the Penn World Tables PWT 10.0.

- $\ln K$ is the natural logarithm of the gross fixed capital formation (in current US\$) as obtained from the World Bank's WDI database.
- NAT denotes natural resource endowment represented by total natural resources rent as a percentage of GDP, as provided under the World Bank's WDI database.
- $FDIGDP$ is the foreign direct investment inflow in (current US\$ millions) as ratio of GDP, data obtained from the World Bank's WDI database.
- $ODAGNI$ denotes Official Development Assistance received in (current US\$) as ratio of Gross National Income (GNI) – obtained from the World Bank's WDI database.
- GE is the score attributed under the World Governance Indicators (WGI) for Government Effectiveness developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- $Internet$ refers to the percentage of the population that use the internet, data provided by the International Telecommunications Union (ITU).
- μ_i denotes country i fixed effects.
- ε represents the error term in the model.

2.5.3 Results and Discussion

2.5.3.1 Linear regression results

The linear regression results for the import and export models are presented in Table 2.1. Columns 1 to 6 indicate the results for the OLS and Fixed Effects (FE) for the 26 economies of ASEAN and SADC and the three derived models; trade (total imports and exports), import and export. The trade model is used for benchmarking purposes.

For the Import model, the OLS and FE results (column 3 and 4) indicate a significant and positive correlation between economic growth and Imports ($\ln IMP$) and Gross Fixed Capital Formation ($\ln K$). They also show a significant and negative correlation between economic growth and population growth, Foreign Direct Investment ($FDIGDP$) and ODA. The OLS results (column 3) indicate a significant and positive correlation between economic growth and human capital (HC) and technological advancement ($Internet$). The FE results (column 4) suggest a negative correlation between economic growth and human capital, but it is statistically insignificant, this does not align with the prevailing literature which potentially arises from endogeneity, employing an IV regression method could be used to mitigate against the latter.

In detail, The FE results for the import model suggest that a 1 per cent increase in imports would likely contribute up to a 0.24 per cent increase in the combined GDP per capita. The FE results for the export model (Columns 3 to 4) suggests that a 1 per cent increase in exports are likely to increase the combined GDP per capita growth by up to 0.32 per cent. The OLS results for the import model suggest a 1 per cent increase in imports is likely to increase the combined GDP per capita by up to 0.38 per cent and the export model suggests an increase of up to 0.44 per cent, by the same percentage increase in exports. This is in line with existing literature; Fosu (1990a), Edwards (1992), Dollar (1992), Warner (1995), Fosu (1996), Greenaway (1998), Sachs and, Frankel and Romer (1999). Studies by Thirlwall (2000); Salinas and Aksoy (2006), Wacziarg and Welch (2008); Favley, Foster and Greenaway (2012), and Salinas, Gueye and Korbut (2015) suggest that economies which more open tend to grow faster.

Table 2.1: Results of the Trade, Import and Export Models

	Trade (T)		Imports (M)		Exports (X)	
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	FE	OLS	FE	OLS	FE
Trade	0.463*** (0.038)	0.322*** (0.066)	-	-	-	-
Imports	-	-	0.377*** (0.039)	0.24*** (0.072)	-	-
Exports	-	-	-	-	0.444*** (0.035)	0.315*** (0.048)
Population (lnPop)	-0.652*** (0.155)	-1.4*** (0.327)	-0.402*** (0.159)	-1.249*** (0.368)	-0.786*** (0.155)	-1.465*** (0.353)
Gross Fixed Capital Formation (GFCF)	0.307*** (0.027)	0.233*** (0.039)	0.317*** (0.03)	0.241*** (0.046)	0.362*** (0.024)	0.272*** (0.037)
Human Capital (HC)	0.327*** (0.096)	-0.079 (0.136)	0.433*** (0.1)	-0.023 (0.168)	0.312*** (0.093)	-0.073 (0.123)
Government Effectiveness (GE)	0.166*** (0.05)	0.178** (0.078)	0.185*** (0.053)	0.198** (0.089)	-0.173*** (0.049)	0.185** (0.073)
Natural Resources (NAT)	-0.807*** (0.218)	-1.15*** (0.322)	-0.638*** (0.232)	-1.052*** (0.004)	-0.56*** (0.204)	-0.946** (0.425)
Foreign Direct Investment (FDIGDP)	-0.012*** (0.002)	-0.012*** (0.004)	-0.012*** (0.002)	-0.012*** (0.004)	-0.011*** (0.002)	-0.012** (0.005)
Official Development Assistance (lnODA)	-0.044*** (0.011)	-0.048*** (0.016)	-0.047*** (0.012)	-0.05*** (0.018)	-0.039*** (0.011)	-0.045** (0.017)
Internet	0.197* (0.112)	-0.329* (0.172)	0.085*** (0.118)	-0.436** (0.179)	0.282*** (0.11)	-0.249* (0.156)
R²	0.9862	0.4943	0.9843	0.4988	0.9868	0.5088
Observations	314	314	314	314	314	314
Constant	6.8927	22.352	6.235	20.491	8.605	22.848
rho	-	0.9937	-	0.9915	-	0.9942
Time Fixed Effect	No	Yes	No	Yes	No	Yes
Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Notes:(1) ***p<0.01, **p<0.05, *p<0.1; (2) (-) Robust Standard Error; (3) Dependent variable: natural logarithm of GDP per capita (in current US\$) ($\ln YPC_{it}$)

The results from the import model are counterintuitive because the general formula for calculating GDP is as follows;

$$\text{GDP} = \text{C} + \text{I} + \text{G} + (\text{EX}-\text{IM}) \quad (17)$$

Where, C is consumption of all citizens; I is investment; G is government expenditure; EX is total exports and IM is total imports. Equation (17) points to the value of exports subtracted from the value of imports which suggests that a high value of imports would reduce GDP. It is impossible for all economies to be exporters simply because some economies have to import the goods and services of other economies. Work by Grossman and Helpman (1991) and Amiti and Konings (2007) find that imports of cheaper foreign intermediate goods enhance quality of life and imports of medication improves life expectancy which drives productivity. Lee's (1995) work suggests that imports such as new technology can establish and expand existing industrial sectors.

The OLS and FE results for all three models indicate a significant and negative correlation between economic growth and population growth. The FE result for the import model shows that a 1 per cent decline population growth amongst the 26 economies is likely to lead to a decline of their economic growth by up to 1.25 per cent, whereas for the export model, the FE results point to likely decline of 1.47 per cent following the same percentage decline – slightly higher than the benchmark result of (-1.4 per cent). The OLS results for all three models suggest a lower level of economic growth decline - between 0.4 per cent and 0.79 per cent following a 1 per cent fall in population growth. There is very little consensus on the benefits of population growth on economic growth and this area of study tends to spark controversy amongst researchers (Peterson, 2017). Baker, DeLong and Krugman (2005) link a decline of economic growth in high income economies to a falling population growth. On the other hand, Linden (2017) argues that a higher population growth will likely cause a decline in economic growth because of the finite nature of resources. Piketty (2014) provides evidence that between 1700 and 2012, the world's annual economic growth was 1.6 per cent and was made up of equal parts of population growth and per capita output growth - 0.8 per cent each.

The FE and OLS results for all three models indicate a significant and positive relationship between gross fixed capital formation and economic growth in ASEAN and SADC. The FE results for the import model suggests that a 1 per cent increase in capital goods will likely increase the combined GDP per capita by up to 0.24 per cent and the FE results points to a combined GDP per capita increase of up to 0.27 per cent following the same

percentage increase in capital goods. The OLS results for the import model indicates a possible elevation of the combined GDP per capita by up to 0.32 per cent and for the export model it points to a likely increment of up to 0.36 per cent following a 1 per cent increase in capital goods.

The OLS and FE results for all three models are in line with the prevailing literature. Mutreja, Ravikumar and Sposi, (2018) find that the increased supply of capital goods reduces the relative price of investment which in return increases the investment rates and capital to output ratio, in poor economies. Without the ability to produce their own capital goods due to the sophisticated skills and superior equipment requirement, developing economies tend to import capital goods from advanced economies (Habiyaemye, 2013).

It is therefore it is in their interest to lower trade barriers associated with the imports of capital goods and the technology spill over will likely to lower cost of production and improve their export competitiveness (Rijesh, 2020). Coe, Helpman and Hoffmaister (1997) find that a 1 per cent increase of Research and Development (R&D) capital stock in industrialised economies is expected to increase raise the output in developing economies by up to 0.06 per cent, on average. In their analysis of data from 43 economies, Almeida and Fernandes (2008) find substantial evidence of trade-induced technology transfer, especially amongst importing firms, a 6.4 per cent likelihood of them engaging in technological innovations than in autarky. In his study 60 economies between 1960 and 1985, Lee (1995) concludes that low-income economies have a comparative advantage in producing consumption goods and they are likely to grow faster by importing cheaper capital goods from more advanced economies. Eight economies account for 80 per cent of the world's capital good production (Eaton and Kortum, 2001).

The OLS results for all three models point to a significant and positive relationship between economic growth and human capital. The import model results suggest that a 1 per cent increase in human capital will likely drive up the regions' economic growth by up to 0.43 per cent and the export model results points to a likely increase of up to 0.31 per cent following a 1 per cent improvement in human capital. This aligns with conclusions reached by Barro (1991) and Mankiw, Romer, and Weil (1992), Borensztein, De Gregorio and Lee (1998), Blomstrom, Globerman and Kokko (2000) and Elia, Narula and Massini (2019). However, the FE results for all three models suggest a negative relationship between the two variables but they are not statistically significant. This could be related to a case of endogeneity, most likely caused by a high degree of correlation with other explanatory variables.

The FE results for the import and export models point to a significant and positive relationship between Government Effectiveness (*GE*) and economic growth. The FE results for the import model suggest that a 1 per cent improvement in the level of government effectiveness is expected to result in a combined GDP per capita of up to 0.2 per cent, whereas the FE results for the export model suggests a combined GDP per capita increase of up to 0.19 per cent as a result of the same level of improvement in government effectiveness, higher than the benchmark result (0.178). The OLS results for the import model shows that the combined GDP per capita is expected to increase by up to 0.2 per cent following a 1 per cent improvement in the level of government effectiveness. For the export model, the OLS results indicate a likely decline in the regions' GDP per capita of up to 0.17 following a 1 per cent decline in the level of government effectiveness. The FE results concur with the findings made by Acemoglu, Johnson and Robinson (2005) on the positive contribution of effective institutions on economic growth and Jalilian, Kirkpatrick and Parker (2006) find a beneficial relationship between regulatory quality and economic growth. This also supports the findings made by Barro (1996), Mintz and Wilson (2000b) and Gylfason (1997), who suggest that policies, regulations, and laws play an important part in furthering economic growth.

The OLS and FE results indicate a negative relationship between natural resources and economic growth in ASEAN and SADC. The FE results for the import model indicates that a 1 per cent decline in natural resource rent is linked to 1.05 per cent decline in economic growth. The export model, the results point a decline in GDP per capita by up to 0.95 per cent following a 1 per cent decline in natural resource rent. The OLS results for all three models suggest lower rates of decline following a 1 per cent decrease in the level of natural resources. For the trade model, the regions' GDP per capita is expected to decline by up to 0.81 per cent, whereas the import model suggests a decline of up to 0.64 per cent and the export model points a likely decline of up to 0.56 per cent.

This aligns with the findings made by Sachs and Warner (1995), Tella and Ades (1999), Barro (1999), Ross (2001), Jensen and Wantchekon (2004), and Collier and Hoeffler (2005). Lashitew, Ross and Werker (2021) find that natural resource abundance has no link to economic growth, but rather natural resource dependency is problematic. In less diversified economies, natural resource rent allows economic and political power to be concentrated within a small elite group, their redistributive policies are exercised through political control and supported by beefed up security apparatuses. Gylfason and Zoega (2006) find that resources may not affect economic growth despite being a significant source of income.

The OLS and FE results for all three models suggest that FDI is significant and negatively correlated with the combined economic growth of ASEAN and SADC. Both results from the import and export models indicate a likely decline of up to 0.01 per cent following a 1 percent decline in FDI. This is in line with conclusions reached by Brecher and Diaz-Alejandro (1977); Germidis (1977); Mansfield and Romeo (1980); Brecher, (1983); Boyd and Smith (1992); Haddad and Harrison (1993); Aitken and Harrison (1999) and Carkovic and Levine (2002). Their findings suggest that a negative relationship between FDI and economic growth points to a certain level of dependency on FDI and the tendency for it to crowd out domestic investment, which could be the case in ASEAN and SADC. It can also suggest that the level of FDI inflows maybe insufficient to stimulate economic growth, for this set of economies. In addition, Bornschier and Chase-Dunn (1985) suggest that an over reliance on FDI has a negative impact on economic growth because of the monopolistic nature of the industrial structures created by foreign investors.

The OLS and FE results for all three models suggest of a significant and negative correlation between ODA and GDP per capita. The OLS results for the import and export models point to a likely decline of between 0.05 and 0.04 per cent of the combined GDP per capita following a 1 per cent fall in ODA. The FE results for the import and export models show that the combined GDP per capita is likely to decline by up to 0.05 per cent following a 1 per cent decrease in ODA to the regions.

The significant and negative relationship between aid and economic growth is in line with a number of studies. In Mallik's (2008) investigation on the effects of aid on six heavily-aid dependent African economies; Central African Republic, Malawi, Mali, Niger, Sierra Leone and Togo, found a negative relationship between aid and their economic growth in long-run and no effect aid on their economic growth in the short-run during a thirty to forty-year period. Mosely (1980), Kourtellos, Tan, and Zhang (2007) and Alvi, Mukherjee and Shukralla (2008) find that aid and growth studies tend to differ because of the existence of endogeneity as a result of excluding important control variables. Kasper (2006) argues that US\$1 trillion dollars of aid provided to African economies has hindered economic growth, mainly due to high-levels of corruption in the aid-recipient states. Knack (2000) finds that aid dependent economies tend to have low quality institutions with more rent-seeking opportunities which means there is a lack of capacity and will to institute reforms.

The FE results for all three models suggest a significant and negative correlation between the technological advancement (proxied by internet penetration) and economic

growth. Whilst the OLS results for all three models suggest a significant and positive correlation between the two variables. The FE results for the import model show that a 1 per cent decline in internet penetration is likely to lead to a fall in the combined GDP per capita growth by up to 0.44 per cent, whereas the export model points to a 0.25 per cent decrease in the combined GDP per capita growth following the same percentage level of decline in internet penetration. The OLS results for the import model indicate that a 1 per cent increase in internet penetration is likely to lead to increase in the combined GDP per capita by up to 0.09 per cent compared to the OLS result for the export model which suggests a likely rise of up to 0.28 per cent.

In their research, Czernich *et al.* (2009) find that a weak relationship between internet subscription and economic growth amongst 25 OECD economies between 1996 and 2007. They conclude that the causal effects can suffer from endogeneity as the introduction and diffusion internet broadband is dependent on the economy's level of development. By adopting an instrumental variable approach, they find that a 10 per cent increase in broadband penetration is expected to increase GDP per capita growth by up to 1.5 per cent. A study by Haftu (2019) did not find a link between internet penetration and economic growth amongst 40 Sub-Saharan African economies between 2006 and 2015. In addition, work by Gulati (2008) found that investment in Information, Communication and Technology (ICT) tends to favour wealthier sections of society in low-income economies and this increases inequality. Work by Das (2007) also finds that the internet usage has increased economic disparity within societies globally. Berg *et al.* (2018), Seo, Kim, and Lee (2020), Anyanwu, Anyanwu, Cieslik, (2021) and Gutierrez-Romero (2021) conclude that income inequality hampers economic growth. Minges (2015) finds that most studies suggest that there is a minimum threshold that is required for internet penetration to reach before it has an effect on economic growth, however the threshold remains inconclusive.

2.5.3.2 Quantile results and discussion

Table 2.2 presents a causal observation on the distribution of the mean natural logarithm of the GDP per capita and ranked by the mean natural logarithm of total trade (import and export) from 2000 to 2018, divided into six grades; $G \leq 0.05$; $0.05 > G \leq 0.25$; $0.25 > G \leq 0.5$; $0.5 > G \leq 0.75$; $0.75 > G > 0.95$; $G > 0.95$. A similar exercise is undertaken by Hsu, Wu and Lin (2011) in assessing the impact of FDI on economic growth.

Table 2.2: Distribution of GDP per capita by economy in ASEAN and SADC between 2000 and 2018

	$G \leq 0.05$	$0.05 > G \leq 0.25$	$0.25 > G \leq 0.5$	$0.5 > G \leq 0.75$	$0.75 > G > 0.95$	$G > 0.95$
$T < 0.05$			Comoros		Seychelles	
$0.05 > T \leq 0.25$	Malawi	Madagascar	Lao PDR Lesotho	Eswatini Tanzania		
$0.25 > T \leq 0.5$	DR Congo	Mozambique	Zambia Zimbabwe	Namibia	Mauritius	
$0.5 > T \leq 0.75$		Cambodia Myanmar		Angola Philippines	Botswana	Brunei
$0.75 > T \leq 0.95$			Vietnam	Indonesia Thailand	South Africa	
$T > 0.95$					Malaysia	Singapore

Source: Author's calculations using WDI database and UNCTAD Trade Database (2000-2018)

From the data presented in Table 2.2 we can observe that amongst these 26 economies the underperformer is Malawi, whereas Singapore is the overachiever. We can see that the poorest LDCs are clustered in the first two grades which correspond to the lowest quantiles: .05 and 0.25. More developed LDCs and Lower middle-income²¹ economies tend to feature in the two middle grades; ($0.25 > G \leq 0.5$) and ($0.5 > G \leq 0.75$) which corresponds to the median quantile; 0.5. In contrast, the Upper-middle²²- and High-income economies²³ (as classified by the World Bank) are featured in the following two grades; ($0.75 > G > 0.95$) and ($G > 0.95$) corresponding to the highest quantiles; 0.75 and 0.95.

The FE quantile regression results (columns 2 to 6) for the import model are presented in Table 2.3, the FE results (column 1) are included for benchmarking purposes. The data indicates a significant and positive correlation between imports, and gross fixed capital formation and GDP per capita, in all five quantiles. However, it is significant at the 1 per cent level in the first five quantiles. It also indicates that Government Effectiveness is positively correlated in the first four quantiles but significant at the 1 per cent level in the 25th and 50th quantiles, significant at the 5 per cent level in the 5th and 75th quantile.

The negative correlation between population growth is significant at the 1 per cent level in all five quantiles. They also show that natural resources are significant and negatively correlated in all five quantiles, but significant at the 1 per cent level in the 25th and 50th quantiles, significant at the 5 per cent level in the 5th and 75th quantiles. There is an indication

²¹ ²² ²³ As classified by the World Bank: < <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>>, viewed 5 October 2022.

of a significant and negative correlation between FDI and economic growth in all five quantiles. Although, they are significant at the 1 per cent level in the first five quantiles: .5, .25, .5, .75 and .9 and significant at the 5 per cent level in the 95th quantile. There is an indication that Official Development Assistance (ODA) is significant negatively correlated with the combined GDP per capita, but it is significant at the 1 per cent level in the last two quantiles: .75 and .95. The results also indicate a negative correlation between the combined GDP per capita and internet (proxy for technological advancement) in all five quantiles but significant at the 1 per cent level in the 25th, 50th and 75th quantiles and significant at the 5 per cent level in the 95th quantile and significant at the 10 per cent level in the 5th quantile.

Table 2.3: Quantile Import Model Results for ASEAN and SADC between 2000 and 2018

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	5%	25%	50%	75%	95%
Imports (<i>lnIMP</i>)	0.295*** (0.026)	0.287*** (0.086)	0.266*** (0.059)	0.239*** (0.042)	0.213*** (0.061)	0.188** (0.096)
Population Growth (<i>lnPop</i>)	-1.249*** (0.368)	-0.756* (0.494)	-0.973*** (0.331)	-1.26*** (0.242)	-1.537*** (0.346)	-1.801*** (0.56)
Gross Fixed Capital Formation (<i>lnK</i>)	0.241*** (0.046)	0.206*** (0.078)	0.221*** (0.053)	0.241*** (0.038)	0.261*** (0.056)	0.28*** (0.087)
Human Capital (<i>HC</i>)	-0.023 (0.168)	-0.077 (0.186)	-0.053 (0.128)	-0.022 (0.091)	0.009 (0.134)	0.038 (0.208)
Government Effectiveness (<i>GE</i>)	0.198** (0.089)	0.255** (0.115)	0.23*** (0.079)	0.197*** (0.056)	0.165** (0.082)	0.134 (0.129)
Natural Resources (<i>NAT</i>)	-1.052*** (0.004)	-1.191** (0.619)	-1.13*** (0.425)	-1.049*** (0.303)	-0.972** (0.444)	-0.898 (0.691)
Foreign Direct Investment (<i>FDIGDP</i>)	-0.012*** (0.004)	-0.014*** (0.004)	-0.013*** (0.003)	-0.012*** (0.002)	-0.011*** (0.003)	-0.011** (0.005)
Overseas Development Assistance (<i>lnODA</i>)	-0.05*** (0.018)	-0.022 (0.025)	-0.034** (0.017)	-0.05 (0.012)	-0.066*** (0.018)	-0.08*** (0.029)
Internet	-0.436** (0.179)	-0.414* (0.227)	-0.424*** (0.156)	-0.436*** (0.111)	-0.448*** (0.163)	-0.459** (0.253)
R²	0.4988	-	-	-	-	-
Observations	314	314	314	314	314	314
Constant	20.491	-	-	-	-	-
rho	0.9915	-	-	-	-	-
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Notes:(1) ***p<0.01, **p<0.05, *p<0.1,

(2) (-) Robust Standard Errors

(3) Dependent variable: natural logarithm of GDP per capita (in current US\$) (*lnYPC_{it}*)

The FE quantile regression results (columns 2 to 6) for the export model are presented in Table 2.4. It shows a significant (at the 1 per cent level) and positive correlation between the combined GDP per capita and exports and gross fixed capital formation, in all five quantiles. There is an indication that Government Effectiveness is significant at the 1 per cent

level in the 25th and 50th quantiles, at the 5 per cent level in the 75th quantile and at the 10 per cent level in the 5th quantile.

The results indicate that population growth is significant at the 1 per cent level and negatively correlated in all five quantiles. There is an indication that natural resources are significant in the first four quantiles, however, it is significant at the 1 per cent level in the 50th quantile, at the 5 per cent level in the 25th quantile and significant at the 10 per cent level in the 5th and 75th quantiles. There is also an indication of a significant and negative correlation between GDP per capita and FDI in all five quantiles. It is significant at the 1 per cent level in the first four quantiles: .5, .25, .5, and .75.

The results also show that a negative correlation between ODA and GDP per capita however it is significant at the 1 per cent level in the 50th and 75th quantiles, significant at the 5 per cent level in the 25th quantile and 95th quantile. There is also an indication of a negative correlation between Internet and GDP per capita, although it is significant (at the 5 per cent level) in the 50th quantile and significant at the 10 per cent level in the 25th quantile.

Table 2.4: Quantile Export Model Results for ASEAN and SADC between 2000 and 2018

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	5%	25%	50%	75%	95%
Exports (<i>lnEXP</i>)	0.315*** (0.048)	0.355*** (0.081)	0.334*** (0.048)	0.315*** (0.038)	0.296*** (0.054)	0.272*** (0.095)
Population Growth (<i>lnPop</i>)	-1.465*** (0.353)	-1.042** (0.523)	-1.273*** (0.304)	-1.473*** (0.243)	-1.664*** (0.343)	-1.929*** (0.615)
Gross Fixed Capital Formation (<i>lnK</i>)	0.272*** (0.037)	0.247*** (0.08)	0.261*** (0.048)	0.272*** (0.038)	0.284*** (0.054)	0.299*** (0.094)
Human Capital (<i>HC</i>)	-0.073 (0.123)	-0.261 (0.205)	-0.159 (0.117)	-0.07 (0.094)	0.015 (0.133)	0.133 (0.241)
Government Effectiveness (<i>GE</i>)	0.185** (0.073)	0.191* (0.118)	0.188*** (0.071)	0.185*** (0.056)	0.182** (0.08)	0.179 (0.138)
Natural Resources (<i>NAT</i>)	-0.946** (0.425)	-1.262* (0.754)	-1.09** (0.45)	-0.94*** (0.357)	-0.797* (0.507)	-0.6 (0.882)
Foreign Direct Investment (<i>FDIGDP</i>)	-0.012** (0.005)	-0.015*** (0.005)	-0.013*** (0.003)	-0.012*** (0.003)	-0.01*** (0.004)	-0.008 (0.006)
Overseas Development Assistance (<i>lnODA</i>)	-0.045** (0.017)	-0.019 (0.027)	-0.033** (0.015)	-0.045*** (0.012)	-0.056*** (0.017)	-0.072** (0.031)
Internet	-0.249* (0.156)	-0.245 (0.258)	-0.248* (0.155)	-0.25** (0.123)	-0.251 (0.175)	-0.254 (0.301)
R²	0.5088	-	-	-	-	-
Observations	314	314	314	314	314	314
Constant	22.848	-	-	-	-	-
rho	0.9942	-	-	-	-	-
Time Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes

Notes:(1) ***p<0.01, **p<0.05, *p<0.1; (2) (-) Robust Standard Error; (3) Dependent variable: natural logarithm of GDP per capita (in current US\$) (*lnYPC_{it}*)

We find that as economies in ASEAN and SADC become wealthier their economic growth becomes less reliant on trade (import and export). Whilst the FE results support both the ELG and ILG hypotheses, however, the quantile regression analysis indicates a contrary view for both hypotheses. It also does not support Were's (2015) findings that the impact of trade is insignificant for LDCs, based on their level economic growth they would be placed between the 5th and 25th quantiles.

The results for the import and export models (Tables 2.3 and 2.4) indicate that wealthier economies are less reliant on the accumulation of capital goods in ASEAN and SADC. Although, the results for both models are positive and significant at the 1 per cent level in all five quantiles.

The quantile regression estimates of FDI and GDP per capita indicate that the lower income economies in ASEAN and SADC are more reliant on FDI. The data presented for the import and export models in Tables 2.3 and 2.4 show that the quantile regression estimates are significant and negatively correlated across the five quantiles. This suggests that low-income economies in ASEAN and SADC are more exposed to the monopolistic industrial structures created by foreign investors, as pointed out by Bornschier and Chase-Dunn (1985).

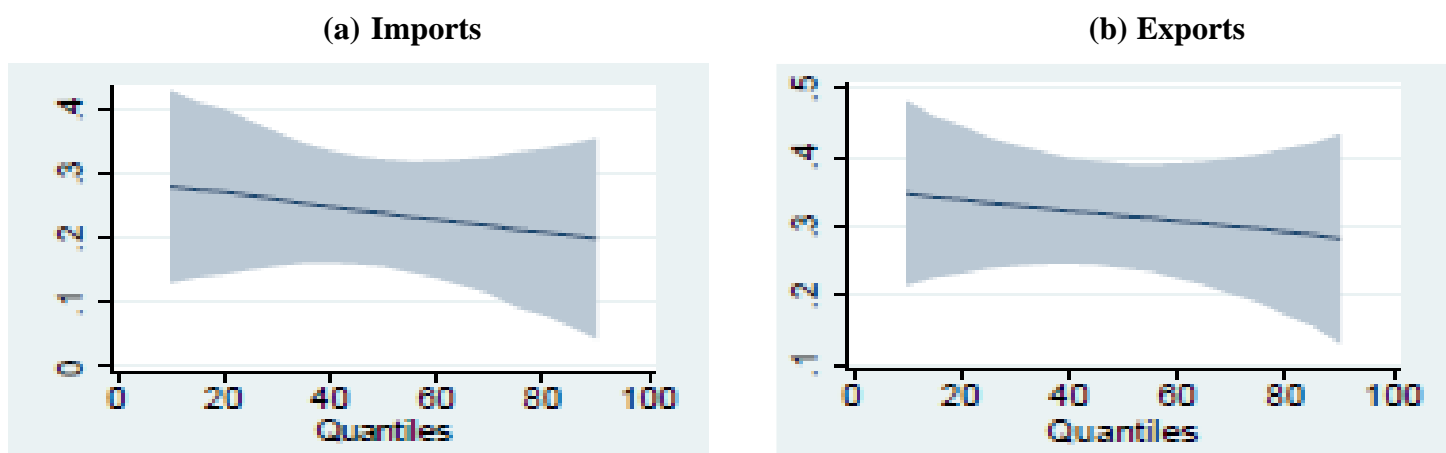
The results in Tables 2.3 and 2.4 point to a negative correlation between ODA and the combined GDP per capita growth. The negative quantile regression estimates suggest that the high growth economies tend to be affected by a decline in aid. This could be more likely linked to the type of aid provided to the economies of ASEAN and SADC as pointed out by Clemens, Radelet and Bhavnani (2004). The low growth economies may be attracting humanitarian aid which they point out has no impact on economic growth, whereas the high growth ones may be allocated aid which is directed towards health, education, and institution building, given that they have an impact on economic growth, as the aid declines so does their economic growth.

The quantile regression estimates indicate that as internet penetration declines and economic growth decreases as we move across the quantiles. Research indicates that internet improves connectivity between firms, reduces transaction costs and increasing productivity (Panichsombat, 2016). However, capital-intensive businesses may replace low-skill jobs with technology, and this exposes a skills mismatch in the economy. Das (2007) finds that technology has exacerbated inequality more than globalisation. Gulati (2008) mentions that ICT investments in education tends to favour wealthy sections of the society in low-income economies and this likely leads to income equality. Berg *et al.* (2018), Seo, Kim, and Lee

(2020), Anyanwu, Anyanwu, Cieslik, (2021) and Gutierrez-Romero (2021) find a negative effect of income inequality on economic growth.

Figures 2.13 (a) and (b) provide a clearer picture on the effects of imports and exports on GDP per capita in ASEAN and SADC between 2000 and 2018. The X-axis in both figures represents the coefficients and the Y-axis represents the quantiles. The blue line connects the different points along the distribution and the grey shaded area represents the confidence bands. We can observe that the relationship between imports and exports and GDP per capita is positive however, they gradually diminish along the quantiles.

Figure 2.13 (a) and (b): Quantile Estimate: Effect of Import and Export on the GDP per capita of ASEAN and SADC economies between 2000 and 2018



Source: Author's own calculation

There are a number of reasons put forward relating to the higher levels of trade dependency amongst the low growth or less developed economies. Having a less mature manufacturing sector means that they have to rely more heavily on the imports of raw materials, machines, capital goods, intermediate producer goods and consumer goods and they have high export concentration ratios on a limited number of goods (Dufrenot, Mignon and Tsangarides, 2010). Economies which depend on the export of primary products tend to rely more heavily on international trade than the ones which have a more diversified export structure, which leaves them more exposed to trade shocks. Trade expansion is also not beneficial to their domestic manufacturing sector because its growth is constrained by the lack of viable infrastructure, supply-side constraints and “de-industrialisation” as a result of being coerced to implement trade liberalisation measures during the 1980s and 1990s (Noorbakhsh and Paloni, 2000, and Shafaeddin, 2006).

2.6 Conclusion

This study assessed the impact of trade on economic growth in ASEAN and SADC between 2000 and 2018 by utilizing the Solow-Swan neo-classical growth model (1956). Over the years, the relationship between trade and economic growth has received a substantial amount of attention. Work by Balassa (1977) and (1978), Krueger *et al.* (1978) and (1981), and Findlay (1995) amongst others have identified trade as a strong determinant of economic growth. However, work by Stiglitz and Yusuf, (2001) and World Bank (2003) tend to show that the positive effect of trade on economic growth is dependent on several other factors such as human capital accumulation, high domestic savings rate, and technology transfer. Whilst research by Gries and Redlin (2012) and Were (2015) find a negligible link between trade and economic growth amongst low-income economies.

In the first part of this study, the linear regression results suggest that trade (import and export) has a positive effect on economic growth amongst this group of 26 economies. The FE results (preferred under the Hausman test) from the import model suggests that a 1 per cent increase in imports can likely contribute to a 0.3 per cent increase in the combined GDP per capita. The FE results from the export model points to a likely increase of the combined GDP per capita by up to 0.32 per cent following a 1 per cent increase in exports. Based on the results we can say that imports and exports are equally important determinants of economic growth for this set of economies. Although, the prevailing economic theory and some studies tend to have a negative view of imports in relation to economic growth, research by Grossman and Helpman (1991), Lee (1995) and Amiti and Konings (2007) find that acquiring cheaper foreign imports such as capital goods, technology and medication tends to increase productivity.

The results from the import and export models show significant and positive links between economic growth in ASEAN and SADC and human capital, Gross Fixed Capital Formation, and government effectiveness. These findings are in line with majority of the existing literature as outlined in the literature review. However, the results for import and export models suggest that a 1 per cent decline in FDI, the combined economic growth is likely to decline by up to 0.01 per cent. Such conclusions have been supported by Brecher and Diaz-Alejandro (1977); Germidis (1977); Mansfield and Romeo (1980); Brecher, (1983); Haddad and Harrison (1993); Boyd and Smith (1993); Aitken and Harrison (1999) and Carkovic and Levine (2002). They explain that a negative link between FDI and economic growth is an indication of a certain level of dependency on FDI which could be discouraging domestic

investment or the level of FDI is insufficient to stimulate economic growth, this could be the case in the ASEAN and SADC economies.

The linear regression results also point to a negative link between natural resources and economic growth. This supports research undertaken by Tella and Ades (1999), Barro (1999), Ross (2001), Jensen and Wantchekon (2004), and Collier and Hoeffler (2005). Gylfason and Gylfi (2006) which suggest that economic growth is not dependent on natural resource endowment even though it is a significant source of income for the economy. Using internet as a proxy for technological advancement could be problematic because it could be related to endogeneity as pointed out by Czernich *et al.* (2009). Research undertaken by Das (2007) suggests that increasing internet penetration creates income inequality. Studies by Berg *et al.* (2018), Seo, Kim, and Lee (2020), Anyanwu, Anyanwu, Cieslik, (2021) and Gutierrez-Romero (2021) find a negative link between income inequality and economic growth.

The linear regression results also indicate a significant and positive relationship between Government Effectiveness and the combined GDP per capita. The import model results suggest that a 1 per cent increase in the level of Government Effectiveness, the combined GDP per capita is expected to increase by up to 0.2 per cent according to the results of the import model and the export model points to a likely increase of up to 0.19 per cent by the same percentage increase in Government Effectiveness. This is in line with findings made by Barro (1996), Mintz and Wilson (2000) and Gylfason (1997), they find that policies, regulations, and laws play an important part in furthering economic growth. Human capital is shown to no significant effect on economic growth in ASEAN and SADC, which not in line with existing literature, this could be a case of endogeneity with other variables which suggests that a more appropriate estimation technique is used such as instrument variable is used to mitigate against it.

The second part of this study utilizes the conditional quantile regression method which was first introduced by Koenker and Basset's (1978), to understand the effects of the chosen variables on the high and low growth economies. For the purpose of this study five quantiles were chosen - 0.05, 0.25, 0.5, 0.75 and 0.95. The FE quantile regression results from the import model points to a significant positive relationship between imports and the combined GDP per capita in all five quantiles, at the 1 per cent level. The results from the export model indicates a positive relationship between the GDP per capita in all five quantiles at the 1 per cent level. However, there is an indication that the quantile regression estimates for imports and exports and the combined GDP per capita decline as we move across over the five quantiles. This suggests that as the ASEAN and SADC economies grow, they become less dependent on trade.

The results from the import model also indicate that gross fixed capital formation and government effectiveness is positively correlated with the combined GDP per capita and significant at the 1 per cent level in all five quantiles; .05, .25, .5, .75 and .95. The FE quantile regression results from the export model show a positive correlation between the combined GDP per capita and exports and gross fixed capital formation, in all five quantiles and significant at the 1 per cent level. The results for both import and export models indicate a negative correlation between FDI and GDP per capita and significant at the 1 per cent level in all five quantiles. However, the regression coefficients diminish as we move over the quantiles which suggests that as the ASEAN and SADC economies grow, their growth becomes less dependent on FDI.

The results of this study suggest that the growth of ASEAN and SADC economies is dependent on trade in addition to gross fixed capital formation and government effectiveness. Therefore, it is important that governments pursue policies that will maintain their trade openness and improve their institutional capacity to drive economic growth. The enhanced productivity should drive growth and assist them in achieving their economic potential.

Chapter 3

The effect of trade in services on economic growth in ASEAN and SADC between 2000 and 2018.

3.1 Introduction

The services sector in many economies has emerged as a driving force towards increasing the GDP growth, trade and employment through the opportunities created because of disruptive technologies and the digital economy, as well as playing a significant role in providing essential inputs to produce goods and the provision of other services (UNCTAD, 2017). Many services also serve a social function such as health, education, transport, and telecommunications. According to Lanz and Maurer (2015) services accounts for 70 per cent of the World's GDP but around 20 per cent of world trade in balance of payment terms. Although, Mercer-Blackman and Ablaza (2018) point out that the services related to the manufacturing of goods is not well captured and is estimated due to the indivisible and intangible nature of services.

Contemporary literature on the impact of trade in services on the economy began to emerge in the 1960s. It is initially viewed in a negative light, associated with low growth and productivity (Baumol and Bowen, 1967 and Fuchs, 1968). From the mid-1970s, we see a change of view by T.P. Hill (1977) and later Bhagwati (1984). Recent works by Li, Greenway, and Hine (2002), Hoekman and Mattoo (2008), Baldwin (2012), Young (2014), Lanz and Maurer (2015), van der Marel and Saez (2016), Roy (2019) and WTO (2019), point to the positive impact of trade in services on economic growth.

Based on the increasing importance of trade in services, a global framework in the form of the World Trade Organization's (WTO) General Agreement on Trade in Services (GATS), came into force in 1995. It recognises the supply of services into four modes. The global commercial services statistics (in 2017 – latest data) suggest that close to 60 per cent of global services trade is through mode 3, while mode 1 accounts for 28 per cent, mode 2 – 10 per cent and mode 4 accounts for 3 per cent. Ongoing research suggests that services globally are also being traded through a fifth mode, which consists of services embodied in exported goods, for example design of certain products, which are then manufactured and eventually exported (see discussions by Antimiani and Cernat, 2017). The contribution of the GATS to growth in trade in services globally since its establishment in 1995, remains unclear. Although, in 2018, global trade in services reached US\$ 6 trillion, and amounted to 23 per cent of total global trade.

The data indicates that ASEAN's services trade performance was far more superior to SADC's between 2000 and 2018. During this period, the value of ASEAN's service imports was between US\$ 87.9 billion and US\$ 391.8 billion compared to SADC which was between US\$ 14.1 billion and US\$ 62 billion. Whereas the value for ASEAN's exports was US\$ 68.9 billion in 2000 and peaked at US\$ 426.1 billion in 2018. In comparison, the value of SADC's exports during this period ranged between US\$ 9.4 billion and US\$ 31.5 billion.

In the first part of the study in this chapter, it seeks to understand the determinants of imports and exports of services in these two distinct regional groupings between 2000 and 2018. Two log-linear models are created based on the existing literature and regressed using the Ordinary Least Squares (OLS), Random and Fixed Effects (under Hausman Test) methods. Based on the 117 observations for ASEAN and 237 for SADC, the results suggest that the nine variables have varying impacts on the regions' services' imports and exports, however, only a number of them are statistically significant. The results are provided in Tables 3.3 and 3.4.

Additional work is undertaken to evaluate their services trade framework using the Services Trade Restrictiveness Index (STRI), which was previously developed by the Organization for Economic Cooperation and Development (OECD) and launched in 2014. For the purpose of this research, laws and regulations that exist in these 26 economies as of 31 December 2018 were considered when constructing the STRI for them. Six services sectors; Air Transport, Commercial Banking, Distribution Services, Maritime Transport, Road Freight and Telecommunications services are chosen based on their importance for both regions and their link with the other productive sectors; agriculture and manufacturing. The methodology is outlined in Section 3.3, the results are presented in Tables 3.1 and 3.2 and the questionnaires and attributed weights are available in Annex I.

In the second part, the neo-classical endogenous growth model is utilized to investigate the link between the import and exports of services and economic growth in the 26 economies between 2000 and 2018. Two models (import and export) are created, and the variables are initially regressed against the natural logarithm Gross Domestic Product (GDP) per capita using the OLS method for benchmarking purposes. To mitigate against possible endogeneity, a two-stage least squares (2SLS) method is employed. In the first stage, Foreign Direct Investment (*FDI*) is instrumented using two Instrumental Variables (IVs); Trade Openness (*TO*) and Infrastructure Quality (proxied by mobile subscription per 100 people). The instrument was built using existing literature. The fitted value is incorporated into the second stage of the regression. The results are available in Table 3.5. They indicate a positive contribution of trade in services to economic growth amongst these 26 economies.

The literature on the contribution of trade in services to economic growth is limited and majority of them focus on high- and middle-income economies. These studies include Boylaud and Nicoletti (2000), Claessens, Demirgüç-Kunt and Huizinga (2001), El Khoury and Savvides (2006), Eschenbach and Hoekman (2006) and Mattoo, Rathindran and Subramanian (2006). These also include the studies which have incorporated IVs such as Frankel and Romer (1999), Caner and Hansen (2004), Kim (2011), Cherif *et al.* (2018) and Nordas (2019). In addition, there are rare studies which assess the economic gains derived from trade in services for this specific group of 26 economies. This seeks to add to the existing body of literature.

This chapter is organised into six sections. Section 3.2 provides a literature review on trade in services and its impact on economic growth. Section 3.3 provides trade in services indicators between 2000 and 2018. Section 3.4 details the models and is followed by a discussion of the results; Section 3.5 is the conclusion.

3.2 Literature and Empirical Review

3.2.1 What constitutes a service?

As far back as 1776, Adam Smith identified services as an intangible economic activity and later Say (1836) uses the term immateriality and inseparability to characterise them (Moller, 2010). However, they have contrasting opinions on the economic benefits of services, Smith (1776) considers them to be unproductive because only tangible products (goods) are able to be exchanged and therefore they constitute the wealth of a nation. In his response to Smith (1776), Say (1836) considers them to be indeed productive.

Contemporary literature on services emerged in the 1960s but at the time, the prevailing view was that their importance should be relegated behind other more productive economic activities such as manufacturing as they were associated with low productivity and wages. This meant that they were also considered to be a lesser economic growth and development path (Baumol and Bowen, 1965, Kaldor, 1967, and Fuchs, 1968). In fact, Baumol and Bowen's (1965) description of the the rise of the price of labour (in the services sector) but with no corresponding increase in labour productivity, came to be known as the "Baumol's Disease" or "Baumol's Effect". With this prevailing view, there was not much interest in defining what constitutes a service.

Towards the late 1970s, attempts were being made to understand the role of trade in services in national economies. T.P. Hill (1977), for example, attempted to conceptualize, quantify, and define services. He argues that in order for an activity to be deemed a “service”, the condition of a person or a good must be changed, for example in the case of a surgeon

operating on a patient or in the case of a mechanic repairing a car (based on a prior agreement). He postulates that a service should be considered in terms of a flow rather than a stock because it cannot be stored and as a result of its intangibility, an inventory of a service cannot be created. He also maintains that for a service to be produced there is a need for a relationship to be established between the producer and the consumer. In addition, Browning and Singelmann (1978) introduced the concepts of; intermediate services – which were consumed by companies and final services – those which were consumed by customers.

In revisiting his definition of services twenty-three years later, Hill (1999) maintained his definition of services and added that they can be traded between either resident producers and consumers or resident producers and foreign consumers. He made this addition, presumably after witnessing the possibilities offered through technology. Whilst acknowledging Hill's effort in conceptualizing and defining services (both in 1977 and 1999), Gadrey (2000) points out limitations with his definition. Firstly, he questions Hill's interpretation of what an entity is and the rationale of independent existence. Secondly, the necessity for a prior agreement or relationship, as Hill alludes to, and thirdly, Hill's narrow definition of the types of activities and outputs that could be considered as services.

Gadrey's own definition of services proposes to add property rights and exclude a salaried workforce as an addition to Hill's definition. Any purchase of services by an economic agent B (whether an individual or organization) would, therefore, be the purchase from organization A of the right to use, generally for a specified period, a technical and human capacity owned or controlled by A in order to produce useful effects on agent B or on goods C owned by agent B or for which he or she is responsible. However, as Rynne (2019) points out, that the proposed definition is still narrow because it does not cover personal services which are consumed by households or services which are co-produced.

Hill's definition of services regarding the precursor for an activity to be considered as a service, it must effect change in the condition of the receiving economic unit. This is problematic, given that some service activities cannot effect change, but they are merely matchmaking activities. For instance, Levine (1997) identifies five major functions that the financial services sector serves; reduce transaction costs and allocate real resources; facilitating the trading of risks; allocating capital to productive uses; monitoring managers; mobilizing savings through the use of innovative financial instruments; and easing the exchange of goods and services.

The rise of social media also challenges the Hill's (1977 and 1999) and Gadrey's, (2000) assertion that there must be a prior agreement between two or economic units for the

activity to be considered a service. The social media platforms such as Facebook, YouTube, Instagram and Twitter, and social networks such as LinkedIn created their platform without prior agreement, but then later people or businesses (economic agents) join these platforms and consume the services provided to them (see discussions by Edosomwan *et. al*, 2011). In other words, they initially created a service without necessarily a demand or an agreement between them and their current users.

In an attempt to offer some clarity on what constitutes a service, Baghwati (1984) explains the “splintering process” of services from goods and goods from services. He cites an example in the automotive industry, if the paint job is done by a car manufacturer, the cost of the paint job is considered to be part of the production cost of the car (which is a good), whereas if it was outsourced to another company, it would be considered to be a service. He adds that with the technological changes, there is no longer the need to be physically in one location to provide a service, he terms this as the “disembodied effect”. Bhagwati’s view on the disembodied effect, is supported by Baldwin (2012), he explains globalization in terms of “two unbundlings”; (1) the use of railroads and steamships, it allowed production and consumption to be unbundled geographically; (2) the introduction of information and communication technology (ICT) in the production value chain in the mid-1980s.

In the 1990s, a new phase of international economic dynamics was ushered in through the rise in data processing complexity, the development of software and applications and the expansion of communication dynamics (Giovanini, Pereira and de Oliveira Saath, 2020). This gave rise to increased interaction between customers and suppliers, this led to Bell and Pavitt (1997) referring to this activity as “information intensive”, which encompasses all services related to finance, retail, publications, and telecommunications. In addition, the development of ICT networks allows for services to physically move from suppliers to customers, thereby satisfying the proximity constraint that exists to allow services transactions to occur (Hoekmann, 2017). Incidence of “servicification”²⁴ at a global level has also been documented, a growing amount of literature that looks at the role of services that is assisting with the proliferation of the global value chains (GVCs) - Baldwin and Lopez-Gonzalez (2015), Heuser and Mattoo (2017) and Miroudot and Cadestin (2017). The evolution of the services sector led Oulton (2001) to question the “Baumol’s disease” (1965) hypothesis given that there is growing evidence that services are productive economic activities.

²⁴ The term “servicification” is used to describe services used to during the production process and from the factory to the consumer (Swedish National Trade Board, 2010).

Even though there is no one universal definition of services, the discussions on the characteristics of services, the ideas have a certain degree of convergence. There are generally four main characteristics which describe services (which have been documented); intangibility, heterogeneity, inseparability, and perishability.

The intangibility of services is described by Gummesson (1987) as something which can be bought and sold but it cannot be dropped on your foot. Berry (1980) suggests that a service could be considered as a deed, a performance or an effort. Bowen and Schneider (1988); Edgett and Parkinson (1993); McDougall and Snetsinger (1990); Vargo and Lusch (2004); and Wright (1995) suggest that intangibility is its most important characteristic. However, the notion of intangibility has been criticized because of the tangible objects that are involved in service performance (Shostack, 1977). For example, an asset could change as a result of payment for an activity by the owner - construction services purchased by the owner of a property would enable the construction of a structure which would result in a change in the nature and value of the land. Therefore, describing the transformation process as a service is problematic. However, there are services that are sold based on a performance promise such as a consulting company, hairdresser or teacher (Moeller, 2010). Unlike the transformation of a piece of land, the promise of transformation in the future is intangible in nature and the producer's resources have terminated prior to it commencing.

Heterogeneity relates to the performance of services and given that human beings frequently supply them, their standards differ (Edgett and Parkinson, 1993). Beaven and Scotti, (1990); Palmer and Cole (1995); and Lovelock and Gummesson (2004) focus on the outcome. For instance, the time and the attention provided by a doctor during a patient's visit may differ depending on the frequency of the consultation, generally the first one will most likely require more time and attention. The literature on heterogeneity, also considers the differing performance of producers for a specific service²⁵ and the differing performance levels over time (Zeithaml, Parasuraman and Berry, 1985 and Iacobucci, 1998). Palmer and Cole (1995) also consider that the customer needs are heterogeneous and therefore the same service must be tailored to suit their needs.

There are several criticisms related to the heterogeneity characteristic of services. Lovelock and Gummesson (2004) cite countless possibilities to standardize services which result in reducing the incidence of heterogeneity. Gummesson (2000) suggests the function served by an automated teller machine (ATM) is an example of using machines to standardize the provision

²⁵ Iacobucci (1998); Kotler (1994); and Lovelock and Gummesson (2004)

of a service, whilst serving heterogenous needs. The human input in the provision of services is often viewed as one of the main reasons for the heterogenous performance and outcome of services but the same could be said about the production of goods (Vargo and Lusch, 2004). For instance, the quality of the products may differ depending on the skills of a baker in a handmade bakery shop, the introduction of machines could standardize their production.

The inseparability of services refers to the simultaneous production and consumption of services. This suggests that often the producer needs to be physically present while the consumption of the service is taking place (Berry, 1980). Examples of inseparability are education, consultations by physicians and concert performers. Bowen (2000) suggests that the inseparability is emphasized when there is a need for personal interaction between the producers and the customers. Lovelock and Gummesson (2004) conclude that it is difficult to generalize the inseparability of services between suppliers and customers. The advancements in technology have allowed for the digitization of services and which are subsequently supplied to cross-border customers through Information Communication and Technology (ICT) networks (Hoekmann, 2017).

The perishability of services considers that they cannot be saved, stored, resold, or returned (Beaven and Scotti, 1990; Edgett and Parkinson, 1993; Kotler, 1994; Vargo and Lusch, 2004). However, Gummesson, (2000) is critical of the view of the non-storability of services, he opines that stored in systems, buildings, machines, knowledge and people. For example, education services would allow a person to gain knowledge of a particular subject, use it in the performance of his or her work and be able to derive an income out of it. This also supports the criticism of the perishable of outcome notion relating to services. Smith (1776) argues that once a service is consumed it perishes and the consumer is left with the derived utility, the same could be said for goods, following the consumption of a meal, the consumer is left with the utility as the outcome (the meal) perishes (Moeller, 2010). The literature also considers the ability of the service producer diminishes over time because of services cannot be inventoried - Lovelock and Wright (2001). In using Gummesson's, (2000) example of the cash in an ATM and hotel beds (which can be inventoried), he points to the diminishing value of service if the consumer demand for cash and hotel beds falls. Rust, Zahorik and Keiningham (1995) conclude that a producer's services capacity is time-bound.

3.2.2 International Trade in Services

The World Trade Organisation's (WTO) General Agreement on Trade in Services (GATS) is the international legal framework, which governs global trade in services. It was

negotiated between 1986 and 1994 (during the “Uruguay Round” of negotiations) and came into force on 1st January 1995. The Agreement governs the market access and the limitation on national treatment²⁶ commitments for specific services sectors²⁷, which WTO Members have undertaken in the four specified modes of supply²⁸; Mode 1: Cross-border supply (e.g., telecommunication services); Mode 2: Consumption abroad (e.g. tourism); Mode 3: Commercial presence (e.g. establishment of foreign branches by international banks); and; Mode 4: Temporary Movement of Persons (e.g. an IT technician moving temporarily to another country to supply his or her service).

In recent years, there has been an emergence of Mode 5, which can be simply defined as the services content embodied in goods exports (Antimiani and Cernat, 2017). Services such as design, engineering and software, which are incorporated and traded as manufactured goods are considered to be Mode 5 services. Based on the OECD-WTO TiVA (Trade in Value Added) database, such services account for over 50 per cent of the value embodied in the manufacturing of goods for some economies (see Figure 3.6). However, it has not been included in the international framework as yet because it is considered to be in its infancy and does not have precise boundaries and scope (European Union, 2018).

The contribution of the GATS to the global growth in trade in services since its establishment in 1995, remains unclear. From Figure 3.1, we can observe that in 2000, the global service exports totalled US\$ 1.5 trillion, during the same year, the value of global exports were US\$ 6.5 trillion. Global services exports steadily rose to reach US\$ 4.1 trillion in 2008 but dipped to US\$ 3.7 trillion a year later but it rebounded in 2010. It rose to reach its peak of US\$ 6 trillion, for this period in 2018.

The data in Figure 3.1 also indicates that global exports rose sharply between 2003 and 2008, from US\$ 7.6 trillion to US\$ 16.1 trillion. However, in 2009 it fell to US\$ 12.6 trillion but recovered to reach US\$ 15.3 trillion, a year later. There upward trajectory continued until 2014, reaching US\$ 19 trillion. It dipped for two consecutive years and recovered in 2017 and by 2018 it reached its peak for this period – US\$ 19.6 trillion. The services export growth in 2018, was driven primarily by travel, intellectual property and other business services,

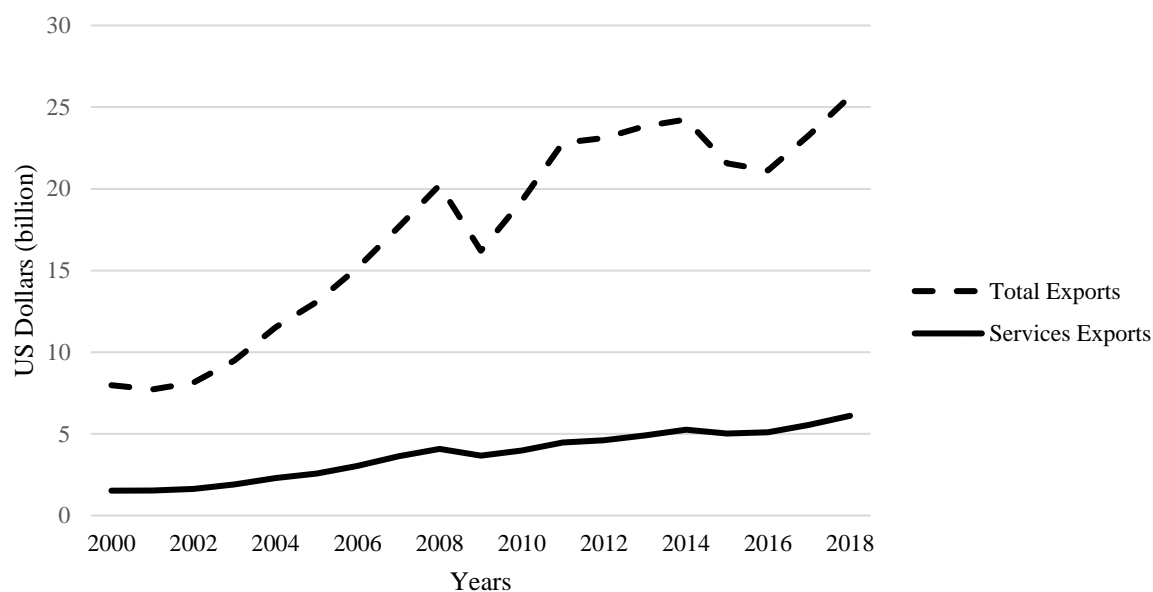
²⁶ The extent to which WTO Members treat foreign companies or individuals differently to national ones.

²⁷ Classified as per the UN Central Product Classification (CPC) Code contained in document MTN.GNS/W/120.

²⁸ Article I:2 of the GATS Agreement.

telecommunications, computer, and information services²⁹. The statistics reveal that in 2018, their services exports by developed economies were driven by business services³⁰, whereas the services exports for Developing economies were predominantly in the transport and travel sectors.

Figure 3.1: Value of Total Exports and Total Services Exports (in US\$ trillion) 2000-2018



UNCTAD Database (2000-2018)

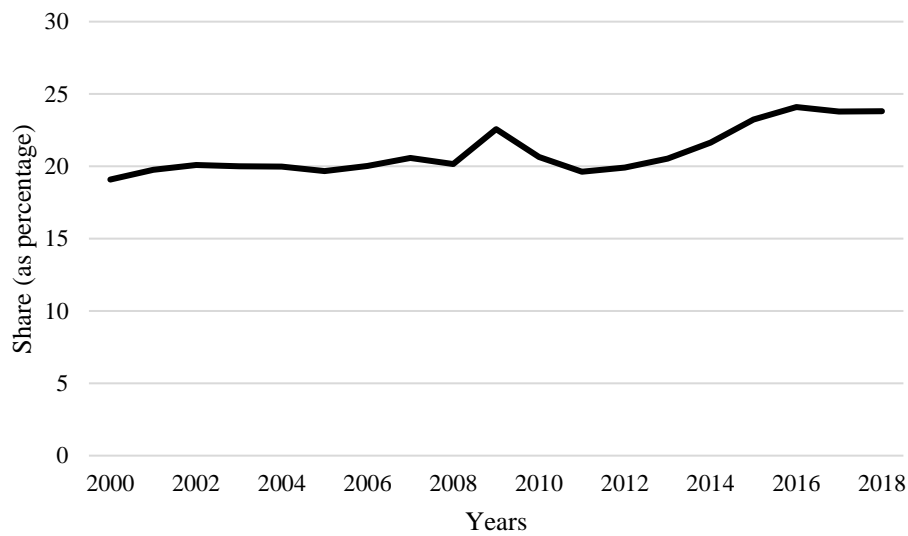
Figure 3.1 shows that in 2000, the share of services was 19.1 per cent and it share steadily grew to reach 20.2 per cent in 2008. In 2009, it rose to reach 22.6 per cent but fell for two consecutive years but rose again in 2012 to reach 19.9 per cent. From 2013, it continued its upward trajectory to reach 23.8 per cent in 2018. The growth between 2013 and 2018 is attributed to the consistent annual growth in Asia by 9.5 per cent and an annual growth of between 6 per cent and 7 per cent in Europe, Caribbean, Latin America, and Oceania³¹.

²⁹ UNCTAD Handbook on Statistics 2019

³⁰ Includes “financial services” (financial intermediation and auxiliary services), insurance services and “Other business services” which includes merchanting and other trade-related services; operational leasing services; and miscellaneous business, professional and technical services (legal, advertising, consulting, accounting, R&D, etc.).

³¹ UNCTAD (2019)

Figure 3.2: Services Share of World Trade 2000-2018

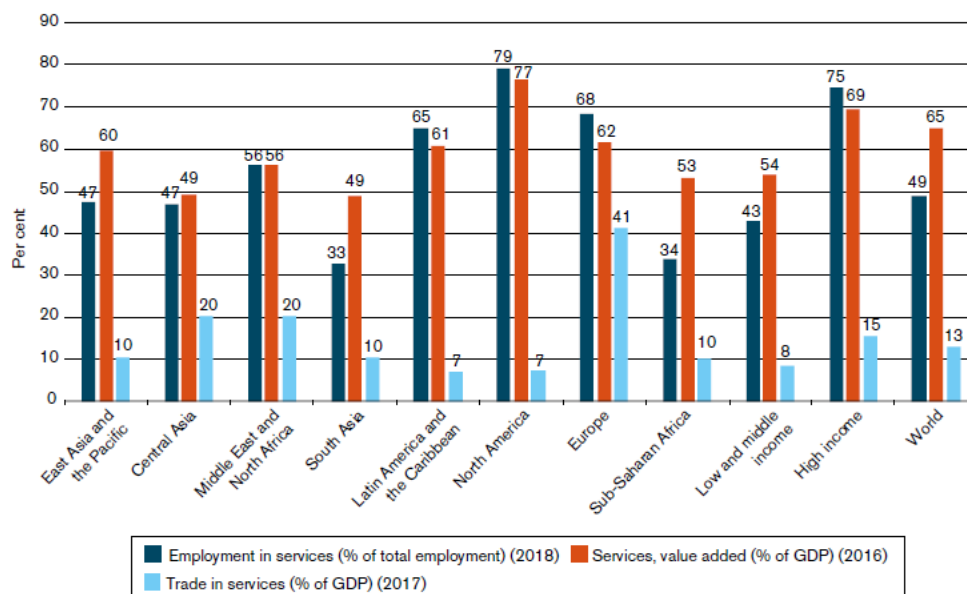


UNCTAD Database (2000-2018)

Historically, the manufacturing sector has been associated with being the more productive sector in the economy. It has been successful in absorbing the unskilled workforce and stir it into a productive path, in addition, this productivity boost has resulted in the sector’s production of tradable goods—facilitating scale economies, technology diffusion, greater competition, and other spill over effects (Hallward-Driemeier and Nayyar, 2017). However, the economic data suggests that services sector has the largest share of the global economy. This is indicated in Figure 3.2.

From the data presented in Figure 3.3, we can observe that the value addition provided by the global services sector consisted of two thirds of the global GDP, while providing half of global employment. There is also an indication that the services sector has a significantly higher share of GDP in High Income economies (75 per cent) and has a greater share of employment (69 per cent) compared to the low- and middle-income economies. The value addition provided by the services sector is 54 per cent and the employment was recorded at 43 per cent. The regional data indicates the services share ranges from 49 per cent in South Asia and 77 per cent in North America. Having a larger share than the other sectors, provides an indication that trade in services could potentially deliver substantial economic gains globally (WTO, 2019).

Figure 3.3: Share of services in value-added (2016), employment (2018) and cross-border trade in services (2017), by region³²



Source: WTO Secretariat calculations based on World Development Indicators.

To appreciate the global flow of trade in services, the WTO created a dataset - “TISMOS” (Trade in Services by Mode of Supply)³³. The information is derived from the economies’ balance of payments which provide services transactions for cross-border supply (mode 1), consumption abroad (mode 2) and the presence of natural persons (mode 4), while Foreign Affiliates Statistics (FATS) by Eurostat offer information on trade via commercial presence (mode 3). The data for 2017 is presented in Figure 3.4.

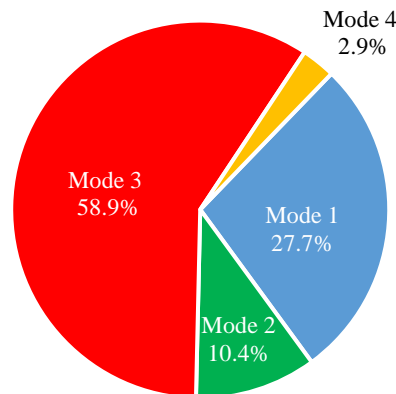
The statistics presented in Figure 3.4 indicates that in 2017, commercial trade in services, was predominantly traded through mode 3 (58.9 per cent). The data also indicates that Mode 1 (including electronic transactions) had a share of 27.7 per cent, the share for Mode 2 was 10.4 per cent with tourism accounting for 60 per cent³⁴ of the value and Mode 4 had a share of 2.9 per cent. The statistics indicate that between 2005 and 2017, this trade pattern had not changed (WTO, 2019).

³² WTO (2019)

³³ Additional information can be found on the following link: https://www.wto.org/english/res_e/statis_e/trade_datasets_e.htm#TISMOS.

³⁴ WTO (2019)

Figure 3.4: World Trade in Commercial Services by Mode of Supply 2017



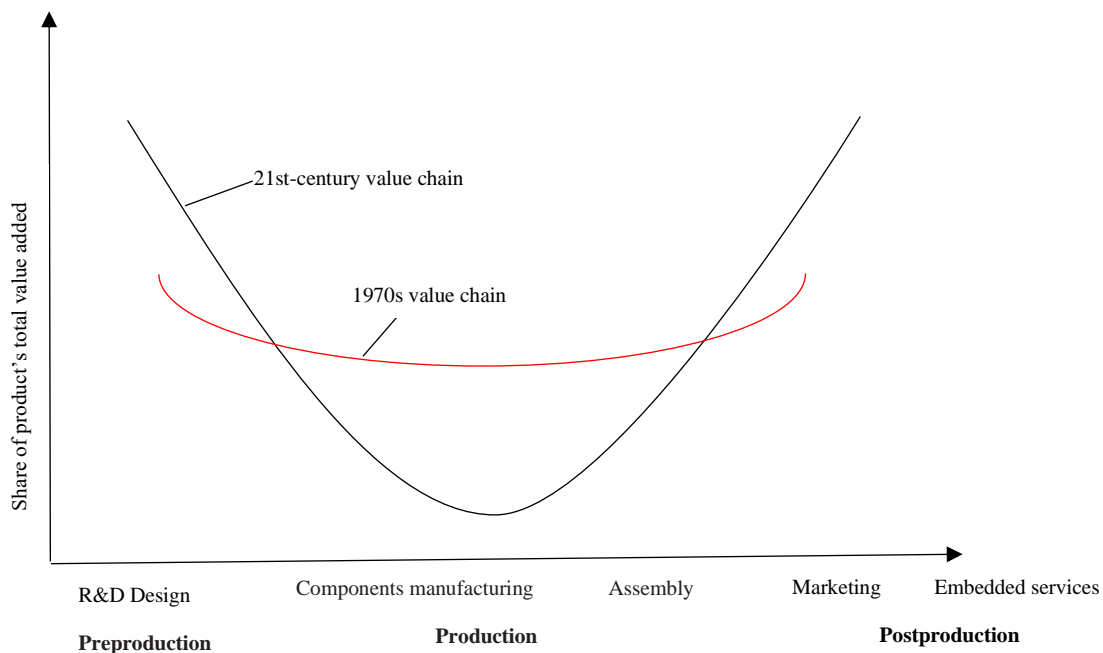
Source: WTO Estimates (2019)

The services link to the manufacturing sector as well as the role played by services in the proliferation of global value chains (GVCs) have been documented in recent years. Services inputs into the manufacturing process can be grouped under one term - “servicification of manufacturing” (Lanz and Maurer, 2015). Services inputs into the manufacturing sector can be considered either as “embodied” or “embedded” - for example research and development (R&D) and energy are considered as embodied services, whereas embedded services refer to the sale of good such as repair, maintenance or leasing (Fessehaie, 2017).

At a micro level, the prominent role played by services in each stage of the production process and the value they add to the good, can be represented by the “smiling curve”³⁵. in Figure 3.5 indicates the smiling curves for the 21st century and 1970s. We can observe that the 1970s smiling curve is significantly flatter than the one for the 21st century. The smiling curve deepened in the 21st Century as a result of cost saving in the production process most likely through offshoring, as the cost decreases so does the value of the services added, as it is based on costs (Baldwin, 2012). We can also observe that in the post-production process, the share of embedded services increases sharply and that is an indication of the link provided by services to the manufacturing sector in bringing the final output to the consumers.

³⁵ Part of the management literature, first proposed by the Taiwanese founder of Acer Inc. in 1992 (Hallward-Driemeier and Nayyar, 2017)

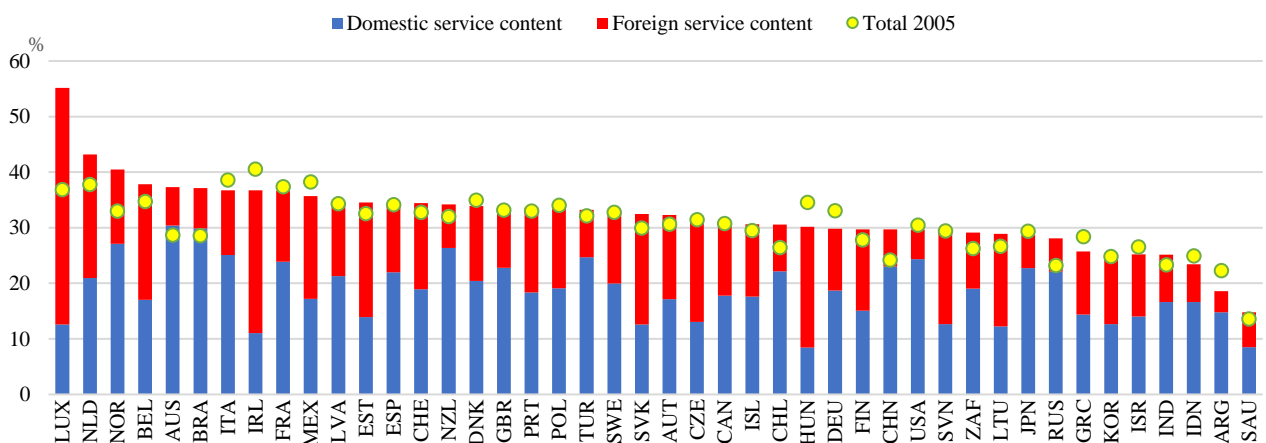
Figure 3.5: “Smiling Curves” 1970s versus 21st Century



Source: Hallward- Driemeier and Nayyar, 2018

Work by the OECD on Trade in Added Value enables us to be better understand the link between services and manufacturing. The data is presented (in Figure 3.6) is only for OECD economies (the most advanced global economies) and a selected number of economies for 2015.

Figure 3.6: Services value added embodied in manufacturing exports, by domestic and foreign origin, 2015

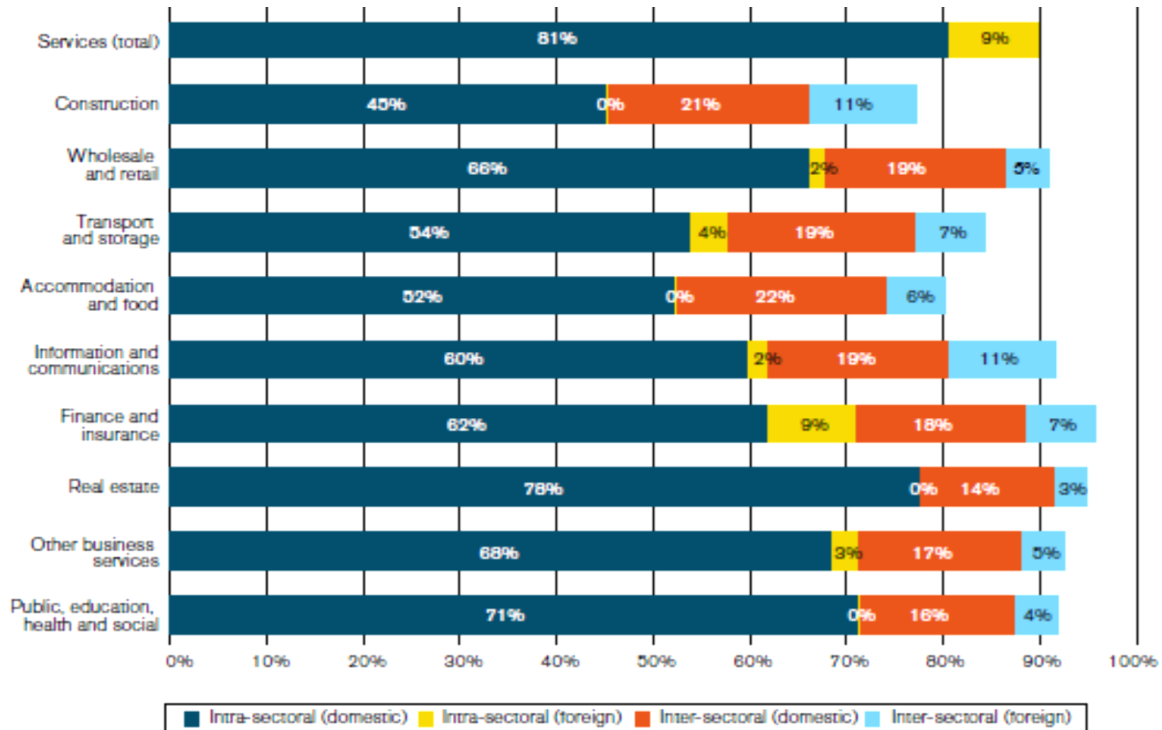


Source: OECD, Trade in Value Added (TiVA) database, December 2018

From the data provided in Figure 3.6, we can observe that all economies require a level of foreign service content despite of the size of their manufacturing base. The data also suggests that the manufacturing sector for smaller economies such as Hungary, Ireland, Lithuania, Luxembourg, Slovenia and Slovakia, have a greater share of foreign service content than domestic service content. The foreign service content relates to the services associated with cross border procurement of services, whereas domestic services content refers to the services produced in the exporting economies.

The trade statistics in the OECD’s TiVA database also indicates services production (at least at the sectoral aggregation) is less fragmented than in the manufacturing sector. The data presented in Figure 3.7 indicates that the services value added consists of 90 per cent of services exports, whereas the manufacturing and primary activities sectors fulfil the remaining 10 per cent. In addition, the data shows that service exports are largely dependent on domestic supply-side capacity. The foreign services content in services exports is 9 per cent, which slightly lower than in the manufacturing sector, according to the statistics from the TiVA database.

Figure 3.7: Decomposition of services exports by services value added, 2015



Source: OECD TiVA database (2018).

Note: For illustrative purposes, the decomposition does not show the primary and manufacturing value-added contained in services exports, which would correspond to the difference between 100 per cent and the services value-added represented by the bar.

The data also indicates that highest intra-sectoral value-added service for Real Estate sector (78 per cent); followed by Public, Health, Education and Social (71 per cent); and other Business Services sectors (71 per cent). The inter-sectoral value-added services was 32 per cent in the Construction sector; Information and Communications was 30 per cent; and Accommodation and food sectors was 28 per cent.

3.2.3 Determinants of Trade in Services

Regulations can serve as barriers to trade in services, which in turn constrain or inhibit altogether, trade in all four modes of services between economies. The effects of regulations on trade in services is well documented³⁶. A study on cross-border data flow legislation by Ferracane and van der Marel (2018) concludes that more restrictive measures are associated with lower data-intense services imports, despite an economy having superior digital networks.

Work by van der Marel and Saez (2016) on the impact of services regulations on the value-addition of backward, direct and indirect domestic linkages in services sectors of the sixty-four economies (available in the OECD's TiVA database), amongst the conclusions reached are that regulatory entry barriers are strongly associated with lower levels of exported services value-added though all types of linkages. Research by Diaz-Mora Gundoy and Gonzalez-Diaz (2018) using the OECD's Inter-Country Input–Output (ICIO) database from 1995 to 2011, found that the use of foreign service suppliers enables domestic companies to enhance their export performance, and this particularly holds true for most technologically-intensive manufacturing: high and medium–high and medium–low tech manufacturing industries

The WTO's GATS Agreement does not specify any measure that constitute a barrier to trade in services. However, it does specify that WTO Members, under Article XVI:2 can specify six measures³⁷ which would apply across all service sectors (horizontally) scheduled or sector-specific in the recognized four modes. Horizontal or sector-specific discriminatory measures can be applied to foreign operators within a jurisdiction under “national treatment

³⁶ See discussions by Dee (2007), Schwellnus (2007), Nordas and Kox (2009) and Mirodot, Sauvage and Sheppard (2013).

³⁷ (a) limitations on the number of service suppliers; (b) limitations on the total value of transactions or assets; (c) limitations on the total number of services operations or on the total quantity of service output; (d) limitations on the total number of natural persons (in particular non-nationals) that may be employed in the sector (or the share of wages paid to foreign labour); (e) restrictions on, or requirements of, specific types of legal entity through which that service may be supplied; and; (f) limitations on the participation of foreign.

limitations” (GATS Article XVII). GATS Article XVI also identifies an economic needs test (ENT) as a barrier to trade but allows the WTO Members to apply them in all four modes of supply, as long as they specify them in their schedule (UNCTAD, 1999). It also adopts a positive listing approach (Article XX) and therefore WTO Members are required to only schedule service sectors (and their modes of supply) that they are willing to liberalise. It also does not cover services that are supplied in the “exercise of governmental authority” (i.e., services which are supplied by government monopolies) (GATS Article I:3(b)) and does not cover the air transport sector (Annex on Air Transport).

It is generally understood that there are three categories of impediments to FDI³⁸; (1) Sector-specific restrictions – economies restrict foreign ownership either partially or fully of firms operating in a certain sector; (2) Entry but with certain conditions – foreign firms are allowed to enter however there are certain conditions such as the requirement to employ domestic managers; and; (3) Specific screening procedures – FDI is screened based on specified procedures and are either approved or rejected based on specific criteria such as public interest or national security. In contrast, Mode 2 has relatively low regulatory barriers and if measures were to be in place, they would be difficult to enforce given that the supply of services in this mode is done in another jurisdiction (Centre for International Economics, 2010).

WTO Members are required to schedule their market access restrictions and national treatment limitations, GATS Article VI allows for the implementation of “Domestic Regulations” by governments. Often, they impede trade in services through a myriad of regulations deep inside the border (WTO, 2019). Saez *et al.* (2015) point out that lack of clarity and predictability in domestic laws or deficiencies in domestic services may reduce productivity and the attractiveness of an economy to foreign investors.

For Mode 1, the regulatory frameworks mainly deal with rules relating to data transfer, the restrictions differ from one economy to another. In contrast, mode 4 refers to the temporary movement of natural persons from one WTO Member to another, to deliver a service either as an independent professional or an employee of a firm, it does not cover a person seeking employment in the host WTO Member nor does it affect rules regarding citizenship³⁹. In addition to the natural barriers to temporary movement of persons such as the need to adapt to

³⁸ UNCTAD (2019)

³⁹ https://www.wto.org/english/tratop_e/serv_e/mouvement_persons_e/mouvement_persons_e.htm, viewed 28 December 2019.

natural climate and learn a foreign language, there are legislative barriers such as quotas, screening requirements and economic needs test (Winters, 2003).

According to Khoo *et al.* (2007), the changing structure of international business (mainly by Transnational Companies (TNCs)) is driving the surge in the movement of high skilled labour and globally the competition for high skilled labour has intensified due to a shortage in developed economies, a result of a growing aging population. Without temporary workers, the cost of doing business in the host economy would be high due to a limited workforce and there are benefits, which are accrued by the host economy (Motomura, 2013). Home economies also benefit from the remittances⁴⁰.

Chanda (2006) explains that there is a certain link between the modes of supply, both positive and negative. Regarding the positive interlinkage, there is strong complementarity between commercial presence (mode 3) and movement of service providers either firms or individuals (mode 4) with respect to the provision of financial services. Whereas, a negative linkage could be related to landing rights, whereby economies restrict foreign airlines from either operating fully or restrict their frequency, this in turn affects Mode 1 for air transport services and inadvertently negatively affects Modes 2 (tourism services) and 4 (business travel). Intermodal substitution occurs when regulations in one economy prohibit the supply of a service either through Modes 1 and 3, consumers move out and consume the same service in another economy. An example could be that international move from their home country to another country to consume education services as a result of a prohibition of education services by foreign providers through FDI restrictions (Mode 3) (Dee, 2010).

There have been concerted efforts by the OECD and the World Bank to quantify these restrictions in the various services sectors through their respective “Services Trade Restrictive Index”. However, the measure in both datasets have some limitations. Sahoo, Dash and Mishra (2015) use the cumulative number of Free Trade Agreements (Services only) that an individual economy was a party to within a given year is used, as measurement for regulatory barriers. For the purpose of this study, “Regulatory Quality” which is compiled by the World Bank under the World Governance Indicators (WGI) is used, because the scores provide a reflection on the government’s ability to formulate and implement policies that are conducive for private sector development in their economies.

⁴⁰ According to the World Bank, at the end of 2018 global remittances to low- and middle-income countries reached US\$ 529 billion, corresponding to an increase of 9.6 per cent from 2017 (US\$ 483 billion). <https://www.worldbank.org/en/news/press-release/2019/04/08/record-high-remittances-sent-globally-in-2018>, viewed 30 December 2019.

The level of development has a certain degree of influence on the level of sophistication of goods and services produced by an economy. Work by Anand, Mishra and Spatafora (2012) suggest that low-income economies have lower levels of export sophistication. In addition, Mishra, Lundstrom and Anand (2011) find that as national income increases, services tend to assume a greater share of output, a phenomenon that is not well researched. The rapid expansion of the internet has improved efficiency and enhanced the tradability of services (Ghani and Kharas, 2010). They also play a significant role in expanding the offshoring process (Aron and Singh, 2005, Elia, Massini and Narula, 2019). In this study, GDP per capita is used as a measure for economic development.

Infrastructure itself is divided into two categories, “hard” and “soft”⁴¹. Tangible infrastructure such as roads, railways, transmission lines are referred to hard infrastructure. Soft infrastructure refers to intangible structures such as networks and digital platforms. Both of them play a key part in facilitating the supply of services. Services act as inputs in the production of goods and facilitate their supply to markets by enabling connectivity over basic infrastructure (Roy, 2017). Research by Limao and Venables (2001) suggests that improved infrastructure (road, rail, and telecommunication) contributes to the greater participation of economies in global trade. Their study⁴² points to the improvement in infrastructure as a factor in reducing transportation costs for landlocked economies by 12 per cent and a further improvement of infrastructure in transit economies reduces the transportation costs by a further 7 per cent. Numerous studies also highlight the benefits of improving transport infrastructure; Wu (2007), Njinkeu, Wilson and Fosso (2008), Granato (2008), Moise and Le Bris (2013) and Gani (2017). Portugal-Perez and Wilson (2012) examine the trade performance of 101 economies, they find that as national income increases it has less of an impact on trade performance

Services trade was previously constrained by their non-storable and intangible nature. Technological advancement particularly ICT networks, have increased their tradability and assists them in satisfying the “proximity constraints” that exist between supplier and customer (Hoekmann, 2017). Digital technologies enable global firms to match, track and verify information at much reduced costs (Goldfarb and Tucker, 2017). Internet connectivity is an important component of soft infrastructure, studies have shown that it enables economic

⁴¹ See discussion by Portugal-Perez and Wilson (2012).

⁴² In the study, Limao and Venables (2001) uses shipping quotes for the transportation of one container to the selected economy from companies in Baltimore (USA).

growth, allows remote communities to be connected and access government services, while it also assists the general population in benefiting from education services and creates a platform for innovation; see discussions by Madon (2000), Choi and Yi (2009), Mayinka and Roxburgh (2011), and Box and West (2016).

Globalisation is considered as a key driver of global trade in services and international sourcing of services inputs is part of the globalisation of services (OECD, 2005). Global export of ICT-enabled services was worth \$ 2.37 trillion in 2017 – a two-fold increase from 2005 (US\$ 1.04 trillion) (WTO, 2019). For the purpose of this study, mobile phone subscriptions per 100 people, as obtained under the World Bank’s World Development Indicators (WDI) database is used as a proxy measurement of infrastructure level. Mobile phones not only facilitate access to communication, but they also allow access to digital platforms where services are traded such as banking services. They also require electricity to operate and rely on transport services to transfer the equipment, which they themselves reliant on road infrastructure for their movements.

The relationship between human capital and the growth of trade in services is well documented⁴³. The global skills divide is caused by the variation in the availability of skilled labour, Hoekmann and Mattoo (2008) describe it as a source of comparative advantage. Majority of the studies indicate a bias towards high-skilled labour in services trade (WTO, 2019). Keller (1996)⁴⁴ concludes that technology can only be implemented as long as labour has the corresponding skills. Jadoon, Abdur Rashid and Azeem (2015) also find that trade-led growth is more significant in the economies, with higher skilled labour and can absorb new technologies, complemented by trade openness⁴⁵.

In a study by Amaranto *et al.* (2010) on the impact of employment and wages (from 1991- 2004) of liberalising selected services subsectors (banking, distribution, and telecommunications) in the Philippines, suggests a higher demand for high-skilled workers. Research by De and Raychaudhuri (2008) suggests a similar trend resulting from India’s growing services exports. Similarly, work by Mehta and Hassan (2012), UNCTAD (2013) and Petit (2017) suggest the high skills-bias in services exports.

⁴³ See discussions by Francois (1990b), Francois and Nelson (2002), Askenazy (2005), Lennon, Mirza and Nicoletti (2009), Goldin (2014).

⁴⁴ Using data for five semi-industrialised countries – Argentina, Brazil, India, South Korea and Mexico.

⁴⁵ Based on eight selected Asian countries, India, Indonesia, Japan, Malaysia, Pakistan, Singapore, South Korea and Sri Lanka.

It is important to note that at this point in time offshoring has its limits. Services that require a high degree of human interaction such as hairdressers and those that require professional licenses such as medical professionals (both practicing and support), cost of technology in the near to medium term as well as domestic laws and policies will serve as strong barriers to offshoring (WTO, 2019). There are also human capital constraints (particularly in developing economies) which serve as a barrier to offshoring of services. Government budgetary constraints more often than not result in a trade-off between investing in physical infrastructure (e.g., schools, universities) and human capital (e.g., education, health) because of the complementary nature of the two (La Roche, Mérette and Ruggeri, 1999).

Goods are reliant on services during their production process and then shifting them from their production centres to their destination markets, otherwise they cannot be traded (Roy, 2017). Services such as air transport, distribution services, express delivery services, financial services, ICT, logistics services, maritime transport, and road transport, serve as inputs and have intermediary roles. They have been described as the “oil” or the “glue” in the manufacturing process (McKinnon et al, 2019). Low and Pasadilla (2016) also point out that without services, markets will also be more segmented.

The competitiveness of manufacturing firms in open economies relies partly on low cost and high-quality producer services (Francois and Hoekmann, 2010). Communication networks allow for the digitization of information services and other products, dissemination, and diffusion of knowledge, whilst the efficiency of transport services has a bearing on the cost of transporting goods and people between markets (Hoekmann and Mattoo, 2008).

The services regime of an economy also has an impact on the goods trade. Several country-specific studies by Arnold, Mattoo and Narciso (2008); Arnold, Javorcik and Mattoo (2011); Duggan, Rahardja and Varela (2013); and Arnold et al. (2015) point to the positive effects of services trade openness and productivity of manufacturing firms. Hoekman and Shepherd (2017) suggest that increasing services trade restrictiveness by 10 per cent is likely to reduce bilateral trade in manufactured goods by 5 per cent. They also find that restrictions on transport and retailing services have the most direct impact on trade in goods.

Foreign Direct Investment (FDI) is an important component of both services import and export. The global services sector accounted for 48 per cent (US\$ 473 billion) of FDI inflows in announced Greenfield investments in 2018, in contrast to the manufacturing sector

which was 47 per cent (US\$ 466 billion) and the primary sector was 4 per cent (US\$ 41 billion)⁴⁶.

FDI inflows related to net cross-border “Mergers and Acquisitions” (M&As) (in 2018), the services sector accounted for 54 per cent (US\$ 469 billion), manufacturing 36 per cent (US\$ 307 billion) and the primary sectors 5 per cent (US\$ 39 billion) (UNCTAD, 2019). Power generation and construction services were major contributors to FDI inflows in Greenfield projects, whereas M&A sales in the financial services industry were the main drivers of FDI inflows in 2018.

The literature exploring the relationship between foreign aid and trade in goods is well developed and they suggest an existence of an aid and trade nexus; see discussions by Lloyd *et al.* (2000), Suwa-Eisenmann and Verdier (2007), Brazys (2010), Lemi (2017), Otor and Dornan (2017) and Martínez-Zarzoso (2019), to name a few. Nowak-Lehmann *et al.* (2010) find that the exports of donor economies increase by US\$ 1.50 for every US\$ 1, spent on aid.

In their analysis of the EU’s aid programme, Mendez-Parra and te Velde (2017) suggest that the machine rental and business services sectors are among the largest beneficiaries. Hoekman and Shingal’s (2017) study finds that a 100 per cent increase in Aid for Trade (AFT)⁴⁷ resources allocated to trade in services, corresponds to a 2.9 per cent increase of the recipient economy’s services exports, lagged one or two periods.

3.2.4 Services and Economic Growth

The critical role of producer services in the functioning of economies is well documented. Services such as transport, telecommunications, finance, water and electricity distribution have a high degree of influence on the level of productivity in an economy (WTO, 2019). In addition, many services such as health and education serve a social function and assist in building human capital (UNCTAD, 2017), which is a source of competitiveness, particularly in the financial services sector (El Khoury and Savvides, 2006).

Studies have shown that impact of services on the productive sectors are not uniform. Nordås and Kim (2013) find that the textiles and clothing, electronics and automotive industries are more sensitive to the availability and quality of services. They also find that manufacturing firms which depend heavily on the internet and use sophisticated technology in their production

⁴⁶ UNCTAD Investment Report (2019)

⁴⁷ For more information on Aid for Trade (AFT), please refer to the information provided on the following link: https://www.wto.org/english/tratop_e/devel_e/a4t_e/a4t_factsheet_e.htm - viewed 5 January 2020.

processes are more sensitive to electricity supply. Findings by Lodefalk (2017) suggests that manufacturing firms can use services to differentiate their products and increase their competitiveness on the international market. Vandermerwe and Rada (1988) use the term “servitization of business”, which is a process of creating additional value of goods by bundling them together with services.

The Swedish National Trade Board (2016) identifies three reasons as to why manufacturing firms to servify their operations. First, the increasing use of services enhances the manufacturing process, for example the use of knowledge-intensive services would allow for the adoption of new technology. Second, the use of services such as transportation and communication facilitate the firm to participate in value chains. Third, the use of services can enhance the value of the products and strengthen the relationship between the firm and its customers through the use maintenance and repair services, as an example.

Research at a micro level on services suggests that services can create and maintain global supply chains for both manufactured goods and services. The Swedish National Board of Trade’s (2010) survey of a Swedish company Sandvik Tooling (part of the Sandvik Group) finds that it needed 40 different services to establish and uphold its supply chain and at the same time it was supplying 15 different services to other firms. In addition, Lodefalk’s (2013) analysis of micro-level firm data in the Swedish manufacturing sector between 1975 and 2005, finds that services input within that period doubled.

Platforms created by ICT service providers have become a backbone of the global e-commerce wholesale and retail trade such as Amazon and Alibaba. Without, the advancement in technology, improvements in internet speeds and importantly lower communication costs, would make it difficult for such services to operate (Roy, 2017). In addition, firms are able to import whole business functions from accounting to IT services⁴⁸ and platforms such as Upwork and Amazon MTurk allow low value projects to be traded and facilitate the transaction between customers and suppliers (WTO, 2019).

Digital banking platforms such as “MPesa” in Kenya and “Wing Mobile” in Cambodia, have enabled a large part of their populations, which were previously “unbanked” to have access to banking facilities, at the same time, reducing access costs, travel time and costs and supporting other economic activities (Deloitte, 2014). These platforms require internet connectivity, a study by Choi and Yi (2009) concludes that the internet plays a positive and

⁴⁸ Such as providing customer service assistance through call centres.

significant role in economic growth after controlling for the investment ratio, government consumption ratio, and inflation, in the growth equation.

Empirical studies have also documented the positive relationship between services and economic growth. Young's (2014) analysis of data from 18 OECD members finds that the adjusted total factor productivity (TFP) for goods is 0.5, whereas for services it is 0.4. Claessens, Demirgüç-Kunt and Huizinga (2001) find that increased foreign participation improves the domestic banking sector's efficiency. Modelling by Eschenbach and Francois (2002) suggest that if a low-income economy was to improve its financial openness by approximately 50 per cent, its GDP per capita growth would likely increase between 0.4 and 0.6 per cent. Mattoo, Rathindran and Subramanian (2006) using a standard growth model find that a developed economies are expected to grow by 1.2 per cent and developing economies by 1.3 per cent, following full liberalization of their financial services sector. However, research by El Khoury and Savvides (2006) that economies are likely to benefit from improved financial openness if their GDP per capita is equal or above US\$ 2,291, annually.

Boylaud and Nicoletti (2000) point to increased competition and lower prices in OECD economies following the liberalisation of their telecommunication sectors. El Khoury and Savvides (2006) find that lower income economies accrue higher benefits of liberalising their telecommunication sectors, their findings also suggest that the economic benefits of liberalisation tend to diminish as economies grow. Mattoo, Rathindran and Subramanian (2006) and Eschenbach and Hoekman (2006) find positive effects of telecommunication sector liberalisation and GDP growth.

Using a vector error correction model, Bekhet and Othman (2011) point to causality between higher electricity consumption resulting and elevated levels of FDI (Mode 3) in Malaysia between 1971 and 2009, suggesting positive economy-wide inflows of FDI. Fink, Mattoo and Neagu (2002) suggest that the liberalisation of maritime transport could on average lower liner transport prices in the United States by up to one third and could potentially save the economy up to US\$ 3 billion.

Nagel, Herzer and Nunnenkamp's (2015) cointegration analysis of the effects of FDI (Mode 3) in the healthcare sector on health amongst 179 economies between 1980 and 2011, find that the benefits accrued are greater in low-income economies and turns negative in high-income economies. Utilizing a vector error-correction model to examine the causality between FDI (in the health sector) and health of the population in Pakistan between 1972 and 2013, Alam *et al.* (2016) find that the improvement of population's health (which was measured in life expectancy) is linked to trade openness and FDI.

Research by Hoekman and te Velde (2017) suggests that the successful expansion of Ethiopian Airline's regional and international routes facilitated the growth of the country's cut flowers industry. Between 2005 and 2014, exports of cut flowers increased from US\$ 12 million to US\$ 662 million. Faber and Gaubert's (2019) study on the economic gains of tourism in Mexico suggests that a 10 per cent increase local hotel revenue would likely increase local employment by up to 2.5 per cent and the municipal GDP is expected to rise by up to 4 per cent. Price, Francisco and Caboverde (2016) find that the business process outsourcing sector (BPO) in the Philippines created 1.2 million jobs, generated US\$ 22 billion and accounted for 7.3 per cent of its GDP, in 2015.

Analysis by Zafar (2011) finds that in Mauritius, the share of its tertiary sector (finance and tourism) between 1976 and 2010 increased between 50 per cent to 70 per cent of its GDP. The Government also increased investment in health facilities to promote health tourism and this led to a 15-fold increase in the number of foreign patients receiving healthcare in the country between 2005 and 2011 (WTO, 2019). The revenue generated from the health tourism sector was forecasted to reach US\$ 1 billion by 2020.

The expansion of the financial services sector in Kenya has transformed its economy, in 2016, the sector accounted for 4.6 per cent of its total services exports and provided 2.8 per cent of its formal employment (Hoekman and te Velde, 2017). The transformation of the sector created a demand for high skilled workers and spurred on high wages in the sector. Kenyan banks pursued a vigorous expansion strategy in the East African Community (EAC) economies, the number of Kenyan banks abroad increased from 211 to 297, between 2011 and 2016 (WTO, 2019).

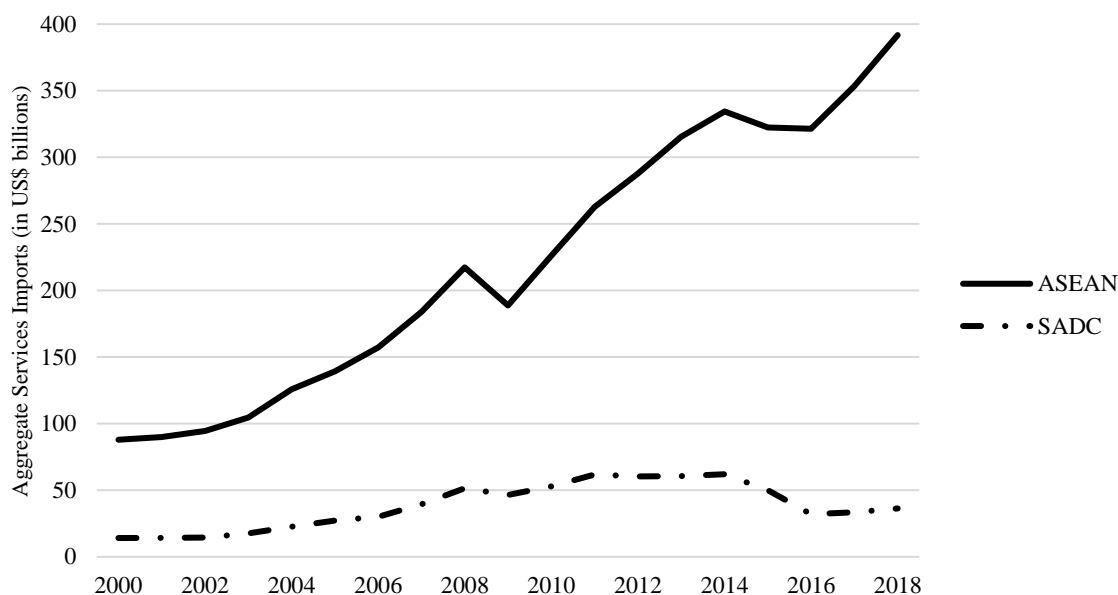
3.3 Trade in Services Indicators in ASEAN and SADC between 2000 and 2018

Figure 3.8 indicates the aggregate service imports of ASEAN and SADC between 2000 and 2018. The data indicates that in 2000, for ASEAN, they were US\$ 87.9 billion and for SADC, they were US\$ 14.1 billion. For ASEAN, the data indicates a steady growth and by the end of 2008, they reached US\$ 217.4 billion. Between 2000 and 2008, for SADC they more than trebled, in 2008 they reached 51.4 billion.

The data also indicates that ASEAN's aggregate imports experienced a decline in 2009, however, from 2010, they recovered to reach US\$ 334.3 billion in 2014. They experienced a slight decline between 2015 and 2016 but rebounded in 2017 and by 2018, they reached US\$ 391.8 billion, which was the peak for this period. For SADC, they reached their peak of US\$

62 billion in 2014, but they declined by two-fold between 2015 and 2018, to reach US\$ 36.3 billion. From the data, we can appreciate that ASEAN’s aggregate imports were six time higher than for SADC.

Figure 3.8: ASEAN and SADC Aggregate Services Imports (in US\$ billions) 2000-2018

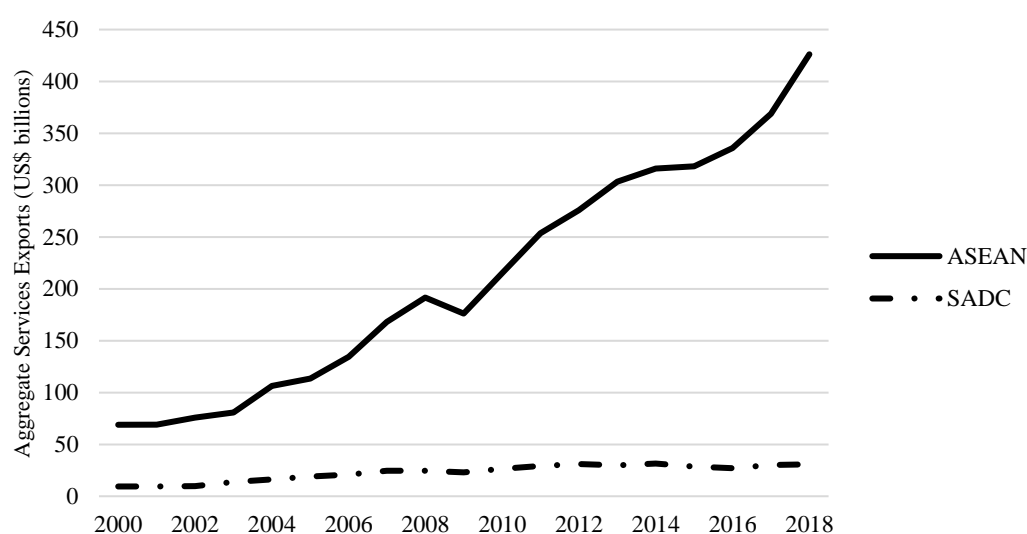


Source: UNCTAD Database (2000 – 2018)

Figure 3.9 indicates the aggregate services exports for ASEAN and SADC between 2000 and 2018. We can observe that during this period, for ASEAN they were between seven and thirteen times higher than SADC’s.

The data shows that the aggregate services exports for SADC increased from US\$ 9.4 billion in 2000 to US\$ 26.3 billion, an increase of almost three-fold. By 2014, they reached their peak of US\$ 31.5 billion in 2014. Between 2015 and 2018, they oscillated from US\$ 27.1 billion to US\$ 30.6 billion. For ASEAN, the data indicates substantial growth in aggregate exports, they were US\$ 68.9 billion in 2000 and by 2008, they reached US\$ 191.7 billion – an almost three-fold increase as well. They experienced a slight decline in 2009 but recovered positively a year later and by 2013 they breached the US\$ 300 billion mark. By 2018, they reached US\$ 426.1 billion – peak for this period.

Figure 3.9: ASEAN and SADC Aggregate Services Exports (in US\$ billions) 2000-2018

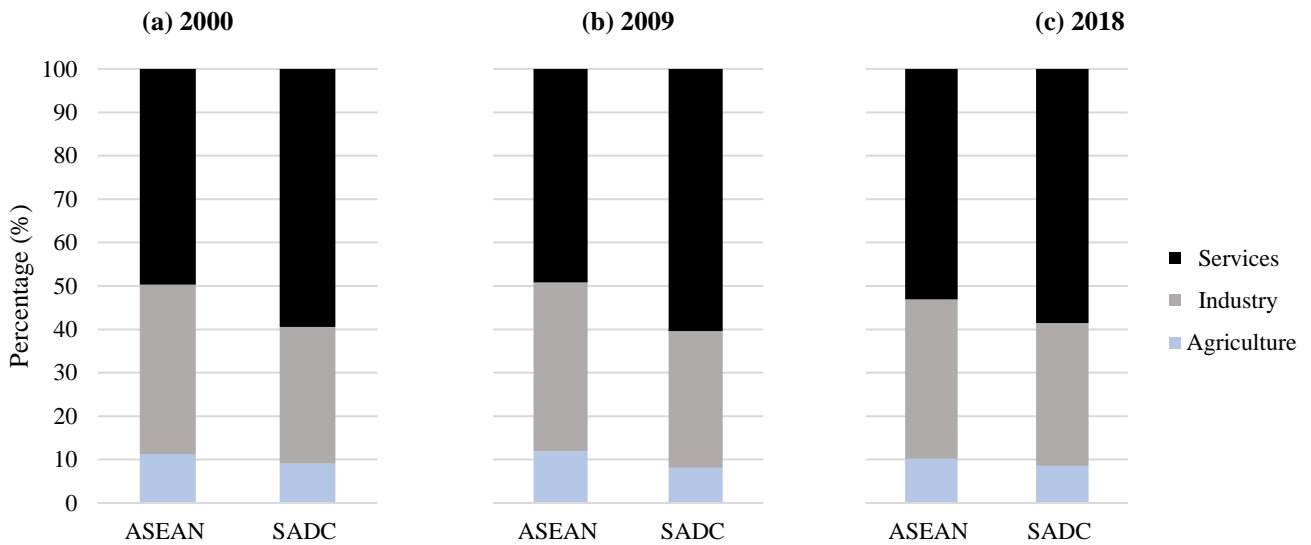


Source: UNCTAD Database (2000-2018)

In terms of total value added to GDP, the services sector in both ASEAN and SADC, was the largest contributor between 2000 and 2018. The data presented in Figures 3.10 (a), (b) and (c) indicate that the services sector in SADC contributed between 60.4 per cent and 58.5 per cent to its GDP. Whereas for the ASEAN region, it contributed between 49.2 per cent and 53.1 per cent. Having a larger share suggests the services sector could potentially provide greater economic gains in both regions, as it expands.

In terms of the average annual contribution of the services sector to GDP, the data indicates a cross-country variation in both regions, during this period. For high-income and middle-income economies (as classified by the World Bank) in SADC; Mauritius, Seychelles, South Africa – its contribution exceeded 60 per cent, annually. Whereas low-income economies such as Angola, Democratic Republic of Congo, Lesotho and Tanzania, its contribution was between 36 per cent and 54 per cent. Similar patterns emerge in ASEAN, the highest was for Singapore – 68 per cent and for the other members depending on their income status, such as Cambodia, Myanmar and Philippines, it ranged between 30 per cent and 56 per cent.

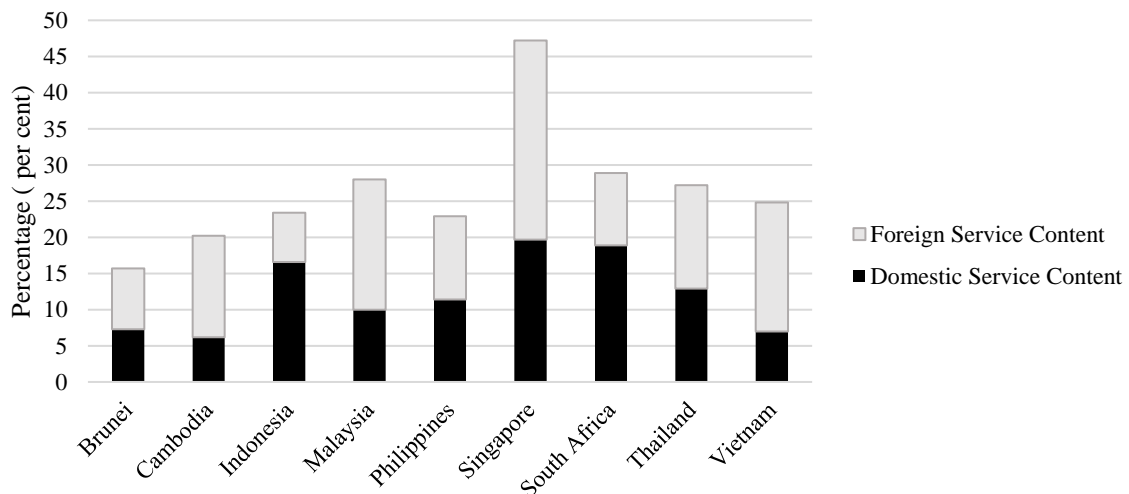
Figure 3.10 (a), (b) and (c): Total Value Added to GDP by Sector for ASEAN and SADC 2000, 2009 and 2018



Source: UNCTAD Database (2000-2018)

The data provided in Figure 3.11 indicates services value added embodied in manufacturing exports (as a percentage) in 2015 for the available ASEAN and SADC members.

Figure 3.11: Services value added embodied in manufacturing exports, by domestic and foreign origin for available ASEAN and SADC Members, 2015 (latest data)



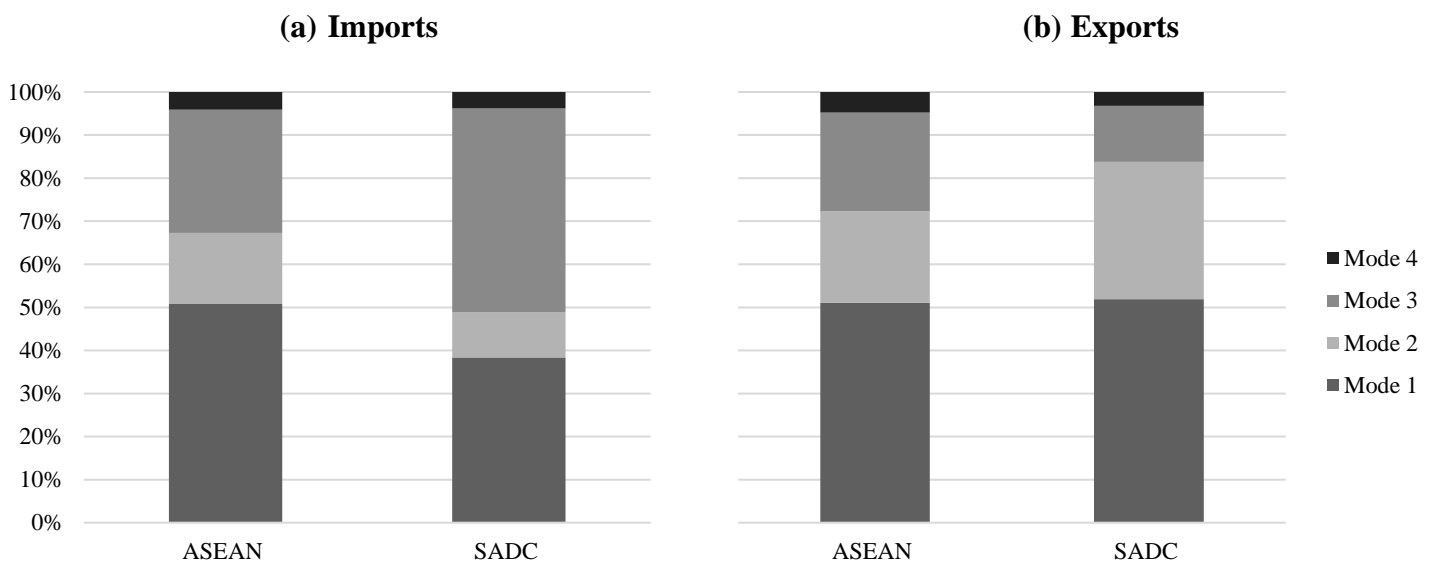
Source: OECD, Trade in Value Added (TiVA) database, December 2018

We can observe that it ranges between 15.7 per cent (Brunei) to 47.2 per cent (Singapore) of their total manufacturing exports. There is an indication that foreign service

content has a greater share than domestic service content in their manufacturing sectors of Singapore (27.5 per cent); Malaysia (18 per cent); Vietnam (17.8 per cent); Thailand (14.3 per cent); Cambodia (14 per cent); Philippines (11.5 per cent) and Brunei (8.4 per cent). Whereas domestic service content is greater for South Africa (18.9 per cent) and Indonesia (16.6 per cent). It should be noted that foreign service content relates to the services cross border procurement of services, whereas domestic services content refers to the services produced in the exporting economies.

The data Figure 3.12 (a) indicates that Mode 1 was the principal mode of imports of commercial services in ASEAN, it accounted for 50.8 per cent. Whereas, for SADC, Mode 3 was the principal mode of imports of commercial services – 47.4 per cent, which is associated primarily with FDI. Whilst Mode 2 in ASEAN accounted for 16.4 per cent, Mode 3 (28.6 per cent) and Mode 4 (4.1 per cent). For SADC, Mode 1 accounted for 38.4 per cent, Mode 2 (10.4 per cent) and Mode 4 (3.8 per cent).

Figure 3.12: Imports and Exports of commercial services by Modes of Supply in ASEAN and SADC in 2017



Source: Author's calculations using WTO TISMOS database (2017)

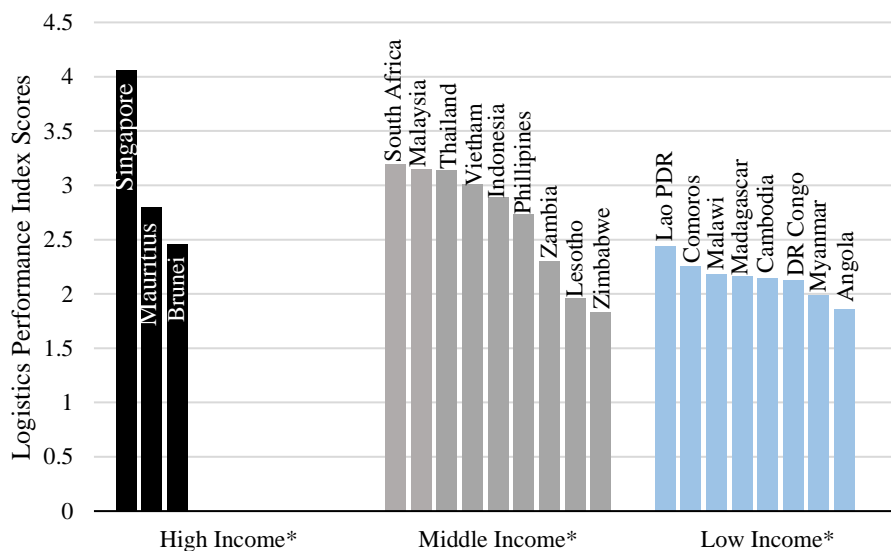
Figure 3.12 (b) indicates that the bulk of services exported from ASEAN in 2017 was through Mode 1 (51.1 per cent), similar to SADC (51.9 per cent). For SADC Mode 2 accounted for 31.9 per cent, Mode 3 (13 per cent) and Mode 4 (3.2 per cent). In ASEAN, Mode 2 accounted for 21.3 per cent, Mode 3 (22.9 per cent) and Mode 4 (4.8 per cent).

The data presented in Figure 3.13 is sourced from the World Bank's Logistics Performance Index (LPI), the scores attributed to each economy is out of 5 (1 = low to 5 =

high). The index takes into account the quality of trade and transport related infrastructure such as ports, railroads, roads, information technology. We can observe that the quality in both regions is poor and requires investment, particularly amongst the low-income economies. We can observe that they score lower than 2.5, below half of the overall score.

The data also indicates that Brunei - a high-income country, scored well below six middle-income economies: Indonesia, Malaysia, Philippines, Thailand, Vietnam, and South Africa. However, it worth pointing out that the country is a relatively small island state, and its infrastructure requirements may differ from larger economies and the criteria used to develop the index may not necessarily reflect that. Out of the twenty economies, which were scored, Singapore had the highest score; 4.06, whilst Angola had the lowest score; 1.86.

Figure 3.13: Quality of trade and transport-related infrastructure in ASEAN and SADC, 2018



Notes: (1) * category as classified by the World Bank

(2) Data missing for economies omitted.

Source: World Bank's Logistics Performance Index (LPI) (2018)

This study also attempts to quantify services trade restrictions using the Organization for OECD Services Trade Restriction Index (STRI), launched in 2014. It initially developed a scoring and weighting system to measure the trade in services restrictiveness for 18 sectors.

It only measures restrictions that are applied on a Most-Favoured Nation (MFN) basis⁴⁹ and does not take into account preferential market access that have either been concluded bilaterally, regionally or mutually recognised agreements (OECD, 2015). The STRI indices

⁴⁹ The measures apply to all countries (including non-WTO Members).

also does not cover the implementation aspect or the business perception of the implementation of the laws and regulations. For example, if a government elects not to implement a law or specific provisions of that law which exists, this exercise does not capture this. For the purpose of this research, laws and regulations that exist in these 26 economies as of 31 December 2018 were considered when constructing this STRI.

Six services sectors; Air Transport, Commercial Banking, Distribution Services, Maritime Transport, Road Freight and Telecommunications services are chosen based on their importance for both regions and their link with the other productive sectors; agriculture and manufacturing. As with the OECD's STRI, it considers the following five policy areas; Restrictions on foreign entry; Restrictions on the movement of people; Other discriminatory measures; Barriers to competition; and Regulatory transparency.

For the purpose of this exercise given the time and human resource constraints, between 25 and 37 questions were chosen from the OECD STRI questionnaires for the six sectors. Each question was attributed a weight based on the methodology described above. The list of questions and weightings for all the sectors are available in Annex I. For Indonesia, Malaysia, South Africa and Thailand, the scores are reapportioned because their index scores have already been provided by the OECD. The scoring and weighting system for the purpose of this exercise was based on the following structure:

- The individual policy measures were assigned a score of 0 (not restrictive) or 1 (restrictive)⁵⁰;
- Under each of the five policy areas all measures were assigned different weights; and
- The five policy areas were weighted according to their relative importance to the six sectors chosen and 100 points were distributed among them. Thus, the same policy area takes a different weight in different sectors, based on the guidance provided by the OECD experts, who built the OECD STRI framework.

There are other measures which were considered in this exercise, but which are not considered to be binary in the database. For instance, foreign equity limits, duration of stay of intra-corporate transferees, time to get a business visa and a number of other measures are continuous. These are reconciled with a binary scoring system by introducing brackets and

⁵⁰ In the case where laws do not exist, a score of 1 was attributed to that measure.

thresholds, however, in this exercise, instead of using the brackets and thresholds as specified for foreign equity limit, a specific score is attributed, for example if an economy imposed a foreign equity limit of 40 per cent, it is attributed a score of 0.6 (1 - 0.4). In addition, linkages between one measure and another were also considered because one measure could render the other obsolete, for example if foreign equity is prohibited in, a certain sector therefore commercial presence through a foreign subsidiary will also be affected (OECD, 2015). Tables 3.1 (a) and (b) indicate the individual STRI scores for each country in each of the six sectors.

Table 3.1 (a) STRI scores for individual members of ASEAN, 2018

	Air Transport	Commercial Banking	Distribution Services	Maritime Transport	Road Freight	Telecom.
Brunei Darussalam	0.520	0.17	0.260	0.360	0.179	0.49
Cambodia	0.363	0.28	0.255	0.280	0.273	0.40
Indonesia	0.467	0.57	0.780	0.610	0.579	0.55
Lao PDR	0.567	0.46	0.460	-	0.26	0.44
Malaysia	0.516	0.21	0.440	0.430	0.49	0.44
Myanmar	0.465	0.44	0.350	0.510	0.481	0.39
Philippines	0.546	0.21	0.380	0.430	0.463	0.53
Singapore	0.267	0.17	0.150	0.150	0.173	0.29
Thailand	0.590	0.49	0.400	0.591	0.471	0.54
Vietnam	0.509	0.49	0.370	0.560	0.409	0.57

The scores provided in Table 3.1(a) suggest that overall, Singapore is the only ASEAN member which employs a liberal service regime in these six service sectors. Whereas Indonesia, Thailand and Vietnam implemented more stringent measures during this period. The scores also indicate that the commercial banking, distribution, and road freight transportation service sectors are relatively more liberalised than the other sectors.

Table 3.1(b) STRI scores for individual members of SADC, 2018

	Air Transport	Commercial Banking	Distribution Services	Maritime Transport	Road Freight	Telecom.
Angola	0.450	0.56	0.31	0.7	0.194	0.59
Botswana	0.512	0.24	0.42	-	0.273	0.36
Comoros	0.187	0.28	0.21	0.28	0.213	0.85
DR Congo	0.412	0.25	0.40	0.31	0.21	0.62
Eswatini	0.424	0.26	0.25	-	0.337	0.52
Lesotho	0.399	0.29	0.23	-	0.246	0.27
Madagascar	0.250	0.09	0.25	0.31	0.06	0.39
Malawi	0.373	0.33	0.29	-	0.287	0.35
Mauritius	0.369	0.19	0.17	0.12	0.173	0.30
Mozambique	0.474	0.21	0.27	0.19	0.287	0.43
Namibia	0.575	0.28	0.30	0.17	0.222	0.58
Seychelles	0.470	0.31	0.42	0.31	0.715	0.46
South Africa	0.415	0.29	0.30	0.27	0.131	0.25
Tanzania	0.420	0.25	0.28	0.28	0.252	0.54
Zambia	0.100	0.18	0.25	-	0.194	0.38
Zimbabwe	0.641	0.51	0.34	-	0.583	0.71

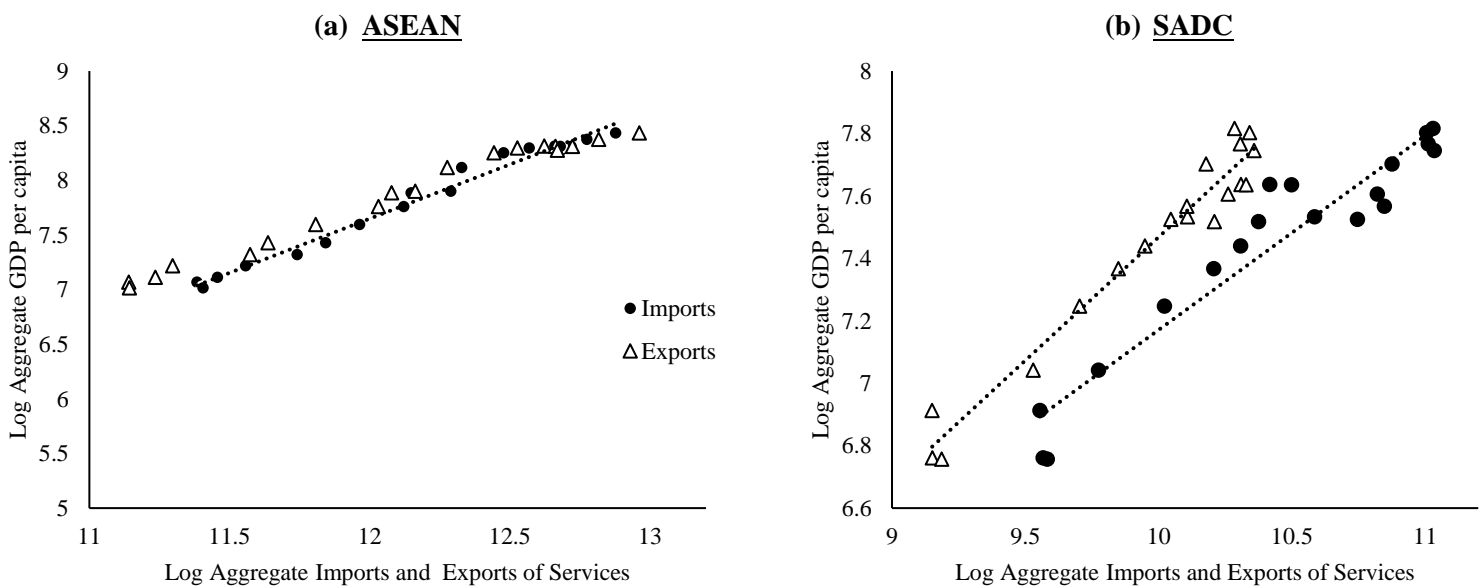
The scores shown in Table 3.1(b) indicates overall, that SADC has a more liberal service regime in these six sectors. The Air Transport and Telecommunication service sectors are relatively less liberal than the other four sectors. We can also observe that Distribution services is the most liberalised sector in SADC. There is an indication that Zambia has the most liberalised services regime for these six sectors, whereas, Zimbabwe has the most stringent.

The data (in Figures 3.14 (a) and (b) indicates a strong positive correlation between trade in services in ASEAN and SADC and their respective GDP per capita growth. This does not imply an existence of a causal relationship between trade in services and economic growth in both regions. For ASEAN, the correlation between the aggregate log services imports and exports with the region's aggregate log GDP per capita is at 0.99 (Pearson's correlation). Whereas, for the SADC, the correlation between the aggregate log services imports and the

region's aggregate log GDP per capita is at 0.96 (Pearson's correlation). The correlation between the log services exports and the region's log GDP per capita is at 0.98 (Pearson's correlation).

This is unsurprising, as we have previously observed from the data provided in Figures 3.10 (a), (b) and (c), the services sector (as a percentage of total value addition to GDP) is larger than the other two sectors (agriculture and manufacturing) between 2000 and 2018, in both regions. It is expected that as the largest sector during this period, there would be a strong positive relationship between trade in services and the regions' economic growth.

Figures 3.14(a) and (b): Trade in Services and GDP per Capita from 2000 to 2018 in ASEAN and SADC



Source: Author's calculations using World Bank, UNCTAD data (2000-2018)

3.4 Modelling Exercise and Results

As previously set out in the introduction to this chapter, this part of the research investigates first the determinants of trade in services in ASEAN and SADC between 2000 and 2018 and then examines its effect on the regions' economic growth during the same period.

Utilizing the literature review (Section 3.2.3) two log-linear models (import and export) are created and are regressed using the Ordinary Least Squares (OLS), Random (RE) and Fixed Effects (FE) (under the Hausman Test) estimation techniques, whilst utilizing the Stata

statistical software (version 17.0). The FE estimation results were preferred under the Hausman Test for both models.

The second part uses the neo-classical Solow-Swan growth model (1956) to determine the effects of trade in services on economic growth in both regions. The theoretical framework for the growth model is provided in Section 2.4. The other variables used in the model are based on the literature review as outlined in Section 2.3. The growth model being regressed using the Ordinary Least Squares (OLS), Random (RE) and Fixed Effects (FE) (under the Hausman Test) estimation techniques. One instrumental variable is also created and a two stage least squares method is used to regress the model, using the “xtivreg” command in the Stata statistical software (version 17.0).

3.4.1 Determinants of services imports in ASEAN and SADC between 2000 and 2018

The specification for the import model is as follows:

$$\ln SI_{it} = \beta_0 + \beta_1 HC_{it} + \beta_2 \log GDPPC_{it} + \beta_3 \ln FDI_{it} + \beta_4 \ln ODA_{it} + \beta_5 \ln IMG_{it} + \beta_6 \ln EXG_{it} + \beta_7 \text{MobSub100}_{it} + \beta_8 RQ_{it} + \mu_i + \varepsilon_{it} \quad (18)$$

Where:

- i denotes the country at time t
- $\ln SI$ is the natural logarithm of service imports (in US\$ millions) and $\ln SE$ is the natural logarithm of services exports (in US\$ millions), data obtained from UNCTAD database.
- HC is human capital index - based on years of schooling and returns to education obtained from the Penn World Tables (PWT 10.0).
- $\log GDPPC$ is the natural logarithm of the gross domestic product (GDP) per capita – proxy for economic development, data obtained under the World Bank’s WDI database.
- $\ln FDI$ is the natural logarithm of foreign direct investment inflow and stock received by country i (in US\$ millions), within time t , data obtained from UNCTAD.
- $\ln ODA$ is the natural logarithm of official development assistance (ODA) received by country i during time t .
- $\ln IMG$ is the natural logarithm of goods imports (in US\$ millions), obtained from the WTO trade database.

- $\ln EXG$ is the natural logarithm of goods exports (in US\$ millions), obtained from the WTO trade database.
- $MobSub100$ is the number of mobile phone subscriptions per 100 people – proxy for infrastructure level, data obtained under the World Bank’s WDI database.
- RQ is the score attributed under the World Governance Indicators (WGI) for Regulatory Quality developed by the World Bank.
- $\ln POP$ is the natural logarithm of population size – proxy for country size, data obtained under the World Bank’s WDI database.
- μ_i denotes country fixed effects.
- ε_{it} represents the error term in the model.

The results for import model are available in Table 3.2. The OLS and FE results for ASEAN (columns 1 and 2) in Table 3.2 suggests a significant and positive correlation between services imports and goods imports and exports and regulatory quality. They also indicate a significant and negative correlation between human capital and ODA. The FE results for ASEAN also suggest a significant and negative correlation between services imports and human capital. They also point to a negative correlation between service imports and ODA; however, it is statistically insignificant. The positive correlation between service imports and GDP per capita, FDI and infrastructure are also statistically insignificant.

The OLS and FE results (columns 3 and 4) for SADC suggests a significant and positive correlation between service imports and FDI and goods imports and exports. They both indicate a significant and negative correlation between services imports and ODA. The OLS results indicate a significant and positive correlation between services imports between population size and GDP per capita. The FE results point to a significant and positive correlation between services imports and regulatory quality.

Table 3.2: Determinants of services imports in ASEAN and SADC between 2000 and 2018

	ASEAN		SADC	
	(1)	(2)	(3)	(4)
	OLS	FE	OLS	FE
Human Capital (HC)	-1.058*** (0.21)	-2.079* (1.174)	0.032 (0.111)	0.069 (0.301)
GDP per Capita (logGDPPc)	0.154* (0.08)	0.339 (0.487)	-0.338*** (0.078)	-0.082 (0.163)
Foreign Direct Investment (lnFDI)	-0.002 (0.037)	0.01 (0.037)	0.196*** (0.034)	0.075** (0.033)
Overseas Development Assistance (lnODA)	-0.071** (0.035)	-0.008 (0.058)	-0.178*** (0.041)	-0.085* (0.042)
Goods Imports (lnIMG)	0.86*** (0.213)	0.482** (0.155)	0.817*** (0.108)	0.648*** (0.131)
Goods Exports (lnEXG)	0.364** (0.174)	0.599* (0.32)	-0.075* (0.101)	0.182** (0.074)
Infrastructure (MobSub100)	-0.133 (0.102)	0.127 (0.2)	-0.075 (0.109)	-0.064 (0.143)
Regulatory Quality (RQ)	0.182** (0.084)	0.125** (0.133)	0.077 (0.058)	0.331*** (0.11)
Constant	-2.234	-0.589	-0.96	0.697
R²	0.9694	0.6643	0.8479	0.7415
rho	-	0.7207	-	0.88
Observations	117	117	237	237

Notes : (1) ***p<0.01, **p<0.05, *p<0.1⁵¹
(2) (-) Clustered Standard Errors

3.4.2 Determinants of services exports in ASEAN and SADC between 2000 and 2018

The specifications for the export model are as follows:

$$\ln SE_{it} = \beta_0 + \beta_1 HC_{it} + \beta_2 \ln POP_{it} + \beta_3 \log GDPPC_{it} + \beta_4 \ln FDI_{it} + \beta_5 \ln ODA_{it} + \beta_6 \ln IMG_{it} + \beta_7 \ln EXG_{it} + \beta_8 MobSub100_{it} + \beta_9 RQ_{it} + \mu_i + \varepsilon_{it} \quad (19)$$

Where:

- i denotes the country at time t

⁵¹ The variables with the highest significance are indicated by (***) and they would be within the 1 per cent significance level. In addition, the (**) indicates that the variables are within the 5 per cent significance level and the (*) indicate that the variables are in the 10 per cent and beyond significance level.

- $\ln SE$ is the natural logarithm of services exports (in US\$ millions), data obtained from UNCTAD database.
- HC is human capital index - based on years of schooling and returns to education obtained from the Penn World Tables (PWT 10.0).
- $\ln POP$ is the natural logarithm of population size – proxy for country size, data obtained under the World Bank’s WDI database.
- $\log GDPPC$ is the natural logarithm of the gross domestic product (GDP) per capita – proxy for economic development, data obtained under the World Bank’s WDI database.
- $\ln FDI$ is the natural logarithm of foreign direct investment inflow and stock received by country i (in US\$ millions), within time t , data obtained from UNCTAD.
- $\ln ODA$ is the natural logarithm of official development assistance (ODA) received by country i during time t .
- $\ln IMG$ is the natural logarithm of goods imports (in US\$ millions), obtained from the WTO trade database.
- $\ln EXG$ is the natural logarithm of goods exports (in US\$ millions), obtained from the WTO trade database.
- $MobSub100$ is the number of mobile phone subscriptions per 100 people – proxy for infrastructure level, data obtained under the World Bank’s WDI database.
- RQ is the score attributed under the World Governance Indicators (WGI) for Regulatory Quality developed by the World Bank.
- μ_i denotes country fixed effects.
- ε_{it} represents the error term in the model.

The OLS and FE results (columns 1 and 2) for ASEAN in Table 3.4 show a significant and positive correlation between services exports and population size, goods imports and regulatory quality. The OLS results suggest a significant and positive correlation between services exports and GDP per capita and infrastructure. They also show a significant and negative correlation between services exports and FDI. The FE results indicate a significant and positive correlation between services exports and ODA. They also show a significant and negative correlation between services exports and goods exports.

Table 3.3: Determinants of services exports in ASEAN and SADC between 2000 and 2018

	ASEAN		SADC	
	(1)	(2)	(3)	(4)
	OLS	FE	OLS	FE
Human Capital (HC)	-0.304* (0.179)	0.958* (0.42)	0.429*** (0.17)	0.125 (0.463)
Log Population Size (lnPOP)	0.314*** (0.07)	4.538*** (1.13)	1.299*** (0.128)	-0.053 (1.444)
GDP per Capita (logGDPPc)	0.265*** (0.079)	0.132 (0.232)	1.333*** (0.185)	0.002 (0.325)
Foreign Direct Investment (lnFDI)	-0.059* (0.032)	-0.03 (0.028)	0.114** (0.053)	0.031 (0.046)
Overseas Development Assistance (lnODA)	-0.04 (0.03)	0.077** (0.025)	-0.156** (0.068)	-0.132 (0.101)
Goods Imports (lnIMG)	0.947*** (0.199)	0.935*** (0.288)	0.071 (0.174)	0.684* (0.387)
Goods Exports (lnEXG)	-0.386 (0.148)	-0.831*** (0.073)	-0.486*** (0.169)	0.027 (0.194)
Infrastructure (MobSub100)	0.379*** (0.089)	0.159 (0.171)	-0.34* (0.179)	-0.193* (0.109)
Regulatory Quality (RQ)	0.624*** (0.087)	0.518** (0.22)	0.554*** (0.091)	-0.106 (0.207)
Constant	-3.319	-75.29	-21.13	1.468
R²	0.9739	0.5751	0.7920	0.4862
rho	-	0.9979	-	0.909
Observations	117	117	237	237

Notes : (1) ***p<0.01, **p<0.05, *p<0.1

(2) (-) Clustered Standard Errors

The OLS and FE results (column 3 and 4) for SADC in Table 3.4 suggest a significant and negative correlation between service exports and infrastructure. The OLS results show a significant and positive correlation between human capital, population size, GDP per capita, FDI and regulatory quality. The FE results point to a significant and positive correlation between service exports and goods imports.

3.4.3 Analysis of the results for service imports and exports in ASEAN and SADC

The OLS and FE results in Table 3.3 indicate that service imports in ASEAN are significant and negatively correlated with human capital. The OLS result suggests that 1 per cent decline of up to 1.06 per cent and the FE result suggests a sharper decline of up to 2.08

per cent. Both results for SADC suggest a positive relationship but they are statistically insignificant.

The OLS estimation result for ASEAN in (Table 3.4) shows a significant and negative relationship between services exports and human capital, however, the FE results suggest a significant positive relationship between the two. Both results indicate a positive relationship between both variables, although only the OLS result is statistically significant. As set out in the literature review, services such related to the financial sector, health, ICT, and business services which assist in maintaining and coordinating the supply chains tend to require a high skilled workforce. Therefore, there is a suggestion that ASEAN's services trade have a skills-bias, which suggests that it tends to be more sophisticated in nature than for SADC.

The OLS and FE results suggest an existence of a positive relationship between services imports and GDP per capita (proxy for level of development) in ASEAN, however only the OLS estimation result is statistically significant. Whereas, both results indicate a negative association between them, but only the OLS result is statistically significant (at the 1 per cent level) for SADC. The FE result for services exports for both ASEAN and SADC shows a positive relationship between the two but neither of them are statistically significant. This indicates that the level of development does not have a significant bearing on the services trade in both regions.

The OLS and FE results for SADC show that there is a significant positive relationship between services imports and FDI. They are both significant at the 1 per cent level. The FE result points to 0.08 per cent increase in services imports following a 1 per cent increase in FDI. This is unsurprising, because the data in Figure 3.12(a) shows that the bulk of service imports to the region (in 2017) was through Mode 3 (47.4 per cent), which is linked to FDI, the pattern remained unchanged since 2005. The OLS and FE results for ASEAN is not statistically significant. For services exports the OLS results indicate a significant negative relationship between both variables for ASEAN, however, for SADC there is an indication of a significant positive relationship between the two. The FE results for both regions suggest a positive relationship but they are statistically insignificant.

The FE result for SADC indicates that a 1 per cent decrease in ODA may decrease service imports by up to 0.09 per cent. Whereas a 1 per cent increase in ODA is expected to increase ASEAN's exports by 0.08 per cent. The significant and positive correlation between services exports in ASEAN and ODA is in line with the conclusions reached by Hoekman and Shingal (2017).

The relationship between trade in goods and services have been documented (see discussions by Hoekmann and Mattoo, 2008; Drake-Brockman and Stephenson, 2012; Lodefalk, 2013; Roy, 2017; and McKinnon *et al.*, 2019), the results for both ASEAN and SADC re-emphasize that link. The OLS and FE results for both regions indicate a significant and positive relationship between service imports and goods imports. The FE results suggest that a 1 per cent increase in goods imports will likely increase service imports by up to 0.48 per cent in ASEAN and 0.65 per cent in SADC. A 1 per cent increase in goods exports is expected to increase services imports in ASEAN by up to 0.6 per cent and in SADC it is expected to rise by up to 0.18 per cent. A 1 per cent increase in goods imports, is expected to increase services exports in SADC by up to 0.68 per cent and in ASEAN by up to 0.94 per cent. A 1 per cent decrease in goods exports is expected to lead to 0.83 per cent decline in services exports.

The significant and negative correlation between infrastructure and services exports for SADC (as indicated in Table 3.4). It shows that a 1 per cent decline in the level of infrastructure is likely to reduce services exports by up to 0.19 per cent, this suggests that there is a need to maintain and increase investments in the region's infrastructure. Given that the bulk of service exports were through Modes 1 and 2 in 2017, the investments should be directed towards creating reliable digital networks and building sufficient human capacity to maintain them, at the same time, directing resources towards hard infrastructure such as roads and airports to support the tourism and travel sectors which are mostly associated with Mode 2. Poor infrastructure is associated with increased operating costs which are passed on to passengers (Airfare impact) and increases the length of travel time (level of service impact), hence they contribute to reduced demand for international travel (Miller and Clarke, 2007). Research by Limao and Venables (2001), Wu (2007), Njinkeu, Wilson and Fosso (2008), Granato (2008), Moise and Le Bris (2013) and Gani (2017), highlight the benefits of improving transport infrastructure.

The results also suggest a positive and significant correlation between imports and regulatory quality, which suggests that improving domestic regulations in both regions tend to increase service imports, which could serve as essential inputs to other service sectors and productive sectors. A 1 per cent increase in the level of regulatory quality is expected to increase services imports in SADC by up to 0.33 per cent and in ASEAN by up to 0.13 per cent. The results also show that a 1 per cent improvement in the level of regulatory quality will likely lead up to a 0.52 per cent increase in services exports. Direct measures such as increasing the foreign ownership threshold in the regions' aviation sector which some reserve for their

state monopolies (Botswana, Laos, and Namibia) or as low as 25 per cent (South Africa) and other regulatory improvements such as streamlining international hiring legislation and setting up of foreign business, could increase imports. In the case of ASEAN, regulatory improvements are more likely to increase service exports and bilateral goods trade, particularly in the transport and retail services sectors. This result supports the findings made by Hoekman and Shepherd (2017).

3.4.4 The effect of trade in services on economic growth in ASEAN and SADC between 2000 and 2018

This section builds on work by Swan and Solow (1956). This research employs an endogenous growth model, which is derived from the Solow-Swan growth model, to examine the effects of services imports and exports on economic growth in ASEAN and SADC between 2000 and 2018. In this part the import and export models are estimated using the OLS and fixed and random effects (under the Hausman Test) and an instrumental variable. The instrument variables are used to overcome omitted variable problems in estimates of causal relationships (Angrist and Krueger, 2001). Previous studies by Frankel and Romer (1999), Caner and Hansen (2004), Kim (2011), Charif, Hassanov and Wang (2018) and Nordas (2019) have utilized the instrumental variable (IV) approach to determine the effects of trade in services on economic growth. The results are available in Table 3.5.

We first consider a standard Cobb-Douglas production function:

$$Y_t = K_t^\alpha (A_t L_t)^{1-\alpha} \quad (20)$$

Where (t) denotes time, α is the elasticity of output with respect to capital K , and $Y(t)$ represents total production. A refers to labour-augmenting technology, thus L represents effective labour and $(1 - \alpha)$ is the output elasticity of labour.

Since we are evaluating the effects of trade in services on economic growth and using the Cobb-Douglas production function as the analytical framework, we make the assumption that trade in services (TS) in addition to physical and human capital accumulation and technological progress drives economic growth. The equation is written as follows:

$$Y_t = K_t^\alpha (IMS/EXS)_t^\alpha (A_t L_t)^{1-\alpha} \quad (21)$$

Where again (t) denotes time, $\alpha(1 - \alpha)$ is the elasticity of output with respect to capital K , and $Y(t)$ represents total production. IMS represents services imports and EXS represents services exports, while A again refers to labour-augmenting technology, thus L represents effective labour. From equation (2) we impose a constant return to scale and by transforming our empirical methodology into a natural logarithm, it takes the following form:

$$\ln YPC_{it} = \alpha_0 + \alpha_1 \ln K_{it} + \alpha_2 HC_{it} + \alpha_3 \ln (IMS/EXS)_{it} + \alpha_4 \ln X_{it} + \alpha_5 D_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (22)$$

In equation (22), $\ln YPC$ is the natural logarithm of Gross Domestic Product (per capita) which represents economic growth. $\ln K$ is the natural logarithm of capital accumulation. Human capital is denoted by HC , which represents effective labour. $\ln IMS$ is the natural logarithm of services imports and $\ln EXS$ is the natural logarithm of services exports. D represents the vector of other controlled variables. μ_i is the fixed country effects, γ_t denotes time fixed effects and ε is the error term. We write equation (22) in full as follows:

$$\begin{aligned} \ln YPC_{it} = & \alpha_0 + \alpha_1 \ln(IMP/EXS)_{it} + \alpha_2 \ln K_{it} + \alpha_3 NAT_{it} + \alpha_4 \ln Pop_{it} + \alpha_5 Internet_{it} + \\ & \alpha_6 MobSub100_{it} + \alpha_7 Corr_{it} + \alpha_8 GE_{it} + \alpha_9 HC_{it} + \alpha_{10} FDIGDP_{it} + \alpha_{11} RoL_{it} + \alpha_{12} PS_{it} + \\ & \alpha_{13} VA_{it} + \alpha_{14} TO_{it} + \mu_i + \gamma_t + \varepsilon_{it} \end{aligned} \quad (23)$$

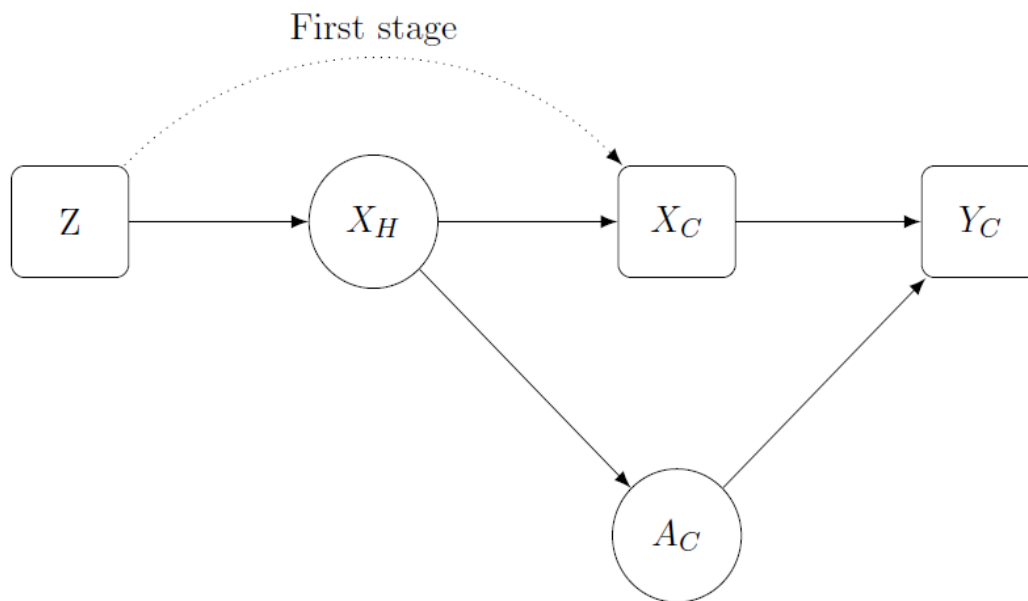
Where:

- i is the country at time t .
- $\ln YPC$ is natural logarithm of GDP per capita (in current US\$) – data obtained from the World Bank under the WDI database.
- $\ln IMP$ is the natural logarithm of total service imports and $\ln EXP$ is the natural logarithm of total service export, data provided by United Nations Committee on Trade and Development (UNCTAD).
- $\ln K$ is natural logarithm of the gross fixed capital formation (in current US\$) as obtained from the World Bank under the WDI database, used as a proxy for capital stock.
- NAT denotes natural resource endowment represented by total natural resources rent as a percentage of GDP, as provided by the World Bank under the WDI database.
- $\ln Pop$ is natural logarithm of the population size as obtained from the World Bank under the WDI database.

- *Internet* refers to the percentage of the population that use the internet, data provided by the International Telecommunications Union (ITU), used as proxy to measure technological advancement.
- *MobSub100* refers to the number of mobile phone subscriptions per 100 people, data provided by the International Telecommunications Union (ITU), used as proxy for the infrastructure quality.
- *Corr* is the score attributed under the World Governance Indicators (WGI) for control of corruption developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- *GE* is the score attributed under the World Governance Indicators (WGI) for Government Effectiveness developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- *HC* is human capital index - based on years of schooling and returns to education obtained from the Penn World Tables PWT 10.0.
- *FDIGDP* is the percentage of foreign direct investment inflows received by country *i* (in US\$ millions) within time *t* as a percentage of GDP, data obtained from the World Bank under the WDI database.
- *RoL* is the score attributed under the World Governance Indicators (WGI) for adherence to the rule of law developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- *PS* is the score attributed under the World Governance Indicators (WGI) for political stability developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- *VA* is the score attributed under the World Governance Indicators (WGI) for voice and accountability developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- *TO* represents Trade Openness, which is the ratio of total trade (import and export) to GDP – obtained from the World Bank.
- μ_i denotes country fixed effects.
- γ_t denotes time fixed effects.
- ε represents the error term in the model.

The use of the instrumental variable in the model can be explained using the Causal diagram (Figure 3.13).

Figure 3.13: Causal Diagram 2SLS Estimation



Source: Casey and Klemp (2016)

Note: Rectangular nodes represent observed variables and circular nodes represent unobserved variables. The dotted line represents the first stage in a conventional 2SLS estimation.

In Figure 3.13, we commence the explanation by ignoring A and focus on the top row. Casey and Klemp's (2016) present the following causal diagram to investigate the long-run effects of economic growth. From the diagram there are two periods; which are denoted by H for historical and C for contemporary, whilst X is the endogenous variable of interest and Y is the dependent variable. In addition, the assumption is made that Z is a valid instrument for X_H , but that X_H is unobserved, this occurs mainly due to lack of sufficient or reliable data. In this particular model, the main interest is understanding the causal effect of X_H on Y_C , however there is a suspicion that the top row (in the diagram) does not sufficiently provide a complete picture.

If the direct impact of X_H on Y_C is persistent or the mechanisms by which X_H affects Y_C are persistent, then we determine that there is a causal effect of X_H on Y_C . This link is represented by variable A . Therefore, we can determine that the causal effect of X_H on Y_C is through A_C . For the purpose of our two growth models, the independent variable; $FDIGDP$ is instrumented using the governance indicators as developed by World Bank's WGI initiative – Rule of Law, Political Stability and Voice and Accountability and Trade Openness. The obtained fitted values are inserted into the regression.

The instrument is created based on the existing literature, work by La Porta *et al.* (1997), Levine (1997) and Beck, Levine and Loayza (1999) find that the effective development of financial markets is dependent on the establishment of a sound legal environment. Subsequently, the robustness of the legal system determines the level and quality of the financial services, which improves the resource allocation and facilitates economic growth (Lensik and Morrissey, 2001). Therefore, it can be argued that a sound legal environment and efficient governance structure attract foreign investors.

In addition, Heshmati's (2017) data analysis of 114 economies finds that democracy has a robust positive effect on economic growth. The marginal effects of credit guarantee and FDI inflows is greater for democracies. Acemoglu *et al.* (2014) find that democratization increases the GDP per capita by up to 20 per cent in the long run. Persson and Tabellini (2007) find that forsaking democracy tends to have a negative impact on economic growth.

In their study of 169 economies between 1964 and 2004 (in five-year intervals), Aisen and Veiga (2013) conclude that political instability is associated with lower GDP per capita growth rates. They find that it lowers GDP per capita by negatively affecting productivity growth and to a lesser degree physical and human capital accumulation. In their study of Bangladesh's economic performance from 1984 to 2009, Ahmed and Pulok (2013) reveal that in the long-term, political instability has a negative impact but a positive one in the short-term. Work by Gakpa (2019) relating to 31 Sub-Saharan African (SSA) economies from 1984 to 2015 suggests that there is a direct negative impact of political stability on economic growth and an indirect negative effect through FDI.

In addition to the effect of trade openness on economic growth as pointed out in the literature review in Chapter 2 (Section 2.3), there are a number of studies which suggest that its positive impact is dependent on the level of human capital accumulation (Greenaway, Morgan and Wright, 2002; and Fetahi-Vehapi, Sadiku, and Petkovski, 2015). Whereas Kim and Lin (2009) and Kim, Lin, and Suen (2011) find that trade openness is only beneficial to economies which are more developed. Beck, Demirgüç-Kunt, Levine (2003) find that the benefits of trade openness are accrued through financial intermediary and stock market development. Trade in services and Trade Openness is differentiated, noting that they both measure the scale of trade while the latter has a broader scope. As such, Trade Openness is included as an additional instrument for foreign direct investment, which we assume is necessarily concerned with export opportunities associated with their respective investments.

As we can see from the results presented in Tables 3.4 and 3.5, in the case of ASEAN the OLS and FE estimation results for the import and export models for ASEAN are statistically

insignificant and for SADC they point to a significant and negative relationship between Trade Openness and economic growth. This does not align with the prevailing economic literature, which may suggest a degree of endogeneity with the other variables in both models.

The first stage is as follows:

$$FDIGDP_{it} = \beta_0 + \beta_1 RoL_{it} + \beta_2 PS_{it} + \beta_3 VA_{it} + \beta_4 TO_{it} + \varepsilon_{it} \quad (24)$$

Where i is the country at time t .

- $FDIGDP$ is the percentage of foreign direct investment inflows received by country i (in US\$ millions) within time t as a percentage of GDP, data obtained from the World Bank under the WDI database.
- RoL is the score attributed under the World Governance Indicators (WGI) for adherence to the rule of law developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- PS is the score attributed under the World Governance Indicators (WGI) for political stability developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- VA is the score attributed under the World Governance Indicators (WGI) for voice and accountability developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- TO represents Trade Openness, which is the ratio of total trade (import and export) to GDP – obtained from the World Bank.
- ε represents the error term in the model.

So therefore, the model is re-written in the second stage as follows:

$$\ln YPC_{it} = \alpha_0 + \alpha_1 \ln(IMP/EXS)_{it} + \alpha_2 \ln K_{it} + \alpha_3 NAT_{it} + \alpha_4 \ln Pop_{it} + \alpha_5 \ln Internet_{it} + \alpha_6 MobSub100_{it} + \alpha_7 \widehat{FDIGDP}_{it} + \mu_i + \gamma_t + \varepsilon_{it} \quad (25)$$

Where:

- i is the country at time t .
- $\ln YPC$ is natural logarithm of GDP per capita (in current US\$) – data obtained from the World Bank under the WDI database.

- $\ln IMP$ is the natural logarithm of total service imports and $\ln EXP$ is the natural logarithm of total service export, data provided by United Nations Committee on Trade and Development (UNCTAD).
- $\ln K$ is natural logarithm of the gross fixed capital formation (in current US\$) as obtained from the World Bank under the WDI database, used as a proxy for capital stock.
- NAT denotes natural resource endowment represented by total natural resources rent as a percentage of GDP, as provided by the World Bank under the WDI database.
- $\ln Pop$ is natural logarithm of the population size as obtained from the World Bank under the WDI database.
- $\ln Internet$ refers to the natural logarithm of percentage of the population that use the internet, data provided by the International Telecommunications Union (ITU), used as proxy to measure technological advancement.
- $MobSub100$ refers to the number of mobile phone subscriptions per 100 people, data provided by the International Telecommunications Union (ITU), used as proxy for the infrastructure quality.
- $Corr$ is the score attributed under the World Governance Indicators (WGI) for control of corruption developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- GE is the score attributed under the World Governance Indicators (WGI) for Government Effectiveness developed by the World Bank. The scores range between -2.5 for the weakest and 2.5 for the strongest.
- \widehat{FDIGDP} is the fitted value obtained from the first stage regression in equation (24) for trade in services.
- μ_i denotes country fixed effects.
- γ_t denotes time fixed effects.
- ε represents the error term in the model.

3.4.5 Description of the results

Tables 3.4 and 3.5 indicate the OLS, Fixed Effects (FE) and 2SLS results for the effect of services imports and exports on economic growth in ASEAN and SADC between 2000 and 2018. All three estimation results for both models point to a significant and positive

relationship between trade in services (import and export), Gross Fixed Capital Formation (GFCF) and the GDP per capita of ASEAN and SADC.

For both models and both regions, the FE estimation results were preferred over the OLS estimation results and the 2SLS estimation results were preferred over the FE, under the Hausman Test. All three estimation results have been included for benchmarking purposes.

The instruments were tested for multicollinearity for both models. The OLS results for ASEAN and SADC indicate that the Variation Inflation Factor (VIF) greater than 1. This means that there is a degree of correlation between the explanatory variables which could distort their specific effect on the dependent variable (GDP per capita).

The ASEAN 2SLS results for the import model (column 3) indicate that the Anderson canon. corr. LM statistic is (11.73) with a p-value of (0.0195) and registered a p-value of (0.1642) for the overidentification test (Sargan statistic). The SADC 2SLS results (column 6) indicate that the Anderson canon. corr. LM statistic is (49.126) with a p-value of (0.000) and the registered p-value for the overidentification test (Sargan statistic) is (0.1991), this rejects the null hypothesis, suggesting that the regressors are endogenous. This suggests that the model passes both the underidentification test and overidentifying restrictions for ASEAN and SADC.

The specific 2SLS results for ASEAN (column 3), indicate significant and positive correlation between GDP per capita and FDI. The specific FE results (column 2) point to a significant and positive correlation between GDP per capita and natural resources and infrastructure quality. Whilst the specific OLS results (column 1) suggest a significant and negative correlation between GDP per capita and Trade Openness but a significant and positive correlation between GDP per capita and human capital.

All three results for ASEAN show a significant and negative correlation between the region's GDP per capita and population growth. Whereas all three of them show a significant and positive correlation between GDP per capita and infrastructure quality. The OLS and FE results point to a significant and negative correlation between GDP per capita and control of corruption, however they also point to a significant and positive correlation between GDP per capita and political stability.

The specific 2SLS results for SADC (column 6) show a significant and negative correlation between GDP per capita and natural resources, population growth and infrastructure quality. The specific FE results (column 5) indicate a significant and negative correlation between GDP per capita and voice and accountability. The specific OLS results (column 4) show a significant and positive correlation between GDP per capita and natural resources and

infrastructure quality. Whilst all three results point to a significant and negative correlation between GDP per capita and human capital and FDI. The OLS and FE results show a significant and positive relationship between GDP per capita and political stability but a significant and negative relationship between GDP per capita and trade openness.

Table 3.4: The effect of service imports on economic growth in ASEAN and SADC between 2000 and 2018

	ASEAN			SADC		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	FE	2SLS	OLS	FE	2SLS
Service Imports (<i>lnIMS</i>)	0.226*** (0.033)	0.271*** (0.058)	0.178*** (0.058)	0.224*** (0.036)	0.175** (0.073)	0.334*** (0.006)
Gross Fixed Capital Formation (<i>lnGFCF</i>)	0.431*** (0.043)	0.254*** (0.069)	0.244*** (0.092)	0.295*** (0.027)	0.275*** (0.07)	0.296*** (0.041)
Natural Resources (<i>NAT</i>)	1.254*** (0.381)	0.485 (1.212)	-0.637 (0.791)	0.649*** (0.241)	-0.355 (0.448)	-1.142*** (0.321)
Population Growth (<i>lnPop</i>)	-1.1*** (0.372)	-2.54*** (0.545)	-1.926*** (0.635)	-0.094 (0.241)	-0.189 (0.455)	-2.472*** (0.277)
Internet	-0.02 (0.017)	-0.013 (0.013)	-0.042 (0.035)	-0.011 (0.024)	-0.008 (0.054)	-0.044 (0.121)
Infrastructure Quality (<i>MobSub100</i>)	0.358*** (0.046)	0.218* (0.123)	0.212** (0.103)	0.251*** (0.052)	0.106 (0.112)	-0.408*** (0.137)
Government Effectiveness (<i>GE</i>)	-0.067 (0.081)	-0.032 (0.128)	-0.021 (0.134)	-0.019 (0.071)	0.023 (0.091)	-0.083 (0.113)
Human Capital (<i>HC</i>)	0.166** (0.074)	0.203 (0.139)	-0.117 (0.163)	-0.261** (0.119)	-0.294*** (0.094)	-0.452** (0.196)
Control of Corruption (<i>Corr</i>)	-0.216*** (0.078)	-0.236*** (0.066)	-0.079 (0.097)	-0.022 (0.073)	-0.02 (0.093)	-0.046 (0.121)
Foreign Direct Investment (<i>FDIGDP</i>)	-0.003 (0.004)	-0.005 (0.004)	0.055*** (0.021)	-0.005** (0.002)	-0.006* (0.003)	-0.046*** (0.006)
Rule of Law (<i>RoL</i>)	0.121 (0.091)	0.075 (0.091)	-	-0.032 (0.088)	-0.035 (0.068)	-
Political Stability (<i>PS</i>)	0.094*** (0.035)	0.165** (0.061)	-	0.188*** (0.034)	0.184*** (0.038)	-
Voice and Accountability (<i>VA</i>)	-0.058 (0.057)	-0.069 (0.08)	-	-0.105 (0.08)	-0.123* (0.066)	-
Trade Openness (<i>TO</i>)	-0.06 (0.06)	0.007 (0.11)	-	-0.74*** (0.074)	-0.68*** (0.116)	-
R²	0.9954	0.5537	0.8692	0.9916	0.1933	0.7904
Observations	163	163	163	203	203	203
Constant	12.242	41.582	-	1.141	3.972	-
rho	-	0.9992	-	-	0.9902	-
Underidentification Test (Anderson canon. corr. LM statistic)	-	-	11.73	-	-	49.126
Overidentification Test (Sargan statistic)	-	-	5.106	-	-	4.652
Time Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: (1) ***p<0.01, **p<0.05, *p<0.1,

(2) (-) Clustered Standard Error

(3) Dependent variable: natural logarithm of GDP per capita (in current US\$) (*lnYPC_{it}*)

Table 3.5: The effect of service exports on economic growth in ASEAN and SADC between 2000 and 2018

	ASEAN			SADC		
	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	FE	2SLS	OLS	FE	2SLS
Service Exports (<i>lnEXS</i>)	0.19*** (0.039)	0.179*** (0.059)	0.159*** (0.017)	0.101*** (0.022)	0.083*** (0.029)	0.113*** (0.033)
Gross Fixed Capital Formation (<i>lnGFCF</i>)	0.538*** (0.043)	0.396*** (0.063)	0.359*** (0.076)	0.342*** (0.024)	0.298*** (0.037)	0.372*** (0.037)
Natural Resources (<i>NAT</i>)	1.349*** (0.435)	0.036 (1.361)	-0.224 (0.618)	1.184*** (0.243)	0.966** (0.362)	-0.046 (0.309)
Population Growth (<i>lnPop</i>)	-1.721*** (0.413)	-2.073** (0.732)	-1.567*** (0.476)	-0.28 (0.27)	-0.082 (0.361)	-1.94*** (0.436)
Internet	-0.018*** (0.02)	0.006 (0.024)	-0.018 (0.028)	0.111*** (0.033)	-0.122 (0.039)	0.172*** (0.05)
Infrastructure Quality (<i>MobSub100</i>)	0.309*** (0.048)	0.324** (0.134)	0.372*** (0.078)	0.106* (0.059)	0.057 (0.103)	-0.365*** (0.135)
Government Effectiveness (<i>GE</i>)	-0.005 (0.077)	0.033 (0.131)	0.08 (0.108)	0.082 (0.067)	0.126* (0.07)	0.004 (0.101)
Human Capital (<i>HC</i>)	0.165** (0.08)	0.284* (0.138)	0.151* (0.091)	-0.141 (0.125)	-0.036 (0.187)	-0.188 (0.189)
Control of Corruption (<i>Corr</i>)	-0.213*** (0.079)	-0.165 (0.113)	-0.125* (0.071)	-0.032 (0.08)	-0.044 (0.105)	-0.12 (0.121)
Foreign Direct Investment (<i>FDIGDP</i>)	-0.001 (0.004)	0.001 (0.002)	0.036** (0.017)	-0.004 (0.002)	-0.004 (0.003)	-0.037*** (0.005)
Rule of Law (<i>RoL</i>)	0.044 (0.095)	0.012 (0.084)	-	-0.083 (0.093)	-0.16 (0.129)	-
Political Stability (<i>PS</i>)	0.078** (0.038)	0.13** (0.047)	-	0.246*** (0.04)	0.226*** (0.04)	-
Voice and Accountability (<i>VA</i>)	-0.058 (0.057)	-0.008 (0.121)	-	-0.109 (0.08)	-0.065 (0.082)	-
Trade Openness (<i>TO</i>)	-0.002 (0.064)	0.055 (0.136)	-	-0.505*** (0.074)	-0.557*** (0.097)	-
R²	0.9950	0.6134	0.9175	0.9929	0.3643	0.7722
Observations	157	157	157	183	183	183
Constant	18.505	31.348	-	4.202	1.809	-
rho	-	0.9984	-	-	0.9909	-
Underidentification Test (Anderson canon. corr. LM statistic)	-	-	10.483	-	-	47.138
Overidentification Test (Sargan statistic)	-	-	7.293	-	-	3.909
Time Fixed Effects	No	Yes	Yes	No	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: (1) ***p<0.01, **p<0.05, *p<0.1.

(2) (-) Clustered Standard Error.

(3) Dependent variable: natural logarithm of GDP per capita (in current US\$) (*lnYPC_{it}*).

(4) For ASEAN: Internet is lagged for one time period, Mob100 is lagged for two time periods and Government Effectiveness is lagged for two time periods.

(5) For SADC: Government Effectiveness is lagged for one time period.

Table 3.5 indicates the effect of services exports on the economic growth in ASEAN and SADC. The ASEAN 2SLS results for the import model (column 9) indicate that the Anderson canon. corr. LM statistic is (10.483) with a p-value of (0.033) and registered a p-value of (0.0631) for the overidentification test (Sargan statistic). The SADC 2SLS results (column 12) indicate that the Anderson canon. corr. LM statistic is (47.138) with a p-value of (0.000) and the registered p-value for the overidentification test (Sargan statistic) is (0.2715), this rejects the null hypothesis, suggesting that the regressors are endogenous. This suggests that the model passes both the underidentification test and overidentifying restrictions for both regions.

The specific 2SLS results for SADC (column 12) indicate a significant and negative relationship between GDP per capita and population growth, infrastructure quality and FDI. The specific FE results point to a significant and positive relationship between GDP per capita and government effectiveness. The specific OLS results show a significant and positive correlation between GDP per capita and infrastructure quality. The OLS and FE results indicate a significant and positive association between GDP per capita and natural resources and political stability. The OLS and 2SLS results suggest a significant and positive correlation between GDP per capita and internet penetration.

The specific OLS results for ASEAN (column 7) indicates a significant and positive correlation between GDP per capita and natural resources. Whereas the specific 2SLS results (column 9) suggest a significant and positive relationship between GDP per capita and FDI. The OLS and 2SLS results point to a significant and negative relationship between GDP per capita and control of corruption. In addition, the OLS and FE results show a significant and positive relationship between GDP per capita and political stability.

3.4.5.1 Import model results

In detail, according to the service import model results the OLS estimation results for ASEAN (column 1), a 1 per cent increase in services imports is expected to raise its GDP per capita by up to 0.23 per cent, SADC's GDP per capita is expected to increase by up to 0.22 per cent following a 1 per cent increment of service imports (column 4). A 1 per cent increment in the level of GCFC in SADC is likely to increase the region's GDP per capita by up to 0.3 per cent, whereas for ASEAN, the same level of increase in GCFC it is likely to increase its GDP per capita by up to 0.43 per cent. For ASEAN, a 1 per cent increase in natural resources is likely to drive up its GDP per capita by up to 1.3 per cent and for SADC, it is expected to raise its GDP per capita by up to 0.65 per cent following the same level of increment. A 1 per

cent improvement in the level of infrastructure quality is anticipated to increase the ASEAN's GDP per capita by up to 0.36 per cent and for SADC by up to 0.25 per cent.

ASEAN's GDP per capita is expected to rise by up to 0.17 per cent following a 1 per cent improvement in the level of human capital. A 1 per cent decline in population growth is expected to lead to a 1.1 per cent decline in ASEAN's GDP per capita. On the other hand, a 1 per cent decline in the control of corruption is expected to decrease the ASEAN's GDP per capita by up to 0.22 per cent. A 1 per cent improvement in the level of political stability is associated with a likely rise of ASEAN's GDP per capita by up to 0.09 per cent and SADC's GDP per capita is likely to rise by up to 0.19 per cent. A 1 per cent decline in FDI is linked to a fall of the SADC's economic growth by up to 0.01 per cent.

For SADC, the OLS results suggest that a 1 per cent decline of human capital is expected to lead to likely fall of the region's GDP per capita by up to 0.26 per cent. However, the FE results suggest that SADC's GDP per capita is expected to fall by up to 0.29 per cent and the 2SLS results point to a greater fall – 0.45 per cent, following a 1 per cent decline in human capital. A 1 per cent decline in FDI to SADC according to the OLS results, would lead to a fall in the region's GDP per capita by up to 0.005 per cent, whereas the FE suggests a decline of up to 0.006 per cent and the 2SLS results point to a likely decline of up to 0.046 per cent.

The FE results suggest that a 1 per cent rise in GCFC is expected to lead to 0.25 per increase in ASEAN's GDP per capita, whereas SADC's GDP per capita is expected to rise by up to 0.28 per cent. 1 per cent decline in ASEAN's population growth is expected to lead to a fall in the region's GDP per capita by up to 2.54 per cent. A 1 per cent improvement in the infrastructure quality is expected to lead to ASEAN's GDP per capita rising by 0.22 per cent. A 1 per cent decline in the control of corruption is linked to a fall in ASEAN's GDP per capita by up to 0.24 per cent. A 1 per cent improvement in political stability in SADC, is associated with a rise of the region's GDP per capita by up to 0.18 per cent, whereas ASEAN's GDP per capita is linked to a rise of up to 0.17 per cent, following the same level of improvement. The FE results suggest that a 1 per cent decline in the level of voice and accountability in SADC, is likely to increase the region's GDP per capita by up to 0.12 per cent. The OLS results show that a 1 per cent decline in trade openness is linked to a 0.74 per cent decline in SADC's GDP per capita, whereas the FE results show a slightly less decline, by up to 0.68 per cent.

The 2SLS results (columns 3 and 6) indicate that a 1 per cent increase in services imports will likely increase ASEAN's GDP per capita by up to 0.18 per cent, whereas for SADC, the increase is likely to be up to 0.33 per cent. They also show that a 1 per cent increase

in GCFC is expected to increase ASEAN's GDP per capita by up to 0.24 per cent, whereas the same level of increase is expected to boost SADC's GDP per capita by up to 0.3 per cent. A 1 per cent decline in population growth is expected to lead to a decline in ASEAN's GDP per capita by up to 1.93 per cent, whereas for SADC, the decline is expected to be up to 2.47 per cent.

ASEAN's GDP per capita is expected to be boosted by up to 0.21 per cent following a 1 per cent improvement in the region's infrastructure quality. In contrast, a 1 per cent decline in the level of infrastructure quality is expected to lead to a decline in SADC's GDP per capita growth by up to 0.41 per cent. A 1 per cent decline in human capital is expected to lead to a 0.45 per cent fall in SADC's GDP per capita. Whilst a 1 per cent increase in FDI is expected to raise ASEAN's GDP per capita by up to 0.06 per cent. On the other hand, a 1 per cent decline in FDI for SADC, is expected to lead fall of its GDP per capita by up to 0.05 per cent.

3.4.5.2 Export Model Results

According to the service export model results, the OLS estimation results for ASEAN (column 7), suggests that a 1 per cent increase in services exports is expected to raise its GDP per capita by up to 0.19 per cent, the FE results (column 8) suggest that the same level of increase in service exports is expected to raise its GDP per capita by up to 0.18 per cent and the 2SLS results (column 9) suggest that the region's GDP will likely increase by up to 0.16 per cent following a 1 per cent increase in services exports. For SADC, the OLS results show that a 1 per cent increase in services exports is expected to raise its GDP per capita by up to 0.22 per cent, the FE results suggest that a 1 per cent increment of service exports (column 10) will likely increase its GDP per capita by up to 0.1 and the 2SLS results (column 12) points to a likely rise of SADC's GDP by up to 0.11 per cent, following a 1 per cent increase in service exports.

A 1 per cent increment in the level of GCFC in SADC is likely to increase the region's GDP per capita by up to 0.34 per cent, according to the OLS results, the FE results suggest that its GDP per capita is expected to rise by up to 0.3 per cent and the 2SLS results point to a likely increase of up to 0.37 per cent. Whereas for ASEAN, the same level of increase in GCFC according to the OLS result, it is likely to increase its GDP per capita by up to 0.54 per cent, the FE results point to a likely increase of up to 0.4 per cent and the 2SLS results show a likely increase of up to 0.36 per cent, following the same level of increase in service exports.

For ASEAN, the OLS results suggest that a 1 per cent increase in natural resources is likely to drive up its GDP per capita by up to 1.35 per cent and for SADC, it is expected to

raise its GDP per capita by up to 1.18 per cent following the same level of increment. The FE results point to a likely increase of up to 0.97 per cent. A 1 per cent decline in population growth according to the 2SLS, is linked to a decline in SADC's GDP per capita by up to 1.94 per cent. The same level of decline in population growth is associated with a GDP per capita decline in ASEAN by up to 1.72 per cent, according to the OLS results but the FE results suggest a larger decline, of up to 2.07 per cent and the 2SLS results point to a decline of up to 1.57 per cent.

A 1 per cent improvement in the level of internet penetration is anticipated to increase the SADC's GDP per capita by up to 0.1 per cent according to the OLS results and the 2SLS results point to like increase of up to 0.17 per cent. The OLS results for ASEAN suggest that a 1 per cent improvement in the level of infrastructure quality is likely to increase the region's GDP per capita by up to 0.31 per cent and the 2SLS results suggest a likely increment of up to 0.37 per cent. The OLS results for SADC point to a likely increase of up to 0.11 per cent following a 1 per cent improvement in the level of infrastructure but the 2SLS results suggest a 1 per cent decline in the level of the region's infrastructure is likely will decrease the region's GDP per capita by up to 0.37 per cent. A 1 per cent improvement in government effectiveness will likely raise SADC's GDP per capita by up to 0.13 per cent, according to the FE results (column 11).

ASEAN's GDP per capita is expected to rise by up to 0.17 per cent following a 1 per cent improvement in the level of human capital, according to the OLS results. However, ASEAN's FE results suggests a GDP per capita increase of up to 0.28 per cent and the 2SLS results point to a GDP per capita increase of up to 0.15 per cent, following a 1 per cent increase in the level of human capital. According to the OLS results, a 1 per cent decline in the level of control of corruption is expected to lead to a 0.21 per cent decline in ASEAN's GDP per capita, the 2SLS results suggest a decline of up to 0.13 per cent. On the other hand, a 1 per cent decline in FDI is expected to decrease the SADC's GDP per capita by up to 0.04 per cent, according to the 2SLS results. For ASEAN, a 1 per cent increase in FDI is expected to boost its GDP per capita by up to 0.04 per cent. A 1 per cent improvement in the level of political stability is associated with a likely rise of ASEAN's GDP per capita by up to 0.08 per cent and SADC's GDP per capita is likely to rise by up to 0.25 per cent, according to the OLS results. The FE results point a likely increase of ASEAN's GDP per capita by up to 0.13 per cent and for SADC, an expected increase of up to 0.23 per cent, following a 1 per cent improvement in political stability.

The 2SLS results (columns 3 and 6) indicate that a 1 per cent increase in services imports will likely increase ASEAN's GDP per capita by up to 0.18 per cent, whereas for SADC, the increase is likely to be up to 0.33 per cent. They also show that a 1 per cent increase in GCFC is expected to increase ASEAN's GDP per capita by up to 0.24 per cent, whereas the same level of increase is expected to boost SADC's GDP per capita by up to 0.3 per cent. A 1 per cent decline in population growth is expected to lead to a decline in ASEAN's GDP per capita by up to 1.93 per cent, whereas for SADC, the decline is expected to be up to 2.47 per cent. The OLS results suggest that a 1 per cent decline trade openness is expected to lead to decline in SADC's GDP per capita by up to 0.5 per cent and the FE results suggest its GDP per capita decline of up to 0.56 per cent, following the same level of decline in trade openness.

3.4.6 Discussion of the results

All three estimation results (OLS, FE and 2SLS) for both models for both regions point to a significant and positive correlation between trade in services and the GDP per capita for these 26 economies. The OLS and 2SLS results for ASEAN and SADC are significant at the 1 per cent level which suggests an existence of a strong and positive relationship between economic growth and trade in services. Based on the magnitude of the coefficients presented, in the case for SADC, the 2SLS results for services imports and exports (columns 6 and 12) are greater than for the OLS and FE results. However, all these results support the findings made by Francois (1990a), Levine (1997), Hoekmann and Mattoo (2008), Alege and Ogundipe (2015).

This is important because it supports the view that trade in services associated with having a beneficial impact on economic growth. This is expected because the data presented in Figures 3.10 (a), (b) and (c) indicates that between 2000 and 2018, the services sector in ASEAN and SADC made the largest contribution to the respective regions' GDP. The results also contrast the findings made by Li, Greenway, and Hine (2002). They find that service imports negatively impact the economic growth of developing countries but positively impacts the economic growth of developed economies. In fact, the results point to a greater positive impact of service imports than exports amongst this group of developing economies, based on the coefficients presented in Tables 3.4 and 3.5.

In addition, all three estimation results for both models are also significant at the 1 per cent level and therefore indicate a strong significant and positive relationship between economic growth and accumulation of capital stock. This is in line with the prevailing literature and supports findings made by Voon and Chen (2003), Romp and De Haan (2007), Straub

(2008), Arslanalp *et al.* (2010), Shioji and Vu (2012) and Pereira and Andraz (2013). As previously discussed in the literature review in Section 2.3.2 of this thesis, the accumulation of capital goods is essential to foster economic growth (Roy, 2009) and allows economies to bridge the technological gap by adopting foreign technologies in domestic production (Fagerberg, 1987).

The 2SLS result estimation of the import model for ASEAN and SADC (columns 3 and 6) suggests a negative relationship between natural resource endowment and economic growth, however only the one for SADC is statistically significant. The negative relationship between natural resource endowment and economic growth is in line with Ades and Di Tella (1999), Barro (1999), Ross (2001), Jensen and Wantchekon (2004) and Collier and Hoeffler (2005). Work by Collier and Hoeffler (1998 and 2005), Leite and Weidmann (1999) and Dalgaard and Olsson (2008) suggest that natural resource abundance negatively affects institutional quality and encourage high levels of corruption, which hampers long-term economic growth.

The OLS estimation results for the import and export for both regions are significant at the 1 per cent level, indicate a positive relationship between natural resources and economic growth. This aligns with the findings made by Gelb (1988), Ranis (1991), Lal and Myint (1996), Ross (1999), Auty (2001) and Moshiri and Hayati (2017). They also stress on the importance of the quality of the institutions to effectively direct the wealth generated from these resources.

The three estimation results for both models and for both regions indicate a negative relationship between population growth and economic growth. They all have varying degrees of statistical significance. This contrasts with the findings reached by Birdsall and Sinding (2001), Barro and Sala-i-Martin (2004), Klassen and Lawson (2007), Sachs (2008), and Headey and Hodge (2009). However, other studies by Yao, Kinugasa, and Hamori (2013) find a negative relationship between economic growth in China and Banerjee (2012) also makes similar findings with respect to Australia. Studies by Kuznets (1967), Kelley (1988), and Kelley and McGreevey (1994) suggest that population growth has limited effect on GDP per capita growth. Bloom *et al.* (2009) suggest that the high dependency ratio that exists in Europe and Japan impacts negatively on their economic growth. Dao (2012) also finds that GDP per capita growth is linearly dependent on population growth. Jacobs (1972), Crook (1997), and Beall and Fox (2009) suggest that cities are engines of growth by providing large concentrated markets, which allow for economies of scale for the production of manufactured goods facilitated by low transport costs.

The three estimation results for the import model for both regions (columns 1 to 6) point to a negative correlation between internet penetration and GDP per capita but they are not statistically significant. The OLS and 2SLS estimation results for the export model for SADC indicates a positive correlation between the two variables at the 1 per cent level. For the purpose of this study internet penetration was used as a proxy for technological advancement. The results they support the conclusions reached by Hardy (1980), Meijers (2014) Kumar, Stauvermann and Shahzad (2017), Asiamah, Ofori and Afful, (2019) and Sultanuzzaman *et al.* (2019). They find that technology plays a key role in spurring on economic growth by driving up productive efficiency. In addition, it should be noted that the latest data indicates that the bulk of the services exported by SADC is through Mode 1 (as indicated in Figure 3.12b, which relies on the internet as the principal transmission to facilitate transactions. The results for ASEAN suggest that further investigation is needed to determine whether internet is a good proxy to measure the effects of the advancement of technology on economic growth for that region, as indicated in Figure 3.12a, the bulk of its services exports are undertaken through Mode 1.

All three estimation results for the import and export models for ASEAN suggest a significant and positive relationship between the region's GDP per capita and infrastructure quality. This supports the findings made by Limao and Venables (2001), Wu (2007), Njinkeu, Wilson and Fosso (2008), Granato (2008), Moise and Le Bris (2013) and Gani (2017). Pradhan and Bagchi (2013) find that the expansion of transport infrastructure is linked to substantial growth of the Indian economy. A study by Fedderke, Perkins, and Luiz (2006) find investment in infrastructure has beneficial direct and indirect effects on the economic growth in South Africa. Holmgren and Merkel (2017) consider that infrastructure spending by governments is important because they could be a solution to unemployment, reduce rural depopulation and stimulate other economic activities.

The 2SLS results for import and export models for SADC shows that there is a significant and negative relationship between infrastructure quality and economic growth. Bougheas, Demetriades, and Mamuneas (2000) find that the relationship between infrastructure and economic growth follows a U-shaped curve, which means that infrastructure investment raises economic growth but at a diminishing rate. Whilst Riedel, Jin, and Gao (2007) suggest that infrastructure funding tend to squeeze other types of investments. Negative marginal contributions related to infrastructure investments has also been documented, overinvestment in certain type of infrastructure and in a particular region during a specific time period can have negative impacts on economic growth (Shi, Guo and Sun, 2017). This suggests

that infrastructure development can increase regional economic disparities, as we have seen previously in the literature review (in the previous chapter), income equality has a detrimental effect on economic growth.

The positive effect of government effectiveness on the region's GDP per capita, as reflected in all three estimation results for the export model for ASEAN and the three estimation results for the import model is supported by similar findings. The positive relationship supports the findings made by Beraldo, Montolio and Turati (2009), Bojanic (2013), Kapunda and Topera (2013), Taiwo and Abayomi (2011) and Wang (2011). They find positive effects of government expenditure on economic growth. In addition, Acemoglu, Johnson and Robinson (2005) point out that the primary importance to successful economic outcomes is the existence of economic institutions such as property rights and the presence and perfection of markets in a society, because they influence society and provide it with economic incentives.

However, all three estimation results for ASEAN and the OLS and 2SLS estimation results for the import model for SADC indicates a negative correlation between government effectiveness and economic growth. In their analysis of 100 developed and developing economies, Butkiewicz and Yanikkaya (2011) find that government effectiveness is negatively correlated with economic growth in developing economies with ineffective governments. Hodge *et al.* (2011) and d'Agostino, Dunne and Pieroni (2016) find that control of corruption has a close association with government effectiveness, depending on the level of corruption. Therefore, improving control of corruption and as well as superior allocation resources through government effectiveness measures, would effectively promote economic growth (Nan, 2022).

The three estimation results for the export model for ASEAN and the FE result the import model for ASEAN indicate a significant and positive correlation between human capital and GDP per capita, however, only the 2SLS result for the export model is statistically significant. These results support the prevailing view of economic literature and more specifically supports the findings Mankiw, Romer, and Weil (1992) and Knight, Loayza, and Villanueva (1993), Stiglitz and Yusuf (2001) and World Bank (2003). There are a number of services such as business services and finance are significantly dependent on higher skills intensity than most goods production (Gibbs 1986, Nusbaumer 1987, and Jensen 2008). Therefore, endowments of human capital can be a critical input to the output and export of services (Goswami, Mattoo and Saez, 2012).

The 2SLS estimation results for the export model for ASEAN and all three estimation results for both models for SADC point to a negative relationship between human capital and

economic growth. In the case of SADC, all three estimation results for import model are statistically significant. Rogers (2008) explains this phenomenon, his findings suggests that corruption, black market premium and brain drain make human capital unproductive. Having basic education is also insufficient to spur on economic growth. A human capital study by the World Bank in 2018 on Turkey and Peru suggests that despite the workforce being more educated than the previous generations, a substantial portion remain in the informal sector, which we have previously seen in the previous chapter is detrimental to economic growth. In addition, the research finds that basic education is not enough to develop practical job skills and given that skills are acquired to through a person's life cycle continuous learning is required to develop practical skills. The study recommends that both economies adopt more technical programmes to enable workers to remain relevant and adapt to changing demands. Such measures could be applied in SADC and to build human capital in the region, which could then spur on economic growth.

All three estimation results for the import and export models point to a negative correlation between control of corruption and the regions' GDP per capita, with varying degrees of statistical significance. This supports the "sand in the wheel" hypothesis. Work by Ivanyna, Moumouras and Rangazas (2016) theoretically confirm the harmful effects of corruption on the economy. Whilst, Blackburn, Bose and Haque (2006) find that corruption harms productivity and the levels of corruption within different economies is dependent upon their levels of productivity. Empirical research by Mauro (1995), Gupta, Davoodi and Alonso-Terme (2002), Méon and Sekkat (2005), Méndez and Sepúlveda (2006), and Aidt, Dutta and Sena (2008) find negative effects of corruption on economic growth. However, research by Acemoglu and Verdier (2000) and Huang (2016) support "grease the wheel" hypothesis by concluding that in some economies, corruption is actually beneficial because it incentivizes corrupt officials to work more efficiently. Theoretical work by Barreto (2000) finds that corruption has no impact on an economy but results in redistribution of income.

All three estimation results for the import model for SADC suggest a significant and negative relationship between FDI and economic growth. This contradicts the findings Omran and Bolbol (2003), Li and Liu (2005), Hansen and Rand (2006), Hyun (2006), Johnson (2006), Güner and Yılmaz (2007), Basu and Guariglia (2007), Shahbaz and Rahman (2010), Koojaroenprasit (2012) and Iamsiraroj and Ulubaşoğlu (2015). However, some studies have made similar findings. For instance, Borenztein, De Gregorio, and Lee (2003) find that FDI can only positively impact the host economies if they sufficient absorb technology and a minimum limit of human capital stock. They also find that FDI will have an insignificant or

negative impact on economic growth if the host economy has low levels of human capital. Carkovic and Levine (2002) also find that the effects of FDI on economic growth is influenced by human capital. In addition, Papanek (1973), Bornschier, Chase-Dunn and Rubinson (1978), Fry (1993) and Herzer (2010) find a negative relationship between FDI and economic growth amongst developing economies.

Whilst Bornschier and Chase-Dunn (1985) find that over reliance on FDI tends to negatively impact growth because of the monopolistic industrial structures created by foreign investors. In addition, Alfaro's (2003) research point to a significant and positive relationship between FDI in services and manufacturing and economic growth but a significant and negative relationship between FDI in the primary sector and economic growth, because of the latter's negative impact on the environment. As we can observe from Table 2.2 – Distribution of GDP per Capita, the SADC economies are largely in the lower end of the economic growth distribution amongst these 26 economies and may have negatively skewed the results for SADC.

The OLS and FE estimation results for the import and export models for both regions indicate a significant and positive relationship between political stability and economic growth. This aligns with the findings made by Aisen and Veiga (2013), Ahmed and Pulok (2013) and Gakpa (2019). Their research suggests that political stability fosters economic growth through physical and human capital accumulation and attracts FDI into an economy.

3.5 Conclusion

The concept of economic growth relates to the expansion of an economy, which could either be positive, zero or negative. This research set out to understand two aspects of trade in services in ASEAN and SADC between 2000 and 2018. First, the determinants of imports and exports of services and second, the contribution of the services sector to the regions' economic growth. To ascertain the determinants of trade in services, two distinct log-linear models were created using the existing literature and regressed using the OLS and FE estimation methods. In the second part, a log-linear economic growth model was created using the neo-classical Swan-Solow model (1956) as its theoretical underpinning and regressed using the OLS, FE and 2SLS (fixed effect) regression methods.

The FE results (for import and export models) for ASEAN and SADC in the first part are preferred under the Hausman test. For ASEAN, the FE results (in Table 3.3) indicate that service imports are significant and positively correlated with goods imports and exports and

regulatory quality. They indicate that a 1 per cent increase in goods imports would likely increase service imports by up to 0.48 per cent and service imports may also increase by up to 0.6 per cent following a 1 per cent increase in goods exports. They also point to a possible increase of service imports in ASEAN by up to 0.13 per cent following a 1 per cent increase in the level of regulatory quality. Whilst a decline in human capital will likely reduce service imports by 2.08 per cent.

The FE results for SADC suggest that a significant and positive correlation between service imports and FDI, goods imports and exports and regulatory quality. They also point to a significant and negative correlation between service imports and ODA. There is a suggestion that a 1 per cent increase in goods imports may increase service imports by up to 0.65 per cent and the same percentage increase in goods exports is expected to increase service imports by up to 0.18 per cent. A 1 per cent improvement in regulatory quality is expected to increase service imports by up to 0.33 per cent. A 1 per cent decline in ODA may decrease service imports by up to 0.09 per cent.

The FE results for services exports (Table 3.3) in ASEAN suggests a significant and positive correlation between service exports and human capital, population size, ODA, goods imports and regulatory quality. They also indicate a significant and negative correlation between service exports and goods exports. The results suggest that a 1 per cent increase in human capital is likely to increase service exports by up to 0.96 per cent. A 1 per cent increase in population size is expected to increase service exports by up to 4.5 per cent. This emphasizes that larger economies in ASEAN tend to export more. Whereas, for SADC, size is not a determining factor that is linked to its exports.

The results also highlight the importance of regulatory quality. A 1 per cent improvement in regulatory quality could possibly increase service exports in ASEAN by up to 0.52 per cent. They also point to a likelihood of services exports declining by up to 0.83 per cent following a decline in goods exports by 1 per cent.

The FE results for SADC suggest that a 1 per cent increase goods imports is likely to increase service exports by up to 0.68 per cent. They also indicate that a 1 per cent decline in the level of infrastructure would lead to a decrease in service exports by up to 0.19 per cent. The significant and negative correlation between infrastructure and services exports for SADC suggests that there is a need to increase investments infrastructure. Given that the bulk of service exports were through Modes 1 and 2 in 2017, the investments should be directed towards creating reliable digital networks and building sufficient human capacity to maintain

them, at the same time, directing resources towards hard infrastructure such as roads and airports to support the tourism and travel sectors which are mostly associated with Mode 2.

Overall, the STRI scores reveal that the SADC region maintained a more liberal services regulatory regime than ASEAN as at the end of December 2018. Mauritius, Singapore and Zambia, were found to have the most liberal regulatory regime for the six service sectors chosen for this study. Whilst Indonesia and Zimbabwe have the most stringent services regulatory regime with respect to foreign investment in the six sectors amongst the ASEAN and SADC members.

In the second part, in addition to the OLS and FE estimation methods used, the 2SLS estimation technique is also employed, whereby FDI is instrumented to mitigate against endogeneity. The FE model is preferred over the OLS under the Hausman Test for the import and export models. The Hausman Test also prefers the 2SLS model over the FE model.

The three estimation results for the import model for ASEAN indicate that a 1 per cent increase in services imports could likely contribute up to 0.27 per cent to ASEAN's GDP per capita. Whereas the three estimation results for the import model for SADC points to a likely increase to the region's GDP per capita by up to 0.33 per cent. Whereas the three estimation results for the export model for SADC export model points suggests that a 1 per cent increase in services exports is expected to raise its GDP per capita by up to 0.11 per cent. The three estimation results for the export model for ASEAN suggests that the same level of increase in service exports is associated with a likely to increase the region's GDP per capita by up to 0.19 per cent. These findings are in line with findings made by Francois (1990a), Levine (1997), Hoekmann and Mattoo (2008), Alege and Ogundipe (2015). In addition, they also align with the findings of studies that employ a 2SLS estimation technique to evaluate the effects of trade in services on economic growth; undertaken by Frankel and Romer (1999), Caner and Hansen (2004), Kim (2011), Charif, Hassanov and Wang (2018) and Nordas (2019).

The import results are counterintuitive in the sense that imports tend to be viewed negatively largely because of the formula used to calculate GDP. As we have seen from the literature review in Chapter 2 (Section 2.3), imports related to capital goods and technology tend to improve an economy's productivity. In the literature review on services in this chapter (Section 3.2), we can appreciate that services acts inputs to the productive sector as well as in the production and supply of other services. Based on the results we can also observe that services imports have a greater impact on economic growth in SADC than services exports. Therefore, this positive outcome suggests that it would be in the interest of these two regions to create a conducive environment to facilitate both import and export of trade in services.

The import and export results also point to a positive relationship between gross fixed capital formation, this is in line with the prevailing literature (see discussion in the literature review in Chapter 2 and discussion of the results). The estimation results for both models also point to the beneficial impact of infrastructure quality in ASEAN. Given, its importance the region should prioritise projects that would enhance trade to enable it to achieve higher economic growth rates. All three estimation results for both models for both regions suggest a negative relationship between control of corruption and economic growth, therefore it is essential that both regions strive to mitigate against corrupt practices and increase transparency and good governance.

In addition, all three estimation results for the import and export models for SADC show that there is a negative association between FDI and economic growth. Such a finding corroborates with the conclusion reached by Brecher and Diaz-Alejandro (1977); Germidis (1977); Mansfield and Romeo (1980); Brecher, (1983); Haddad and Harrison (1993); Boyd and Smith (1993); Aitken and Harrison (1999) and Carkovic and Levine (2002). Their findings suggest that FDI inflows tend to favour host economies with less excessive regulatory environment and more sound institutional settings, in addition, they tend to crowd out domestic investment, particularly in developing economies. As pointed out by the WGI data (Figure 2.8), majority of the SADC economies have poor regulatory and institutional frameworks.

Based on the results obtained from this research, it is in the best economic interest of these 26 economies to develop frameworks that will allow services to grow in general, given that the results indicate that both imports and exports of services have a beneficial impact on economic growth. The results indicate that it is also worth evaluating the impact of the regulatory barriers, given the magnitude of the impact of services imports on the economic growth of these 26 economies.

Chapter 4

Concluding Remarks

In this dissertation, I investigate the effects of trade and trade in services on economic growth in ASEAN and SADC between 2000 and 2018. Trade theory implies that its benefits are accrued through comparative advantage. Literature in the 1970s and 1980s considered exports as the likelier engine of economic growth based on the impressive economic growth amongst the East Asian economies during that time. However, several studies suggest that imports equally contribute to economic growth because they facilitate the accumulation of capital goods and infrastructure development. In addition, the role of services in the manufacturing and in the production of other services has been documented and tend to show their positive effects on economic growth.

Chapter 2 is divided into two parts. In the first section, I created three models (trade, import and export) based on the neo-classical Swan-Solow (1956) growth model to investigate the relationship between trade and economic growth amongst the 26 economies of ASEAN and SADC. The trade model is used for benchmarking purposes. The modelling results indicate that a 1 per cent increase in imports would likely increase the combined economic growth of between 0.38 and 0.24 per cent and a 1 per cent increase in exports are expected to contribute between 0.44 and 0.32 per cent increase in the regions' economic growth.

In the second part of the study, I used the quantile regression method which was pioneered by Koenker and Basset's (1978), to understand the effects of the chosen variables on economic growth amongst these 26 high and low growth economies. . The results suggest that the relationship between imports and exports and economic growth is significant and positive amongst the low and high growth economies, but their importance tends to wane as the economies expand. The prevailing literature and research suggest that low growth economies tend to be more reliant on international trade because their export concentration ratios are skewed towards a limited number of primary products. They also rely heavily on the imports of goods because they are lacking a mature manufacturing sector, its development is being constrained by the limited availability of viable infrastructure and supply-side constraints.

Chapter 3 is also divided into two parts; it first attempts to identify the determinants of imports and exports of services in ASEAN and SADC. The results point to a significant and positive correlation between ASEAN's services imports and trade in goods and regulatory quality. Whereas for SADC, services imports are significant and positively correlated with FDI,

trade in goods and regulatory quality. There is also a significant and negative correlation between services imports and ODA. As for services exports, there is a significant and positive relationship between ASEAN's services exports and human capital, population size, ODA, goods imports and regulatory quality. They also indicate a significant and negative relationship between services exports and goods exports. The results for SADC, point to a significant and positive relationship between services exports and goods imports and suggest a significant and negative correlation with infrastructure quality.

In terms of policy implications, the 26 economies need to lower and maintain low barriers to ensure that they do not impede trade. Whilst exports play a significant role in driving economic growth, imports are equally important in driving up economic growth. It is worth noting that the results indicate that service imports have a greater impact on the regions' economic growth. The STRI assessment of these economies, suggest that the ASEAN region maintains elevated levels of services trade restrictions in comparison to the SADC region. Services such as communication transportation and retail sectors serve an important function in the production and consumption of goods and elevated levels of restrictions tend to negatively impact its bilateral goods trade.

The results also indicate that SADC needs to prioritise infrastructure funding to improve its services exports and its overall economic growth. The latest data indicates that 52 per cent of the SADC's services are exported through Mode 1, which suggests prioritising investments in digital infrastructure. In addition, SADC economies should be constantly reviewing existing frameworks with a view to facilitating FDI given that the bulk of their services imports are traded through Mode 3 (47 per cent).

The second part of this chapter assesses the effects of trade in services on economic growth in the 26 economies. The modelling results indicate that a 1 per cent increase in services imports is expected to raise ASEAN's GDP per capita by up to 0.27 per cent and a 1 per cent increase in service exports linked to rise in the region's GDP per capita by up to 0.19 per cent. For SADC, the modelling results suggest that a 1 per cent increase in service exports is expected to raise its GDP per capita by up to 0.33 per cent and the same percentage increase in services exports is likely to boost its GDP per capita by up to 0.11 per cent. . The 2SLS results for the services imports and exports had a greater magnitude than the OLS and FE results for the SADC region. In addition, all three estimation results for the import and export models for both regions point to a significant and positive association between the regions' GDP per capita and accumulation of capital goods (GCFC), in line with the prevailing literature.

Importantly, it answers the four main questions set out in the Section 1.35 - Dissertation Objective. In a nutshell; (1) Trade (import and export) has a statistically significant and positive effect on the 26 economies of ASEAN and SADC; (2) Whilst all the economies are positively impacted by trade, the quantile regression results indicate that as the 26 economies become wealthier their growth becomes less dependent on trade; (3) the modelling results suggest that trade in goods, ODA, regulatory quality, infrastructure quality, human capital and population size have varying impacts on the imports and exports of services in ASEAN and SADC; and; (4) This research suggests that there is a significant and positive relationship between the imports and exports of services on the economic growth of ASEAN and SADC.

The methodologies employed in this research can serve as a useful tool for policy makers because it can be replicated in any region or economy to enable them to perform strategic interventions to improve economic growth.

Annex I: Service Trade Restriction Index

1. Air Transport

Category Code	Libelle	Weight
TRair.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (domestic traffic - cargo)	0.1
TRair.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (domestic traffic - passenger)	0.1
TRair.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (international traffic - cargo)	0.1
TRair.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (international traffic - passenger)	0.1
TRair.1	There are limits to the proportion of shares that can be acquired by foreign investors in publicly-controlled firms (cargo)	0.05
TRair.1	There are limits to the proportion of shares that can be acquired by foreign investors in publicly-controlled firms (passenger)	0.05
TRair.1	Licensing/permits are subject to quotas or economic needs tests (domestic traffic - cargo)	0.025
TRair.1	Licensing/permits are subject to quotas or economic needs tests (international traffic - cargo)	0.025
TRair.1	Licensing/permits are subject to quotas or economic needs tests (domestic traffic - passenger)	0.025
TRair.1	Licensing/permits are subject to quotas or economic needs tests (international traffic - passenger)	0.025
TRair.1	Lease of foreign aircrafts without crew (dry lease) is prohibited (cargo)	0.0125
TRair.1	Lease of foreign aircrafts without crew (dry lease) is prohibited (passenger)	0.0125
TRair.1	Lease of foreign aircrafts without crew (dry lease) is permitted subject to prior authorization (cargo)	0.0125
TRair.1	Lease of foreign aircrafts without crew (dry lease) is permitted subject to prior authorization (passenger)	0.0125
TRair.1	Lease of foreign aircrafts with crew (wet lease) is prohibited (cargo)	0.0125
TRair.1	Lease of foreign aircrafts with crew (wet lease) is prohibited (passenger)	0.0125
TRair.1	Lease of foreign aircrafts with crew (wet lease) is permitted subject to prior authorization (cargo)	0.0125
TRair.1	Lease of foreign aircrafts with crew (wet lease) is permitted subject to prior authorization (passenger)	0.0125
TRair.2	Limitation on duration of stay for intra-corporate transferees (months)	0.033
TRair.2	Limitation on duration of stay for contractual services suppliers (months)	0.033
TRair.2	Limitation on duration of stay for independent services suppliers (months)	0.033
TRair.3	Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies (domestic traffic)	0.025
TRair.3	Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies (international traffic)	0.025
TRair.4	National, state or provincial government control at least one major firm in the sector (cargo)	0.025
TRair.4	National, state or provincial government control at least one major firm in the sector (passenger)	0.025
TRair.5	Range of visa processing time (days)	0.0125
TRair.5	Multiple entry visa for business visitors	0.0125
TRair.5	Cost to obtain a business visa (USD)	0.0125
TRair.5	Number of documents needed to obtain a business visa	0.0125
TRair.5	Number of working days to complete all mandatory procedures to register a company	0.0125
TRair.5	Total cost to complete all official procedures required to register a company (in % of income per capita)	0.0125
TRair.5	Number of mandatory procedures to register a company	0.0125
TRair.5	Time taken for customs clearance (days)	0.0125

2. Commercial Banking

Category Code	Libelle	Weight
FSbnk.1	Foreign equity restrictions: maximum foreign equity share allowed (%)	0.15
FSbnk.1	There are limits to the proportion of shares that can be acquired by foreign investors in publicly-controlled firms	0.15
FSbnk.1	Legal form: foreign branches are prohibited	0.075
FSbnk.1	Legal form: restrictions on foreign branches	0.075
FSbnk.1	Quotas or economic needs tests are applied in the allocation of licences	0.0125
FSbnk.1	Criteria to obtain a licence are more stringent for foreign companies	0.0125
FSbnk.1	Restrictions on the branch network	0.0125
FSbnk.1	Restrictions on ATM networks	0.0125
FSbnk.1	Some financial products are reserved for statutory monopolies	0.0125
FSbnk.1	Some banking services are reserved for domestic suppliers	0.0125
FSbnk.1	Commercial presence is required: deposit-taking	0.0125
FSbnk.1	Commercial presence is required: Lending	0.0125
FSbnk.1	Commercial presence is required: Payment services	0.0125
FSbnk.1	Local presence is required for cross-border supply	0.0125
FSbnk.1	Limitations on cross-border transfers by customers	0.0125
FSbnk.1	Restrictions on internet banking	0.0125
FSbnk.2	Limitation on duration of stay for intra-corporate transferees (months)	0.033
FSbnk.2	Limitation on duration of stay for contractual services suppliers (months)	0.033
FSbnk.2	Limitation on duration of stay for independent services suppliers (months)	0.033
FSbnk.3	Restrictions on extending loans or taking deposits in foreign currency	0.025
FSbnk.3	Restrictions on lending to non-residents for domestically licensed banks	0.025
FSbnk.3	Restrictions on raising capital domestically for foreign banks	0.025
FSbnk.3	Discrimination in the access of foreign-owned banks to the central bank discount window	0.025
FSbnk.4	National, state or provincial government control at least one major firm in the sector	0.05
FSbnk.4	The supervisor has full authority over licensing and the enforcement of prudential measures	0.05
FSbnk.5	Number of working days to complete all mandatory procedures to register a company	0.02
FSbnk.5	Number of mandatory procedures to register a company	0.02
FSbnk.5	Licences are allocated according to publicly available criteria	0.02
FSbnk.5	Time of resolving insolvency (in years)	0.02
FSbnk.5	Cost of resolving insolvency (in % of the estate's value)	0.02

3. Distribution Services

Category Code	Libelle	Weight
DS.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (retailers)	0.15
DS.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (wholesalers)	0.15
DS.1	Screening explicitly considers economic interests	0.05
DS.1	Screening exists without exclusion of economic interests	0.05
DS.1	Acquisition and use of land and real estate by foreigners is restricted	0.023
DS.1	Restrictions on the type of shares or bonds held by foreign investors	0.023
DS.1	Commercial presence is required in order to provide cross-border services	0.023
DS.1	Local presence is required for cross-border supply	0.023
DS.1	Licences for the distribution of certain products are subject to quotas or economic needs tests (wholesalers)	0.023
DS.1	Licences for the distribution of certain products are subject to quotas or economic needs tests (retailers)	0.023
DS.1	Licences for department stores or large-store formats are subject to quotas or economic needs tests	0.023
DS.1	Zoning regulation discriminates foreign suppliers against domestic competitors	0.023
DS.1	The number of sales outlets per firm is limited	0.023
DS.1	Restrictions on franchising	0.023
DS.1	Restrictions against foreign distributors to practice direct selling including e-commerce	0.023
DS.2	Limitation on duration of stay for intra-corporate transferees (months)	0.0167
DS.2	Limitation on duration of stay for contractual services suppliers (months)	0.0167
DS.2	Limitation on duration of stay for independent services suppliers (months)	0.0167
DS.3	There are discriminatory access to certain settlement methods	0.025
DS.3	Online tax registration and declaration is available to non-resident foreign providers	0.025
DS.4	National, state or provincial government control at least one major firm in the sector	0.025
DS.4	Prices or fees are regulated	0.025
DS.5	Multiple entry visa for business visitors	0.022
DS.5	Cost to obtain a business visa (USD)	0.022
DS.5	Number of documents needed to obtain a business visa	0.022
DS.5	Time required to obtain a construction permit (in calendar days)	0.022
DS.5	Total cost required to obtain a construction permit (% of warehouse value)	0.022
DS.5	Number of procedures required to obtain a construction permit (number)	0.022
DS.5	Licences are allocated according to publicly available criteria	0.022
DS.5	Restrictions related to the duration and renewal of licences	0.022
DS.5	Time taken for customs clearance (days)	0.022

4. Maritime Transport

Category Code	Libelle	Weight
TRmar.1	Foreign equity restrictions: maximum foreign equity share allowed (%)	0.35
TRmar.1	There are limits to the proportion of shares that can be acquired by foreign investors in publicly-controlled firms	0.02
TRmar.1	Acquisition and use of land and real estate by foreigners is restricted	0.02
TRmar.1	Restrictions to own and/or register vessels under national flags	0.02
TRmar.1	Cargo reservations or preferences	0.02
TRmar.1	Foreign-flagged ships are fully excluded from cabotage, without any exception	0.02
TRmar.1	Foreign-flagged ships are partially excluded from cabotage	0.02
TRmar.1	Statutory monopoly on port services	0.02
TRmar.1	Restrictions on the number of Licences/concessions	0.02
TRmar.1	Restrictions in the awarding of port Licences/concessions	0.02
TRmar.1	Restrictions on the chartering of vessels	0.02
TRmar.1	Commercial presence is required in order to provide cross-border services	0.02
TRmar.1	Local presence is required for cross-border supply	0.02
TRmar.2	Limitation on duration of stay for intra-corporate transferees (months)	0.05
TRmar.2	Limitation on duration of stay for contractual services suppliers (months)	0.05
TRmar.2	Limitation on duration of stay for independent services suppliers (months)	0.05
TRmar.2	Laws or regulations establish a process for recognising qualifications gained abroad	0.05
TRmar.3	Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	0.025
TRmar.3	Discriminations in the use of marine services	0.025
TRmar.4	Obligation to use a local maritime port agent	0.025
TRmar.4	Bundling and/or tying of port related services	0.025
TRmar.5	Range of visa processing time (days)	0.02
TRmar.5	Cost to obtain a business visa (USD)	0.02
TRmar.5	Number of documents needed to obtain a business visa	0.02
TRmar.5	Number of working days to complete all mandatory procedures to register a company	0.02
TRmar.5	Number of mandatory procedures to register a company	0.02
TRmar.5	Time taken for customs clearance (days)	0.02

5. Road Freight Transport

Category Code	Libelle	Weight
TRrof.1	Foreign equity restrictions: maximum foreign equity share allowed (%)	0.35
TRrof.1	There are limits to the proportion of shares that can be acquired by foreign investors in publicly-controlled firms	0.067
TRrof.1	Licensing/permits are subject to quotas for domestic traffic	0.067
TRrof.1	Licensing/permits are subject to an economic needs test	0.067
TRrof.2	Limitation on duration of stay for intra-corporate transferees (months)	0.03
TRrof.2	Limitation on duration of stay for contractual services suppliers (months)	0.03
TRrof.2	Limitation on duration of stay for independent services suppliers (months)	0.03
TRrof.2	Laws or regulations establish a process for recognising qualifications gained abroad	0.025
TRrof.2	Other restrictions to movement of people	0.025
TRrof.3	Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	0.0375
TRrof.3	Public procurement: Explicit preferences for local suppliers	0.0375
TRrof.3	Public procurement: Procurement regulation explicitly prohibits discrimination of foreign suppliers	0.0375
TRrof.3	Public procurement: The procurement process affects the conditions of competition in favour of local firms	0.0375
TRrof.4	National, state or provincial government control at least one major firm in the sector	0.025
TRrof.4	Publicly-controlled firms are exempted from the application of the general competition law	0.025
TRrof.5	Range of visa processing time (days)	0.014
TRrof.5	Cost to obtain a business visa (USD)	0.014
TRrof.5	Number of documents needed to obtain a business visa	0.014
TRrof.5	Number of working days to complete all mandatory procedures to register a company	0.014
TRrof.5	Total cost to complete all official procedures required to register a company (in % of income per capita)	0.014
TRrof.5	Number of mandatory procedures to register a company	0.014
TRrof.5	Time taken for customs clearance (days)	0.014

6. Telecommunication Services

Category Code	Libelle	Weight
TC.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (fixed)	0.2
TC.1	Foreign equity restrictions: maximum foreign equity share allowed (%) (mobile)	0.2
TC.1	Commercial presence is required in order to provide cross-border services (fixed)	0.0167
TC.1	Commercial presence is required in order to provide cross-border services (mobile)	0.0167
TC.1	Local presence is required for cross-border supply (fixed)	0.0167
TC.1	Local presence is required for cross-border supply (mobile)	0.0167
TC.1	Cross-border transfer of personal data is possible when certain private sector safeguards are in place	0.0167
TC.1	Cross-border data flows: cross-border transfer of personal data is possible to economies with substantially similar privacy protection laws	0.0167
TC.1	Cross-border data flows: cross-border transfer is subject to approval on a case-by-case basis	0.0167
TC.1	Cross-border data flows: certain data must be stored locally	0.0167
TC.1	Cross-border data flows: transfer of data is prohibited	0.0167
TC.2	Limitation on duration of stay for intra-corporate transferees (months)	0.025
TC.2	Limitation on duration of stay for contractual services suppliers (months)	0.025
TC.2	Limitation on duration of stay for independent services suppliers (months)	0.025
TC.2	Laws or regulations establish a process for recognising qualifications gained abroad	0.025
TC.3	Foreign suppliers are treated less favourably regarding taxes and eligibility to subsidies	0.02
TC.3	Foreign operators seeking interconnection benefit from regulated termination rates on a non-discriminatory basis (fixed)	0.02
TC.3	Foreign operators seeking interconnection benefit from regulated termination rates on a non-discriminatory basis (mobile)	0.02
TC.3	Foreign suppliers have non-discriminatory access to regulated rates and conditions for wholesale international mobile roaming services (mobile)	0.02
TC.3	Foreign suppliers have non-discriminatory access to regulated rates and conditions for retail international mobile roaming services (mobile)	0.02
TC.4	National, state or provincial government control at least one major firm in the sector	0.015
TC.4	National state or provincial government have special voting rights (e.g. golden shares) in any firms in the sector	0.015
TC.4	Contracts for universal services obligations are assigned on a competitive basis (fixed)	0.015
TC.4	Contracts for universal services obligations are assigned on a competitive basis (mobile)	0.015
TC.4	Number portability is required (fixed)	0.015
TC.4	Time and conditions for porting are regulated (fixed)	0.015
TC.4	Number portability is required (mobile)	0.015
TC.4	Time and conditions for porting are regulated (mobile)	0.015
TC.4	Interconnection is mandated (fixed)	0.015
TC.4	Interconnection is mandated (mobile)	0.015
TC.5	Range of visa processing time (days)	0.0167
TC.5	Cost to obtain a business visa (USD)	0.0167
TC.5	Number of documents needed to obtain a business visa	0.0167
TC.5	Number of working days to complete all mandatory procedures to register a company	0.0167
TC.5	Total cost to complete all official procedures required to register a company (in % of income per capita)	0.0167
TC.5	Number of mandatory procedures to register a company	0.0167

Bibliography

Abrahamian, Yervand (2008). Modern Iran history. Translated by Ebrahim Fattahi (2010), Nashr - e - Nei Publications, Tehran.

Acemoglu, D. and Verdier, T., 2000. The choice between market failures and corruption. *American Economic Review*, 90(1), pp.194-211.

Acemoglu, D., Johnson, S. and Robinson, J.A., 2001. The colonial origins of comparative development: An empirical investigation. *American economic review*, 91(5), pp.1369-1401.

Acemoglu, D., Naidu, S., Restrepo, P. and Robinson, J.A., 2014. Does democracy cause growth. *NBER Working Paper*, 20004, pp.385-472.

Acha, V., Davies, A., Hobday, M. and Salter, A., 2004. Exploring the capital goods economy: complex product systems in the UK. *Industrial and Corporate Change*, 13(3), pp.505-529.

Ades, A. and Di Tella, R., 1999. Rents, competition, and corruption. *American economic review*, 89(4), pp. 982-993.

Agbozo, E., Masih, A., Turygina, V.F. and Ranuk, S.V., 2016. THE EFFECTS OF TECHNOLOGY ON EMPLOYMENT (WHAT THE FUTURE HOLDS). In *Актуальные направления фундаментальных и прикладных исследований* (pp. 32-34).

Ahmed, M.U. and Pulok, M.H., 2013. The role of political stability on economic performance: the case of Bangladesh. *Journal of Economic Cooperation & Development*, 34(3), pp.61-100.

Aidt, T., Dutta, J. and Sena, V., 2008. Governance regimes, corruption and growth: Theory and evidence. *Journal of comparative economics*, 36(2), pp.195-220.

Aisen, A. and Veiga, F.J., 2013. How does political instability affect economic growth?. *European Journal of Political Economy*, 29, pp.151-167.

Aitken, B.J. and Harrison, A.E., 1999. Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *American economic review*, 89(3), pp.605-618.

Aizenman, J. and Noy, I., 2006. FDI and trade—Two-way linkages?. *The quarterly review of economics and finance*, 46(3), pp.317-337.

Aizenman, J. and Sushko, V., 2011. Capital Flow Types. *External Financing Needs, and Industrial Growth*, 99, pp.1991-2007.

Aksoy, A. and Salinas, G., 2006. Growth Before and after Trade Liberalization. *World Bank Policy Research Working Paper*, (4062). World Bank Publication. Washington DC.

Alam, M., Raza, S.A., Shahbaz, M. and Abbas, Q., 2016. Accounting for contribution of trade openness and foreign direct investment in life expectancy: The long-run and short-run analysis in Pakistan. *Social Indicators Research*, 129(3), pp.1155-1170.

Alcalá, F. and Ciccone, A., 2004. Trade and productivity. *The Quarterly journal of economics*, 119(2), pp.613-646.

Alege, P.O. and Ogundipe, A., 2015. 'The role of services trade in economic development', *British Journal of Economics, Management and Trade*, vol. 5, no. 3.

- Alexeev, M. and Conrad, R., 2009. The elusive curse of oil. *The review of Economics and Statistics*, 91(3), pp.586-598.
- Alfaro, L., 2003. Foreign direct investment and growth: Does the sector matter. *Harvard Business School*, 2003, pp.1-31.
- Ali, S., Yusop, Z., Kaliappan, S.R., Chin, L. and Nazar, R., 2021. Asymmetric openness-growth nexus in 20 highly open OIC countries: Evidence from quantile-on-quantile regression approach. *The Journal of International Trade & Economic Development*, 30(6), pp.882-905.
- Allen, D.E., Gerrans, P., Powell, R. and Singh, A.K., 2009. Quantile regression: its application in investment analysis. *Jassa*, (4), pp.7-12.
- Almeida, R.K. and Fernandes, A.M., 2007. *Openness and technological innovations in developing countries: evidence from firm-level surveys* (No. 2907). IZA Discussion Papers.
- Angrist, J.D. and Krueger, A.B., 2001. Instrumental variables and the search for identification: From supply and demand to natural experiments. *Journal of Economic perspectives*, 15(4), pp.69-85.
- Alvi, E., Mukherjee, D. and Shukralla, E.K., 2008. Aid, policies, and growth in developing countries: a new look at the empirics. *Southern Economic Journal*, 74(3), pp.693-706.
- Amoranto, G., Brooks, D. and Chun, N., 2010. Services liberalization and wage inequality in the Philippines. *Asian Development Bank Economics Working Paper Series*, (239).
- Anand, R., Mishra, S., Spatafora, N. and Berg, A., 2012. Structural Transformation and the sophistication of Production. *IMF Working Papers*, 2012(059).
- Anwar, S. and Nguyen, L.P., 2010. Foreign direct investment and economic growth in Vietnam. *Asia Pacific business review*, 16(1-2), pp.183-202.
- Antimiani, A. and Cernat, L., 2017. *Liberalizing global trade in Mode 5 services: How much is it worth?* (No. 2017-4). Directorate General for Trade, European Commission.
- Anyanwu, U.M., Anyanwu, A.A. and Cieřlik, A., 2021. Does abundant natural resources amplify the negative impact of income inequality on economic growth?. *Resources Policy*, 74, p.102229.
- Amiti, M. and Konings, J., 2007. Trade liberalization, intermediate inputs, and productivity: Evidence from Indonesia. *American Economic Review*, 97(5), pp.1611-1638.
- Argandoña, A., 2016. Gross Domestic Product (GDP) and Gross National Product (GNP). *Encyclopedia of Business Ethics and Society*, Forthcoming, IESE Business School Working Paper, (1153-E).
- Arnold, J.M., Mattoo, A. and Narciso, G., 2008. Services inputs and firm productivity in Sub-Saharan Africa: Evidence from firm-level data. *Journal of African Economies*, 17(4), pp.578-599.
- Arnold, J.M., Javorcik, B.S. and Mattoo, A., 2011. Does services liberalization benefit manufacturing firms?: Evidence from the Czech Republic. *Journal of International Economics*, 85(1), pp.136-146.

- Arnold, J.M., Javorcik, B., Lipscomb, M. and Mattoo, A., 2016. Services reform and manufacturing performance: Evidence from India. *The Economic Journal*, 126(590), pp.1-39.
- Aron, R. and Singh, J.V., 2005. Getting offshoring right. *Harvard business review*, 83(12), pp.135-43.
- Arslanalp, S., Bornhorst, F., Gupta, S. and Sze, E., 2010. *Public capital and growth* (No. 10/175). Washington, DC: International Monetary Fund.
- ASEAN website: <<https://asean.org/asean/about-asean/overview/#>>- viewed 31 December 2019.
- Asiamah, M., Ofori, D. and Afful, J., 2019. Analysis of the determinants of foreign direct investment in Ghana. *Economic Studies*, 26(1), pp.56-75.
- Askenazy, P., 2005. Trade, services, and wage inequality. *Oxford Economic Papers*, 57(4), pp.674-692.
- Auty, R.M. and Mikesell, R.F., 1999. *Sustainable Development in Mineral Economies*. Oxford University Press.
- Auty, R.M., 2001. The political economy of resource driven growth. *European Economic Review*, 45(4), pp.839-846.
- Baker, D., De Long, J.B. and Krugman, P.R., 2005. Asset returns and economic growth. *Brookings Papers on Economic Activity*, 2005(1), pp.289-330.
- Balassa, B., 1977. Effects of commercial policy on international trade, the location of production, and factor movements. In *The international allocation of economic activity* (pp. 230-258). Palgrave Macmillan, London.
- Balassa, B., 1978. Exports and economic growth: further evidence. *Journal of development Economics*, 5(2), pp.181-189.
- Baldwin, R., 2012. *Global supply chains: Why they emerged, why they matter, and where they are going*. Fung Global Institute. Working paper FGI-2012-1.
- Baldwin, R. and Lopez-Gonzalez, J., 2015. Supply-chain trade: A portrait of global patterns and several testable hypotheses. *The world economy*, 38(11), pp.1682-1721.
- Banerjee, R., 2012. Population growth and endogenous technological change: Australian economic growth in the long run. *Economic Record*, 88(281), pp.214-228.
- Bank, W., 2018. World development report 2019: The changing nature of work. *Washington, DC*.
- Barbier, E.B., 2005. *Natural resources and economic development*. Cambridge University Press.
- Barreto, R.A., 2000. Endogenous corruption in a neoclassical growth model. *European economic review*, 44(1), pp.35-60.

Barreto, R.A. and Hughes, A.W., 2004. Under performers and over achievers: a quantile regression analysis of growth. *Economic Record*, 80(248), pp.17-35.

Barro, R.J., 1991. Economic growth in a cross section of countries. *The quarterly journal of economics*, 106(2), pp.407-443.

Barro, R.J., 1996. Democracy and growth. *Journal of economic growth*, 1(1), pp.1-27.

Barro, R.J., 1999. Inequality, growth, and investment (No. w7038). *NBER Working Paper Series. Massachusetts*.

Barro, R.J., 2003. Determinants of economic growth in a panel of countries. *Annals of economics and finance*, 4, pp.231-274.

Barro, R.J., 2004. Sala-i martin x (2004) economic growth. *Aufl. Massachusetts Institute of Technology (MIT)*, United States. ISBN: 0-262-02553-1.

Basu, P. and Guariglia, A., 2007. Foreign direct investment, inequality, and growth. *Journal of Macroeconomics*, 29(4), pp.824-839.

Beall, J. and Fox, S., 2009. *Cities and development*. Routledge. United Kingdom.

Beaven, M.H. and Scotti, D.J., 1990. Service-oriented Thinking and its Implications for the Marketing Mix. *Journal of services marketing*, 4(4), pp.5-19.

Beck, T., Levine, R. and Loayza, N., 1999. *Finance and the Sources of Growth* (Vol. 316). World Bank Publications. Washington DC.

Beck, T., Demirgüç-Kunt, A. and Levine, R., 2003. Law and finance: why does legal origin matter?. *Journal of comparative economics*, 31(4), pp.653-675.

Bekhet, H.A. and Othman, N.S., 2011. Assessing the Elasticities of Electricity Consumption for rural and urban areas in Malaysia: A Non-linear approach. *International Journal of Economics and Finance*, 3(1), pp.208-217.

Ben-David, D., 1993. Equalizing exchange: Trade liberalization and income convergence. *The Quarterly Journal of Economics*, 108(3), pp.653-679.

Ben-David, D., 1996. Trade and convergence among countries. *Journal of international Economics*, 40(3-4), pp.279-298.

Benhabib, J. and Spiegel, M.M., 1994. The role of human capital in economic development evidence from aggregate cross-country data. *Journal of Monetary economics*, 34(2), pp.143-173.

- Beraldo, S., Montolio, D. and Turati, G., 2009. Healthy, educated and wealthy: A primer on the impact of public and private welfare expenditures on economic growth. *The Journal of Socio-Economics*, 38(6), pp.946-956.
- Berg, A., Ostry, J.D., Tsangarides, C.G. and Yakhshilikov, Y., 2018. Redistribution, inequality, and growth: new evidence. *Journal of Economic Growth*, 23(3), pp.259-305.
- Berry, L.L., 1980. Services marketing is different. *Business*, 30(3), pp.24-29.
- Bessen, J., 2017. Automation and jobs: When technology boosts employment, Boston Univ. *Law and Economics Research Paper*, (17-09).
- Bhagwati, J.N., 1984. Splintering and disembodiment of services and developing nations. *World Economy*, 7(2), pp.133-144.
- Bilici, Ö., 2014, *How Trade in Services Varies Conditional on Different Determinants: Evidence from UK Firm-level Data using Quantile Regressions*. University of Sussex. United Kingdom.
- Birdsall, N., Kelley, A.C. and Sinding, S. eds., 2001. *Population matters: demographic change, economic growth, and poverty in the developing world*. OUP Oxford. United Kingdom
- Blackburn, K., Bose, N. and Haque, M.E., 2006. The incidence and persistence of corruption in economic development. *Journal of Economic Dynamics and control*, 30(12), pp.2447-2467.
- Blomstrom, M., Globerman, S. and Kokko, A., 2000. *The determinants of host country spillovers from foreign direct investment*. Centre for Economic Policy Research (No. 2350). Discussion Paper series.
- Bloom, D.E., Canning, D., Fink, G. and Finlay, J.E., 2009. Fertility, female labor force participation, and the demographic dividend. *Journal of Economic growth*, 14(2), pp.79-101.
- Blundell, R., Griffith, R. and Reenen, J.V., 1995. Dynamic count data models of technological innovation. *The economic journal*, 105(429), pp.333-344.
- Boldeanu, F.T. and Constantinescu, L., 2015. The main determinants affecting economic growth. *Bulletin of the Transilvania University of Brasov. Economic Sciences. Series V*, 8(2), p.329.
- Borensztein, E., De Gregorio, J. and Lee, J.W., 1998. How does foreign direct investment affect economic growth?. *Journal of international Economics*, 45(1), pp.115-135.
- Bornschiefer, V., Chase-Dunn, C. and Rubinson, R., 1978. Cross-national evidence of the effects of foreign investment and aid on economic growth and inequality: A survey of findings and a reanalysis. *American journal of Sociology*, 84(3), pp.651-683.
- Bornschiefer, V. and Chase-Dunn, C. (1985) *Transnational Corporations and Underdevelopment*. New York: Praeger.

- Bougheas, S., Demetriades, P.O. and Mamuneas, T.P., 2000. Infrastructure, specialization, and economic growth. *Canadian Journal of Economics/Revue canadienne d'économique*, 33(2), pp.506-522.
- Bowen, D.E. and Schneider, B., 1988. Services marketing and management-implications for organizational-behavior. *Research in organizational behavior*, 10, pp.43-80.
- Boyd, J.H. and Smith, B.D., 1992. Intermediation and the equilibrium allocation of investment capital: Implications for economic development. *Journal of Monetary Economics*, 30(3), pp.409-432.
- Boylaud, O. and Nicoletti, G., 2000. *Regulation, Market Structure and Performance in Telecommunications* (No. 237). OECD Publishing.
- Box, S. and West, J.K., 2016. Economic and social benefits of internet openness. OECD Background Paper. doi:10.1787/5j1wqf2r97g5-en.
- Bravo-Ortega, C. and De Gregorio, J., 2002. *The Relative Richness of the Poor? Natural Resources, Human Capital and Economic Growth* (No. 139). Central Bank of Chile.
- Brazys, S., 2010. Race to give? The selective effectiveness of United States trade capacity building assistance. *Review of International Political Economy*, 17(3), pp.537-561.
- Brecher, R.A. and Alejandro, C.F.D., 1977. Tariffs, foreign capital and immiserizing growth. *Journal of international Economics*, 7(4), pp.317-322.
- Brecher, R.A., 1983. Second-best policy for international trade and investment. *Journal of International Economics*, 14(3-4), pp.313-320.
- Browning, H.L. and Singelmann, J., 1978. The transformation of the US labor force: the interaction of industry and occupation. *Politics & society*, 8(3-4), pp.481-509.
- Brückner, M. and Lederman, D., 2012. *Trade causes growth in Sub-Saharan Africa* (No. 6007). The World Bank. Washington DC.
- Burnside, C. and Dollar, D., 2000. Aid, policies, and growth. *American economic review*, 90(4), pp.847-868.
- Butkiewicz, J.L. and Yanikkaya, H., 2011. Institutions and the impact of government spending on growth. *Journal of applied economics*, 14(2), pp.319-341.
- Caner, M. and Hansen, B.E., 2004. Instrumental variable estimation of a threshold model. *Econometric Theory*, 20(5), pp.813-843.
- Casey, G. and Klemp, M., 2016. *Instrumental Variables in the Long Run*. University Library of Munich, Germany.
- Carkovic, M.V. and Levine, R., 2002. Does Foreign Direct Investment Accelerate Economic Growth?. *University of Minnesota Department of Finance Working Paper*.

- Carmignani, F. and Chowdhury, A., 2012. The geographical dimension of the development effects of natural resources. *Environmental and Resource Economics*, 52(4), pp.479-498.
- Carter, J., Craigwell, R. and Lowe, S., 2013. Government expenditure and economic growth in a small open economy: A disaggregated approach. *Central Bank of Barbados*, pp.1-28.
- Cashin, P., 1995. Summary of WP/94/92:“Government spending, Taxes, and Economic Growth”. *IMF Working Papers*, 1995(015).
- Cavallo, M. and Landry, A., 2018. *Capital-goods imports and us growth* (No. 2018-1). Bank of Canada Staff Working Paper.
- Chanda, R., 2006. *Inter-modal Linkages in Services Trade* (No. 30). OECD Publishing. Paris.
- Hsu, C.C., Wu, J.Y. and Lin, H.Y., 2011. Foreign Direct Investment and Economic Growth: Evidence from Quantile Regression. Unpublished.
- Chang, R., Kaltani, L. and Loayza, N.V., 2009. Openness can be good for growth: The role of policy complementarities. *Journal of development economics*, 90(1), pp.33-49.
- Chang, H.C., Huang, B.N. and Yang, C.W., 2011. Military expenditure and economic growth across different groups: A dynamic panel Granger-causality approach. *Economic Modelling*, 28(6), pp.2416-2423.
- Chang, C.C. and Mendy, M., 2012. Economic growth and openness in Africa: What is the empirical relationship?. *Applied Economics Letters*, 19(18), pp.1903-1907.
- Chen, B. and Feng, Y., 2000. Determinants of economic growth in China: Private enterprise, education, and openness. *China Economic Review*, 11(1), pp.1-15.
- Cherif, R., Hasanov, F., Wang, L. and Chami, R., 2018. Sharp Instrument: A Stab at Identifying the Causes of Economic Growth. *IMF Working Papers*, 2018(117).
- Choi, C. and Yi, M.H., 2009. The effect of the internet on economic growth: Evidence from cross-country panel data. *Economics Letters*, 105(1), pp.39-41.
- Claessens, S., Demirgüç-Kunt, A. and Huizinga, H., 2001. How does foreign entry affect domestic banking markets?. *Journal of banking & finance*, 25(5), pp.891-911.
- Clemens, M.A., Radelet, S., Bhavnani, R.R. and Bazzi, S., 2012. Counting chickens when they hatch: Timing and the effects of aid on growth. *The Economic Journal*, 122(561), pp.590-617.
- Coe, D.T., Helpman, E. and Hoffmaister, A.W., 1997. North-south R & D spillovers. *The economic journal*, 107(440), pp.134-149.
- Collier, P. and Dehn, J., 2001. *Aid, shocks, and growth* (Vol. 2688). World Bank Publications.
- Collier, P. and Hoeffler, A., 1998. On economic causes of civil war. *Oxford economic papers*, 50(4), pp.563-573.
- Collier, P. and Hoeffler, A., 2005. Resource rents, governance, and conflict. *Journal of conflict resolution*, 49(4), pp.625-633.

- Collier, P. and Dollar, D., 2002. Aid allocation and poverty reduction. *European economic review*, 46(8), pp.1475-1500.
- Council for Foreign Relations: <https://www.cfr.org/article/gdp-and-economic-policy> - viewed 10 January 2020.
- Crook, N., 1997. Principles of population and development: with illustrations from Asia and Africa. *Population and Development Review*, 23(4), pp.912-913.
- Czernich, N., Falck, O., Kretschmer, T. and Woessmann, L., 2011. Broadband infrastructure and economic growth. *The Economic Journal*, 121(552), pp.505-532.
- d'Agostino, G., Dunne, J.P. and Pieroni, L., 2016. Government spending, corruption and economic growth. *World Development*, 84, pp.190-205.
- Dalgaard, C.J. and Hansen, H., 2001. On aid, growth and good policies. *Journal of development Studies*, 37(6), pp.17-41.
- Dalgaard, C.J. and Olsson, O., 2008. Windfall gains, political economy and economic development. *Journal of African Economies*, 17(suppl_1), pp.72-109.
- Dao, M.Q., 2012. Population and economic growth in developing countries. *International Journal of Academic Research in Business and Social Sciences*, 2(1), p.6.
- Dava, E., 2012, September. Trade liberalization and economic growth in the SADC: A difference in difference analysis. In *IESE conference paper* (No. 8).
- Das, G.G., 2007. Does Trade and Technology Transmission Facilitate Inequality Convergence? An Inquiry into the Role of Technology in Reducing the Poverty of Nations. *IMF Working Papers*, 2007(016).
- De, P. and Raychaudhuri, A., 2008. Is India's services trade pro-poor? A simultaneous approach. *Emerging Trade Issues for Policymakers in Developing Countries in Asia and the Pacific*, *Studies in Trade and Investment*, (64).
- Dee, P., 2007. *A compendium of barriers to services trade*. Unpublished.
- Dee 2010 in Findlay, C.C. and Tierney, W.G. eds., 2010. *Globalisation and tertiary education in the Asia-Pacific: The changing nature of a dynamic market*. World Scientific.
- De Loo, I. and Soete, L., 1999. *The Impact of Technology on Economic Growth: Some New Ideas and Empirical Considerations* (No. 017). Maastricht University, Maastricht Economic Research Institute on Innovation and Technology (MERIT).
- Deloitte, F., 2014. Value of connectivity: Economic and social benefits of expanding internet access. *Deloitte UK Economic Consulting*, pp.1-56.
- Denisia, V., 2010. Foreign direct investment theories: An overview of the main FDI theories. *European journal of interdisciplinary studies*, (3).
- Devarajan, S., Swaroop, V. and Zou, H.F., 1993. The composition of public expenditure and economic growth. *Journal of Monetary Economics*, 37(3), pp. 313-344.

- Díaz-Mora, C., Gandoy, R. and González-Díaz, B., 2018. Looking into global value chains: influence of foreign services on export performance. *Review of World Economics*, 154(4), pp.785-814.
- Didier Brandao, T. and Pinat, M., 2017. *The nature of trade and growth linkages* (No. 8168). The World Bank. Washington DC.
- Ding, N. and Field, B.C., 2005. Natural resource abundance and economic growths. *Land Economics*, 81(4), pp.496-502.
- Dollar, D., 1992. Outward-oriented developing economies really do grow more rapidly: evidence from 95 LDCs, 1976-1985. *Economic development and cultural change*, 40(3), pp.523-544.
- Dollar, D. and Kraay, A., 2003. Institutions, trade, and growth. *Journal of monetary economics*, 50(1), pp.133-162.
- Donghui, Z., Yasin, G., Zaman, S. and Imran, M., 2018. Trade openness and FDI inflows: A comparative study of Asian countries. *European Online Journal of Natural and Social Sciences*, 7(2), pp.386.
- Drake-Brockman, J. and Stephenson, S., 2012. Implications for 21st century trade and development of the emergence of services value chains. *Prepared for IADB and ICTSD E-15 experts dialogue on GVCs. Geneva.*
- Dufrenot, G., Mignon, V. and Tsangarides, C., 2010. The trade-growth nexus in the developing economies: A quantile regression approach. *Review of World Economics*, 146(4), pp.731-761.
- Duggan, V., Rahardja, S. and Varela, G., 2013. Service sector reform and manufacturing productivity: evidence from Indonesia. *World Bank Policy Research Working Paper*, (6349).
- Easterly, W., Levine, R. and Roodman, D., 2004. Aid, policies, and growth: comment. *American economic review*, 94(3), pp.774-780.
- Eaton, J. and Kortum, S., 2002. Technology, Geography, and Trade. *Econometrica*, 70(5), pp.1741-1779.
- Economic help: <<https://www.economicshelp.org/blog/3491/economics/difference-between-gnp-gdp-and-gni/>>- viewed 10 January 2020.
- Edgett, S. and Parkinson, S., 1993. Marketing for service industries-A review. *Service Industries Journal*, 13(3), pp.19-39.
- Edosomwan, S., Prakasan, S.K., Kouame, D., Watson, J. and Seymour, T., 2011. The history of social media and its impact on business. *Journal of Applied Management and entrepreneurship*, 16(3), p.79.
- Edwards, S., 1992. Trade orientation, distortions and growth in developing countries. *Journal of development economics*, 39(1), pp.31-57.

- Elia, S., Massini, S. and Narula, R., 2019. Disintegration, modularity and entry mode choice: Mirroring technical and organizational architectures in business functions offshoring. *Journal of Business Research*, 103, pp.417-431.
- Resource-Abundance and Economic Growth in the U.S., Nota di Lavoro, No. 62.2004, Fondazione Eni Enrico Mattei (FEEM), Milano.
- El Khoury, A.C. and Savvides, A., 2006. Openness in services trade and economic growth. *Economics Letters*, 92(2), pp.277-283.
- Eriş, M.N. and Ulaşan, B., 2013. Trade openness and economic growth: Bayesian model averaging estimate of cross-country growth regressions. *Economic Modelling*, 33, pp.867-883.
- Eschenbach, F. and Francois, J., 2002. *Financial Sector Competition, Services Trade, and Growth* (No. 3573). CEPR Discussion Papers.
- Eschenbach, F. and Hoekman, B., 2006. Services policy reform and economic growth in transition economies. *Review of World Economics*, 142(4), pp.746-764.
- Esfahani, H.S., 1991. Exports, imports, and economic growth in semi-industrialized countries. *Journal of development economics*, 35(1), pp.93-116.
- European Union, 2018. *How to include 'Mode 5' services commitments in bilateral free trade agreements and at multilateral stage?*. < [https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603873/EXPOSTU\(2018\)603873_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2018/603873/EXPOSTU(2018)603873_EN.pdf)>, viewed 30 October 2022.
- Faber, B. and Gaubert, C., 2019. Tourism and economic development: Evidence from Mexico's coastline. *American Economic Review*, 109(6), pp.2245-93.
- Fagerberg, J., 1987. A technology gap approach to why growth rates differ. *Research policy*, 16(2-4), pp.87-99.
- Falvey, R., Foster, N. and Greenway, D., 2001. North-South Trade, Openness and Growth. *University of Nottingham*, 1. United Kingdom.
- Falvey, R., Foster, N. and Greenaway, D., 2012. Trade liberalization, economic crises, and growth. *World Development*, 40(11), pp.2177-2193.
- Fedderke, J.W., Perkins, P. and Luiz, J.M., 2006. Infrastructural investment in long-run economic growth: South Africa 1875–2001. *World development*, 34(6), pp.1037-1059.
- Ferrara, M. and Guerrini, L., 2008. A closed form Ramsey path. *Rivista Internazionale di Scienze Sociali*, 116(3), pp.333-340.
- Ferracane, M.F. and van der Marel, E., 2018. *Do Data Flows Restrictions Inhibit Trade in Services?* (No. 2). ECIPE DTE Working Paper Series.
- Fessehaie, J., 2017. Leveraging the services sector for inclusive value chains in developing countries. *International Centre for Trade and Sustainable Development (ICTSD)*, Geneva.
- Fetahi-Vehapi, M., Sadiku, L. and Petkovski, M., 2015. Empirical analysis of the effects of trade openness on economic growth: An evidence for South East European countries. *Procedia Economics and Finance*, 19, pp.17-26.

- Findlay, R., 1995. *Factor Proportions, Trade, and Growth* (Vol. 1). The MIT Press.
- Fink, C., Mattoo, A. and Neagu, I.C., 2002. Trade in international maritime services: how much does policy matter?. *The World Bank Economic Review*, 16(1), pp.81-108.
- Fischer, S., 1992. Macroeconomic stability and growth. *Cuadernos de Economía*, 29(87), pp.171-186.
- Ford, M., 2015. *Rise of the Robots: Technology and the Threat of a Jobless Future*. Basic Books.
- Fosu, A.K., 1990. Exports and economic growth: the African case. *World Development*, 18(6), pp.831-835.
- Fosu, A.K., 1996. Primary exports and economic growth in developing countries. *World Economy*, 19(4), pp.465-475.
- Francois, J.F., 1990a, 'Producer services, scale, and the division of labor', *Oxford Economic Papers*, vol. 42, no. 4, pp. 715-729.
- Francois, J.F., 1990b. Trade in producer services and returns due to specialization under monopolistic competition. *Canadian Journal of Economics*, pp.109-124.
- Francois, J.F. and Nelson, D., 2002. A geometry of specialisation. *The Economic Journal*, 112(481), pp.649-678.
- Francois, J. and Hoekman, B., 2010. Services trade and policy. *Journal of economic literature*, 48(3), pp.642-92.
- Frankel, J.A. and Romer, D., 2017. Does trade cause growth?. In *Global Trade* (pp. 255-276). Routledge.
- Freund, C. and Bolaky, B., 2008. Trade, regulations, and income. *Journal of development economics*, 87(2), pp.309-321.
- Frieden, J.A. and Rogowski, R., 1996. The Impact of the International Political Economy on National Policies: An Overview. *Internationalization and Domestic Politics*.
- Fuchs, V.R., 1968. *The Service Economy* Columbia University Press, New York.
- Fry, M.J., 1993. *Foreign direct investment in a macroeconomic framework: finance, efficiency, incentives and distortions* (Vol. 1141). World Bank Publications.
- Gadrey, J., 2000. The characterization of goods and services: an alternative approach. *Review of income and wealth*, 46(3), pp.369-387.
- Gakpa, L.L., 2019. Instabilité politique, IDE et effets sur la croissance économique dans les pays d'Afrique subsaharienne: un modèle à équations simultanées dynamiques. *Region et Développement*, 50, pp.89-117.
- Gani, A., 2017. The logistics performance effect in international trade. *The Asian Journal of Shipping and Logistics*, 33(4), pp.279-288.
- Gelb, A.H., 1988. *Oil windfalls: Blessing or curse?*. Oxford University Press.

Germidis, D.A., 1977. *Transfer of technology by multinational corporations= Le transfert technologique par les firmes multinationales*. Development centre of the organisation for economic co-operation and development.

Ghani, E. and Kharas, H., 2010. The Service Revolution. *World Bank-Economic Premise*, (14), pp.1-5.

Ghura, D. and Hadjimichael, M.T., 1996. Growth in Sub-Saharan Africa. *IMF Staff Papers*, 43(3), pp.605-634.

Gibbs, J.M., 1986. Services, Development, and TNCs. *CTC Reporter*, 21, pp.51-53.

Giovanini, A., Pereira, W.M. and Saath, K.C.D.O., 2020. Intermediate services' impact on capital goods production. *Nova Economia*, 30, pp.203-230.

Goldfarb, A. and Tucker, C., 2019. Digital economics. *Journal of Economic Literature*, 57(1), pp.3-43.

Goldin, C., 2014. A pollution theory of discrimination: male and female differences in occupations and earnings. In *Human capital in history: The American record* (pp. 313-348). University of Chicago Press.

Goswami, A.G., Mattoo, A. and Sáez, S. eds., 2012. *Service Exports: Are the Drivers Different for Developing Countries?* in A. Goswami, A. Mattoo, and S. Saez (eds), *Exporting Services: A Developing Country Perspective*. Washington, D.C., The World Bank, pp. 25-80.

Granato, M.F., 2008. *Regional Export Performance: First Nature, Agglomeration... And Destiny? The Role of Infrastructure*. Universidad Nacional de Río Cuarto, Río Cuarto, Córdoba (2008).

Greenaway, D., 1998. Does trade liberalisation promote economic development?. *Scottish Journal of Political Economy*, 45(5), pp.491-511.

Greenaway, D., Morgan, W. and Wright, P., 2002. Trade liberalisation and growth in developing countries. *Journal of development economics*, 67(1), pp.229-244.

Gries, T. and Redlin, M., 2012. *Trade Openness and Economic Growth: A Panel Causality Analysis* (No. 52). Paderborn University, CIE Center for International Economics.

Grossman, G.M. and Helpman, E., 1991. *Innovation and growth in the global economy*. MIT press.

Gulati, S., 2008. Technology-Enhanced Learning in Developing Nations: A review. *International Review of Research in Open and Distributed Learning*, 9(1), pp.1-16.

Güner, Ü. and Yılmaz, M., 2007. The Effect of FDI on Economic Growth: A Panel Data Evidence For Developing Countries (1993 – 2004). *Akademik Arastirmalar Dergisi*. Sayı 34. pp: 1 – 13.

Gummesson, E., 1987. Lip Service - A Neglected Area in Services Marketing, *Journal of Services Marketing*, Vol. 1 No. 1, pp. 19-23. <https://doi.org/10.1108/eb059585>.

- Gummesson, E. (2000), "Evert Gummesson", in Fisk, R.P., Grove, S.J. and John, J. (Eds), *Service Marketing Self-Portraits: Introspections, Reflections, and Glimpses from the Experts*, American Marketing Association, Chicago, IL.
- Gupta, S., Davoodi, H. and Alonso-Terme, R., 2002. Does corruption affect income inequality and poverty?. *Economics of governance*, 3, pp.23-45.
- Gutiérrez-Romero, R., 2021. Inequality, persistence of the informal economy, and club convergence. *World Development*, 139, p.105211.
- Gylfason, T., 2001. Natural resources, education, and economic development. *European economic review*, 45(4-6), pp.847-859.
- Gylfason, T. and Zoega, G., 2006. Natural resources and economic growth: The role of investment. *World Economy*, 29(8), pp.1091-1115.
- Gylfason, T., 2007. Privatization, efficiency, and economic growth. In *The Socio-Economic Transformation* (pp. 31-50). Palgrave Macmillan, London.
- Habiyaremye, A., 2013. Imported Capital Goods and Manufacturing Productivity: Evidence from Botswana's Manufacturing Sector. *South African Journal of Economics*, 81(4), pp.581-604.
- Haddad, M. and Harrison, A., 1993. Are there positive spillovers from direct foreign investment?: Evidence from panel data for Morocco. *Journal of development economics*, 42(1), pp.51-74.
- Haller, A.P., 2012. Concepts of Economic Growth and Development Challenges of Crisis and of Knowledge. *Economy Transdisciplinarity Cognition*, 15(1), p.66.
- Hallward-Driemeier, M. and Nayyar, G., 2017. *Trouble in the making?: The future of manufacturing-led development*. World Bank Publications.
- Hansen, H. and Tarp, F., 2000. Aid effectiveness disputed. *Journal of International development*, 12(3), pp.375-398.
- Hanson, P., 1982. The end of import-led growth? Some observations on Soviet, Polish, and Hungarian experience in the 1970s. *Journal of Comparative Economics*, 6(2), pp.130-147.
- Hansen, H. and Rand, J., 2006. On the causal links between FDI and growth in developing countries. *World Economy*, 29(1), pp.21-41.
- Haq, M. and Luqman, M., 2014. The contribution of international trade to economic growth through human capital accumulation: Evidence from nine Asian countries. *Cogent Economics & Finance*, 2(1), pp.1-13.
- Hardy, A.P., 1980. The role of the telephone in economic development. *Telecommunications policy*, 4(4), pp.278-286.
- Hayat, A. and Tahir, M., 2019. *Natural resources volatility and economic growth: evidence from the resource-rich region*. University Library of Munich, Germany.

- Headey, D.D. and Hodge, A., 2009. The effect of population growth on economic growth: A meta-regression analysis of the macroeconomic literature. *Population and Development Review*, 35(2), pp.221-248.
- Heckscher, A., Albin, P.S., Kaplan, M. and Jenkins, N., 1967, October. Performing Arts—The Economic Dilemma. A Study of Problems Common to Theater, Opera, Music and Dance. In *College Music Symposium* (Vol. 7, pp. 127-142). College Music Society.
- Heitger, B., 1987. Import protection and export performance—their impact on economic growth. *Weltwirtschaftliches Archiv*, 123(2), pp.249-261.
- Helpman, E. ed., 2008. *Institutions and economic performance*. Harvard university press.
- Hendrix, C. and Noland, M., 2014. *Confronting the curse: The economics and geopolitics of natural resource governance*. Columbia University Press.
- Herzer, D., 2010. Outward FDI and economic growth. *Journal of Economic Studies*, 37(5), pp.476-494.
- Hill, TP 1977, 'On goods and services', *Review of income and wealth*, vol. 23, no. 4, pp. 315-338.
- Hochstein, A., 2017. The harrod-domar model in a keynesian framework. *International Advances in Economic Research*, 23(3), pp.349-350.
- Hodge, A., Shankar, S., Rao, D.P. and Duhs, A., 2011. Exploring the links between corruption and growth. *Review of Development Economics*, 15(3), pp.474-490.
- Hoekman, B. and Mattoo, A., 2008. Services trade and growth (Policy Research Working Paper). *Washington, DC: The World Bank Development Research Group*.
- Hoekman, B.M., 2017. *Trade in services: Opening markets to create opportunities* (No. 2017/31). WIDER Working Paper.
- Hoekman, B. and Shepherd, B., 2017. Services productivity, trade policy and manufacturing exports. *The World Economy*, 40(3), pp.499-516.
- Hoekman, B. and te Velde, D.W., 2017. Trade in services and economic transformation: A new development policy priority. *Essay Series*.
- Hoekman, B. and Shingal, A., 2020. Aid for trade and international transactions in goods and services. *Review of International Economics*, 28(2), pp.320-340.
- Holmgren, J. and Merkel, A., 2017. Much ado about nothing?—A meta-analysis of the relationship between infrastructure and economic growth. *Research in Transportation Economics*, 63, pp.13-26.
- Howieson, C. and Iannelli, C., 2008. The effects of low attainment on young people's outcomes at age 22–23 in Scotland. *British Educational Research Journal*, 34(2), pp.269-290.
- Huang, C.J., 2016. Is corruption bad for economic growth? Evidence from Asia-Pacific countries. *The North American Journal of Economics and Finance*, 35, pp.247-256.

- Hye, Q.M.A., Wizarat, S. and Lau, W.Y., 2013. Trade-led growth hypothesis: An empirical analysis of South Asian countries. *Economic Modelling*, 35, pp.654-660.
- Hyun, H.J., 2006. Foreign Direct Investment and Economic Growth in Developing Countries. *Indiana University. Increasingly Endogenous Relationship. World Development*, 33(3), pp.393-407.
- Iacobucci, D., 1998. Services: what do we know and where shall we go?. *Advances in services marketing and management*, 7, pp.1-96.
- Iamsiraroj, S. and Ulubaşoğlu, M.A., 2015. Foreign direct investment and economic growth: A real relationship or wishful thinking?. *Economic modelling*, 51, pp.200-213.
- International Labour Organization Database - <<https://ilostat.ilo.org/data/>>, viewed 12 December 2021.
- Ivanyna, M., Moumouras, A. and Rangazas, P., 2016. The culture of corruption, tax evasion, and economic growth. *Economic inquiry*, 54(1), pp.520-542.
- Jacobs, J., 1972. *The economy of cities* ([New] ed.).
- Jadoon, T.K., Rashid, H.A. and Azeem, A., 2015. Trade liberalization, human capital and economic growth: Empirical evidence from selected Asian countries. *Pakistan Economic and Social Review*, pp.113-132.
- Jalilian, H., Kirkpatrick, C. and Parker, D., 2006. Centre on Regulation and Competition (2006). *The Impact of Regulation on Economic Growth in Developing Countries: A Cross-Country Analysis. Institute for Development Policy and Management, University of Manchester, UK.*
- Jensen, N. and Wantchekon, L., 2004. Resource wealth and political regimes in Africa. *Comparative political studies*, 37(7), pp.816-841.
- Jensen, J.B., 2008. Trade in high-tech services. *Journal of Industry, Competition and trade*, 8(3), pp.181-197.
- Johnson, A., 2006. *The Effects of FDI Inflows on Host Country Economic Growth* (No. 58). Royal Institute of Technology, CESIS-Centre of Excellence for Science and Innovation Studies.
- Kapunda, S.M. and Topera, J.S., 2013. Public expenditure composition and economic growth in Tanzania: Socio-economic policy implications. *Asian-African Journal of Economics and Econometrics*, 13(1), pp.61-70.
- Kasper, W., 2006. Law without government [Book review of *The Law of the Somalis: A Stable Foundation for Economic Development* by Michael van Notten (2005)]. *Policy: A Journal of Public Policy and Ideas*, 22(3), pp.50-54.
- Katseli, L.T., 1992. *Foreign direct investment and trade interlinkages in the 1990s: experience and prospects of developing countries* (No. 687). CEPR Discussion Papers.
- Keesing, D.B. and Lall, S., 2011. *Marketing Manufactured Exports from Developing Countries: Learning Sequences and Public Support.*

- Keller, W., 1996. Absorptive capacity: On the creation and acquisition of technology in development. *Journal of development economics*, 49(1), pp.199-227.
- Kelley, A.C., 1988. Economic consequences of population change in the Third World. *Journal of Economic Literature*, 26(4), pp.1685-1728.
- Kelley, A.C. and McGreevey, W.P., 1994. Population and development in historical perspective. *Population and development: Old debates, new conclusions*, pp.107-126.
- Kim, D.H. and Lin, S.C., 2009. Trade and growth at different stages of economic development. *Journal of Development Studies*, 45(8), pp.1211-1224.
- Kim, D.H., 2011. Trade, growth and income. *The Journal of International Trade & Economic Development*, 20(5), pp.677-709.
- Kim, D.H., Lin, S.C. and Suen, Y.B., 2013. Investment, trade openness and foreign direct investment: Social capability matters. *International Review of Economics & Finance*, 26, pp.56-69.
- Kimaro, E.L., Keong, C.C. and Sea, L.L., 2017. Government expenditure, efficiency and economic growth: a panel analysis of Sub Saharan African low-income countries. *African Journal of Economic Review*, 5(2), pp.34-54.
- Kharlamova, G., Stavtyskyy, A. and Zarotiadis, G., 2018. The Impact of Technological Changes on Income Inequality: the EU States Case Study. *Journal of International Studies*, 11(2), pp.76-94.
- Khoo, S.E., McDonald, P., Voigt-Graf, C. and Hugo, G., 2007. A global labor market: Factors motivating the sponsorship and temporary migration of skilled workers to Australia. *International Migration Review*, 41(2), pp.480-510.
- Knack, S., 2000. *Aid dependence and the quality of governance: a cross-country empirical analysis* (No. 2396). The World Bank. Washington DC.
- Kneller, R., Bleaney, M.F. and Gemmell, N., 1999. Fiscal policy and growth: evidence from OECD countries. *Journal of public economics*, 74(2), pp.171-190.
- Knight, M., Loayza, N. and Villanueva, D., 1993. Testing the neoclassical theory of economic growth: a panel data approach. *Staff papers*, 40(3), pp.512-541.
- Koenker, R. and Basset, G., 1978. Asymptotic theory of least absolute error regression. *Journal of the American Statistical Association*, 73(363), pp.618-622.
- Kollias, C., Manolas, G. and Paleologou, S.M., 2004. Defence expenditure and economic growth in the European Union: a causality analysis. *Journal of Policy Modeling*, 26(5), pp.553-569.
- Koojaroenprasit, S., 2012. The Impact of Foreign Direct Investment on Economic Growth: A Case Study of South Korea. *International Journal of Business and Social Science*, 3(21).
- Kotler, P., 1994. Reconceptualizing marketing: an interview with Philip Kotler. *European Management Journal*, 12(4), pp.353-361.

- Kourtellos, A., Tan, C.M. and Zhang, X., 2007. Is the relationship between aid and economic growth nonlinear?. *Journal of Macroeconomics*, 29(3), pp.515-540.
- Krueger, A.O., 1978. *Foreign Trade Regimes and Economic Development: Liberalization Attempts and Consequences* (No. krue78-1). National Bureau of Economic Research.
- Krueger, A.O., 1981. Alternative trade strategies and employment in LDCs: an overview. *The Pakistan Development Review*, pp.277-301.
- Krugman, P., 1994. The myth of Asia's miracle. *Foreign affairs*, pp.62-78.
- Kweka, J., Morrissey, O. and Blake, A., 2003. The economic potential of tourism in Tanzania. *Journal of International Development: The Journal of the Development Studies Association*, 15(3), pp.335-351.
- Kumar, R.R., Stauvermann, P.J. and Shahzad, S.J.H., 2017. Can technology provide a glimmer of hope for economic growth in the midst of chaos? A case of Zimbabwe. *Quality & Quantity*, 51(2), pp.919-939.
- Kuznets, S., 1967. Population and economic growth. *Proceedings of the American Philosophical Society*, 111(3), pp.170-193.
- Kwon, D.B., 2009, October. Human capital and its measurement. In *The 3rd OECD World Forum on "Statistics, Knowledge and Policy" Charting Progress, Building Visions, Improving Life* (pp. 27-30).
- Lal, D. and Myint, H., 1998. *The political economy of poverty, equity and growth: A comparative study*. Oxford University Press.
- Landau, D., 1983. Government expenditure and economic growth: a cross-country study. *Southern economic journal*, pp.783-792.
- Lanz, R. and Maurer, A., 2015. Services and global value chains: Servicification of manufacturing and services networks. *Journal of International Commerce, Economics and Policy*, 6(03), p.1550014.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R.W., 1997. Legal determinants of external finance. *The Journal of Finance*, 52(3), pp.1131-1150.
- Laroche, M., Mérette, M. and Ruggeri, G.C., 1999. On the concept and dimensions of human capital in a knowledge-based economy context. *Canadian public policy/Analyse de Politiques*, pp.87-100.
- Lashitew, A.A., Ross, M.L. and Werker, E., 2021. What drives successful economic diversification in resource-rich countries?. *The World Bank Research Observer*, 36(2), pp.164-196.
- Lee, J.W., 1995. Capital goods imports and long-run growth. *Journal of development economics*, 48(1), pp.91-110.
- Leite, C., 1999. Weidmann, & W.(1999). Does mother nature corrupt. *Natural resources, corruption and economic growth. IMF Working Paper*, (99-85).

- Lemi, A., 2017. Aid for trade and Africa's trade performance: Evidence from bilateral trade flows with China and OECD countries. *Journal of African Trade*, 4(1-2), pp.37-60.
- Lennon, C., Mirza, D. and Nicoletti, G., 2009. Complementarity of inputs across countries in services trade. *Annals of Economics and Statistics/Annales d'Économie et de Statistique*, pp.183-205.
- Leontief, W., 1983. Technological advance, economic growth, and the distribution of income. *Population and Development Review*, pp.403-410.
- Lensink, R. and Morrissey, O., 2001. *Foreign direct investment: flows, volatility and growth in developing economies* (No. 01E16). University of Groningen, Research Institute SOM (Systems, Organisations and Management).
- Levine, R., 1997. Financial development and economic growth: views and agenda. *Journal of economic literature*, 35(2), pp.688-726.
- Li, X., Greenaway, D. and Hine, R.C., 2002. *Imports of services and economic growth: a panel analysis*. Mimeo, University of Nottingham. United Kingdom.
- Li, X. and Liu, X., 2005. Foreign direct investment and economic growth: an increasingly endogenous relationship. *World development*, 33(3), pp.393-407.
- Liargovas, P.G. and Skandalis, K.S., 2012. Foreign direct investment and trade openness: The case of developing economies. *Social indicators research*, 106(2), pp.323-331.
- Limao, N. and Venables, A.J., 2001. Infrastructure, geographical disadvantage, transport costs, and trade. *The World Bank Economic Review*, 15(3), pp.451-479.
- Linden, E., 2017. Remember the population bomb? It's still ticking. *New York Times: Sunday Review*, 4.
- Liu, X., Song, H., Wei, Y. and Romilly, P., 1997. Country characteristics and foreign direct investment in China: A panel data analysis. *Review of World Economics*, 133(2), pp.313-329.
- Lloyd, T., McGillivray, M., Morrissey, O. and Osei, R., 2000. Does aid create trade? An investigation for European donors and African recipients. *The European Journal of Development Research*, 12(1), pp.107-123.
- Lodefalk, M., 2013. Servicification of manufacturing—evidence from Sweden. *International Journal of Economics and Business Research*, 6(1), pp.87-113.
- Lovelock, C. and Wright, L., 2001. Evolution of services in an era of change. *Services: marketing and management*. São Paulo: Saraiva, pp.5-27.
- Lovelock, C. and Gummesson, E., 2004. Whither services marketing? In search of a new paradigm and fresh perspectives. *Journal of service research*, 7(1), pp.20-41.
- Low, P. and Pasadilla, G., 2016. *Services in Global Value Chains: Manufacturing-Related Services*. World Scientific Publishing Co. Pte. Ltd.
- Lucas, R.E., 1990. Why doesn't capital flow from rich to poor economies?. *The American economic review*, 80(2), pp.92-96.
- Lussier, M., 1993. Impacts of exports on economic performance: a comparative study. *Journal of African Economies*, 2(1), pp.106-127.

- Madon, S., 2000. The Internet and socio-economic development: exploring the interaction. *Information Technology & People*, 13(2), pp.85-101.
- Makki, S.S. and Somwaru, A., 2004. Impact of foreign direct investment and trade on economic growth: Evidence from developing countries. *American journal of agricultural economics*, 86(3), pp.795-801.
- Malik, G., 2008. Foreign Aid and Economic Growth: A Cointegration Analysis of the Six Poorest African Countries. *Economic Analysis and Policy*, 38(2), pp.251-260.
- Mankiw, N.G., Romer, D. and Weil, D.N., 1992. A contribution to the empirics of economic growth. *The quarterly journal of economics*, 107(2), pp.407-437.
- Mansfield, E. and Romeo, A., 1980. Technology transfer to overseas subsidiaries by US-based firms. *The Quarterly Journal of Economics*, 95(4), pp.737-750.
- Manyika, J. and Roxburgh, C., 2011. *The great transformer: The impact of the Internet on economic growth and prosperity*. McKinsey Global Institute, New York.
- Manyika, J., Chui, M., Bughin, J., Dobbs, R., Bisson, P. and Marrs, A., 2013. *Disruptive technologies: Advances that will transform life, business, and the global economy* (Vol. 180). San Francisco, CA: McKinsey Global Institute.
- Martínez-Zarzoso, I., Nowak-Lehmann D, F. and Rehwald, K., 2017. Is aid for trade effective? A panel quantile regression approach. *Review of Development Economics*, 21(4), pp.e175-e203.
- Martínez-Zarzoso, I., 2019. Effects of foreign aid on income through international trade. *Politics and Governance*, 7(2), pp.29-52.
- Márquez-Ramos, L., 2016. The role of institutional environment in international trade: the case of Spanish regions. *REGION*, 3(2), pp.125-140.
- Mattoo, A., Rathindran, R. and Subramanian, A., 2001. *Measuring services trade liberalization and its impact on economic growth: An illustration* (Vol. 2655). World Bank Publications.
- Mauro, P., 1995. Corruption and growth. *The quarterly journal of economics*, 110(3), pp.681-712.
- McDougall, G.H.G. and Snetsinger, D.W., 1990. The Intangibility of Services: Measurement and Competitive Perspectives", *Journal of Services Marketing*, Vol. 4 No. 4, pp. 27-40. <https://doi.org/10.1108/EUM0000000002523>.
- McKee-Ryan, F.M., Song, Z., Wanberg, C.R. and Kinicki, A.J., 2005. Psychological and Physical Well-Being During Unemployment: A Meta-Analytic Study. *Journal of Applied Psychology*, 90(1), pp.53-76.
- McKinnon, M., Ramkolowan, Y., Rateiwa, R., Reddy, L., Stern, M., 2019. *Services Value Chains in the SADC Region*. Short-term study report 2018-2019.
- Medina-Smith, E.J., 2001. Is the export-led growth hypothesis valid for developing countries?: a case study of Costa Rica. UNCTAD. New York and Geneva.

- Mehta, A. and Hasan, R., 2012. The effects of trade and services liberalization on wage inequality in India. *International Review of Economics & Finance*, 23, pp.75-90.
- Meijers, H., 2014. Does the internet generate economic growth, international trade, or both?. *International Economics and Economic Policy*, 11(1-2), pp.137-163.
- Mello, M. and Perrelli, R., 2003. Growth equations: a quantile regression exploration. *The Quarterly Review of Economics and Finance*, 43(4), pp.643-667.
- Méndez, F. and Sepúlveda, F., 2006. Corruption, growth and political regimes: Cross country evidence. *European Journal of political economy*, 22(1), pp.82-98.
- Mendez-Parra, M. and te Velde, D.W., 2017. The effects of aid on EU employment and trade: an econometric investigation. *Overseas Development Institute Working Paper*, (510). United Kingdom.
- Méon, P.G. and Sekkat, K., 2005. Does corruption grease or sand the wheels of growth?. *Public choice*, 122, pp.69-97.
- Miller, B. and Clarke, J.P., 2007. The hidden value of air transportation infrastructure. *Technological Forecasting and Social Change*, 74(1), pp.18-35.
- Minges, M. 2015. Exploring the Relationship between Broadband and Economic Growth. WDR 2016 Background Paper;. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/23638>.
- Mintz, J.M. and Wilson, T.A., 2000. *Taxes, Efficiency and Economic Growth*. Institute for International Business and Institute for Policy Analysis, University of Toronto.
- Mitchell, D.J., 2005. The impact of government spending on economic growth. *The Heritage Foundation*, 1813, pp.1-18.
- Miroudot, S., Sauvage, J. and Shepherd, B., 2013. Measuring the cost of international trade in services. *World Trade Review*, 12(4), pp.719-735.
- Mishra, S., Lundström, S. and Anand, R., 2011. Service export sophistication and economic growth. *World Bank Policy Research Working Paper*, (5606).
- Moeller, S., 2010. Characteristics of services-a new approach uncovers their value. *Journal of Services Marketing*, 24(5), pp.359-368.
- Moïsé, E. and Le Bris, F., 2013. *Trade Costs-What Have We Learned?: A Synthesis Report* (No. 150). OECD Publishing.
- Mohsin, M., Ullah, H., Iqbal, N., Iqbal, W. and Taghizadeh-Hesary, F., 2021. How external debt led to economic growth in South Asia: A policy perspective analysis from quantile regression. *Economic Analysis and Policy*, 72, pp.423-437.
- Moshiri, S. and Hayati, S., 2017. Natural resources, institutions quality, and economic growth; A cross-country analysis. *Iranian Economic Review*, 21(3), pp.661-693.
- Mosley, P., 1980. Aid, savings and growth revisited. *Oxford Bulletin of Economics and Statistics*, 42(2), pp.79-95.

- Motomura, H., 2013. Designing temporary worker programs. *The University of Chicago Law Review*, 80(1), pp.263-288.
- Mundell, R.A., 1957. International trade and factor mobility. *the american economic review*, 47(3), pp.321-335.
- Musila, J.W. and Yiheyis, Z., 2015. The impact of trade openness on growth: The case of Kenya. *Journal of Policy Modeling*, 37(2), pp.342-354.
- Mutreja, P., Ravikumar, B. and Sposi, M., 2018. Capital goods trade, relative prices, and economic development. *Review of Economic Dynamics*, 27, pp.101-122.
- Nagel, K., Herzer, D. and Nunnenkamp, P., 2015. How does FDI affect health?. *International Economic Journal*, 29(4), pp.655-679.
- Nan, S., 2022. Study on the relation of grassroots corruption and government expenditure. *Procedia Computer Science*, 199, pp.1031-1035.
- Nantharath, P. and Kang, E., 2019. The effects of foreign direct investment and economic absorptive capabilities on the economic growth of the Lao People's Democratic Republic. *The Journal of Asian Finance, Economics and Business*, 6(3), pp.151-162.
- National Board of Trade (2010), *At Your Service: The Importance of Services for Manufacturing Companies and Possible Trade Policy Implications*, Stockholm: National Board of Trade.
- National Board of Trade, (2016). *Trade Regulation in a 3D Printed World – A Primer*. Stockholm: National Board of Trade.
- Ncube, P. and Cheteni, P., 2015. *The Impact of the BRICS alliance on South Africa economic growth-a VECM approach* (No. 73488). University Library of Munich, Germany.
- Ndambiri, H.K., Ritho, C., Ng'ang'a, S.I., Kubowon, P.C., Mairura, F.C., Nyangweso, P.M., Muiruri, E.M. and Cherotwo, F.H., 2012. Determinants Of Economic Growth In Sub-Saharan Africa: A Panel Data Approach. *Management*, 2(2), pp.18-24.
- Njinkeu, D., Wilson, J.S. and Fosso, B.P., 2008. *Expanding trade within Africa: the impact of trade facilitation*. The World Bank.
- Noguer, M. and Siscart, M., 2005. Trade raises income: a precise and robust result. *Journal of international Economics*, 65(2), pp.447-460.
- Noorbakhsh, F. and Paloni, A., 2000. The de-industrialisation hypothesis, structural adjustment programmes and the sub-Saharan dimension. In *Industrial development and policy in Africa* (pp. 107-136). Edward Elgar Publishing.
- Nordås, H.K. and Kox, H., 2009. *Quantifying Regulatory Barriers to Services Trade* (No. 85). OECD Publishing.
- Nordås, H.K. and Kim, Y., 2013. *The Role of Services for Competitiveness in Manufacturing* (No. 148). OECD Publishing. Paris.
- Nordås, H.K., 2019. Frankel and Romer revisited. *International Economics*, 159, pp.26-35.

North, D.C. and Thomas, R.P., 1973. *The rise of the western world: A new economic history*. Cambridge University Press.

Nowak-Lehmann, F., Martínez-Zarzoso, I., Herzer, D., Klasen, S. and Cardozo, A., 2013. Does foreign aid promote recipient exports to donor countries?. *Review of World Economics*, 149(3), pp.505-535.

Nurudeen, A. and Usman, A., 2010. Government expenditure and economic growth in Nigeria, 1970-2008: A disaggregated analysis. *Business and economics journal*, 4(1), pp.1-11.

Nusbaumer, J., 1987. Value and Cost of Services. In *The Services Economy* (pp. 47-62). Springer, Dordrecht.

Oettl, A. and Agrawal, A., 2008. International labor mobility and knowledge flow externalities. *Journal of international business studies*, 39(8), pp.1242-1260.

Omran, M. and Bolbol, A., 2003. Foreign direct investment, financial development, and economic growth: evidence from the Arab countries. *Review of Middle East Economics and Finance*, 1(3), pp.37-55.

O'Sullivan, A., 2019. How technology affects economic growth and why it matters for policymakers. *The bridge*. <<https://www.mercatus.org/bridge/commentary/how-technology-affects-economic-growth>>, viewed 15 January 2020.

Organization of Economic Cooperation and Development (OECD): definition of ODA: <<https://data.oecd.org/oda/netoda.htm#:~:text=Definition%20of,for%20military%20purposes%20are%20excluded.>>, viewed 20 January 2021.

Organization of Economic Cooperation and Development (OECD), 2002. *Foreign Direct Investment for Development: Maximising benefits, minimising costs*, OECD Publishing, Paris, <<https://doi.org/10.1787/9789264199286-en>>.

Organization of Economic Cooperation and Development (OECD), 2005. *Growth in services: fostering employment, productivity and innovation*. OECD Publishing. Paris.

Organization of Economic Cooperation and Development (OECD), 2009. *Natural Resources and Pro-Poor Growth: The Economics and Politics*, DAC Guidelines and Reference Series, OECD Publishing, Paris, <<https://doi.org/10.1787/9789264060258-en>>.

Organization of Economic Cooperation and Development (OECD), 2011. *OECD Science, Technology and Industry Scoreboard 2011*, OECD Publishing. <http://dx.doi.org/10.1787/sti_scoreboard-2011-en>.

Organization of Economic Cooperation and Development (OECD), *Services Trade Restrictiveness Index Regulatory Database*: <<https://qdd.oecd.org/subject.aspx?Subject=063bee63-475f-427c-8b50-c19bffa7392d>> viewed 10 April 2019.

Organization of Economic Cooperation and Development (OECD), <<https://data.oecd.org/gdp/investment-gfcf.htm>>, viewed 20 January 2022.

Otor, S.A. and Dornan, M., 2017. How Does Foreign Aid Impact Australian Exports in the Long-Run? (September 27, 2017). *Development Policy Centre Discussion Paper No. 62*, Available at SSRN: <http://dx.doi.org/10.2139/ssrn.3044133>.

Palmer, A. and Cole, C., 1995. *Service Marketing: Principles and Practice*, Prentice-Hall, Englewood Cliffs, NJ.

Papanek, G.F., 1973. Aid, foreign private investment, savings, and growth in less developed countries. *Journal of political Economy*, 81(1), pp.120-130.

Pereira, A.M. and Andraz, J.M., 2013. On the economic effects of public infrastructure investment: A survey of the international evidence. *Journal of Economic Development*, 38(4), pp.1-37.

Persson, T. and Tabellini, G., 2007. *The Growth Effect of Democracy: Is It Heterogenous and How Can It Be Estimated?* (No. 13150). National Bureau of Economic Research, Inc.

Peter, A. and Bakari, I., 2018. Impact of Population Growth on Economic Growth in Africa: A Dynamic Panel Data Approach (1980-2015). *Pakistan Journal of Humanities and Social Science (PJHSS)*, 6(4), pp.412-427.

Peterson, E.W.F., 2017. The Role of Population in Economic Growth. *SAGE Open*, 7(4), pp.2158244017736094-2158244017736094.

Petit, S., 2017. International trade in services and inequalities: Empirical evaluation and role of tourism services. *Tourism Economics*, 23(5), pp.1069-1075.

Petri, P.A., 1994. The regional clustering of foreign direct investment and trade. *Transnational Corporations*, 3(3), pp.1-24.

Pham, Q.C., Madhavan, R., Righetti, L., Smart, W. and Chatila, R., 2018. The impact of robotics and automation on working conditions and employment [ethical, legal, and societal issues]. *IEEE Robotics & Automation Magazine*, 25(2), pp.126-128.

Piketty, T., 2014. Capital in the twenty-first century. In *Capital in the twenty-first century*. Harvard University Press.

Piore, M. and Ruiz Durán, C., 1998. Industrial development as a learning process: Mexican manufacturing and the opening to trade. *Learning, liberalisation and economic adjustment*, pp.191-241.

Poelhekke, S. and van der Ploeg, F., 2007. *Volatility, Financial Development and the Natural Resource Curse* (No. 6513). CEPR Discussion Papers.

Portugal-Perez, A. and Wilson, J.S., 2012. Export performance and trade facilitation reform: Hard and soft infrastructure. *World development*, 40(7), pp.1295-1307.

Pradhan, R.P. and Bagchi, T.P., 2013. Effect of transportation infrastructure on economic growth in India: The VECM approach. *Research in Transportation economics*, 38(1), pp.139-148.

Price, N.A., Francisco, J.P. and Caboverde, C.E., 2016. IT-BPO in the Philippines: A Driver of Shared Prosperity?. *RSN-PCC Working Paper*, pp.16-002.

- Radelet, S., Clemens, M. and Bhavnani, R., 2004. Aid and growth: The current debate and some new evidence. *Center for Global Development*.
- Ranis, G., 1991. Towards a model of development. *Liberalization in the process of economic development*, pp.59-101.
- Rijesh, R., 2020. Trade liberalisation, technology import, and Indian manufacturing exports. *Global Economic Review*, 49(4), pp.369-395.
- Ross, M.L., 1999. The Political Economy of the Resource Curse. *World Politics*, 51(2), pp.297-322.
- Ross, M.L., 2001. Does Oil Hinder Democracy?. *World Politics*, pp.325-361.
- Riedel, J., Jin, J. and Gao, J., 2007. *Overview of Economic Reforms and Outcomes, from How China Grows: Investment, Finance, and Reform*. Princeton University Press.
- Riezman, R.G., Whiteman, C.H. and Summers, P.M., 1996. The engine of growth or its handmaiden? A time-series assessment of export-led growth. *Empirical Economics*, 21(1), pp.77-110.
- Rivera-Batiz, L.A. and Romer, P.M., 1991. Economic integration and endogenous growth. *The Quarterly Journal of Economics*, 106(2), pp.531-555.
- Rodrik, D., Subramanian, A. and Trebbi, F., 2004. Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of economic growth*, 9(2), pp.131-165.
- Rogers, M.L., 2008. Directly unproductive schooling: How country characteristics affect the impact of schooling on growth. *European Economic Review*, 52(2), pp.356-385.
- Romp, W. and De Haan, J., 2007. Public capital and economic growth: A critical survey. *Perspektiven der wirtschaftspolitik*, 8(Supplement), pp.6-52.
- Roy, A.G., 2009. Evidence on economic growth and government size. *Applied Economics*, 41(5), pp.607-614.
- Roy, M., 2017. *The contribution of services trade policies to connectivity in the context of aid for trade* (No. ERSD-2017-12). WTO Staff Working Paper.
- Roy, M., 2019. Elevating services: Services trade policy, WTO commitments, and their role in economic development and trade integration. *WTO Commitments, and their Role in Economic Development and Trade Integration (March 8, 2019)*.
- Rust, R.T., Zahorik, A.J. and Keiningham, T.L., 1995. Return on quality (ROQ): Making service quality financially accountable. *Journal of marketing*, 59(2), pp.58-70.
- Rynne, B.J., 2018. *The role of the services sector in growing the Australian economy* (Doctoral dissertation, University of Adelaide).
- Sachs, J.D. and Warner, A., 1995. *Economic Convergence and Economic Policies, No 5039*, NBER Working Papers, National Bureau of Economic Research, Inc. Available on the following link: <<https://EconPapers.repec.org/RePEc:nbr:nberwo:5039>> accessed 11 December 2020.

- Sachs, J., 2008. *Common wealth: Economics for a crowded planet*. Penguin.
- SADC website: <https://www.sadc.int/themes/economic-development/trade-services/> - viewed 31 December 2019.
- Sáez, S., Taglioni, D., Van der Marel, E., Hollweg, C.H. and Zavacka, V., 2015. *Valuing services in trade: a toolkit for competitiveness diagnostics*. World Bank Publications.
- Sahoo, P., Dash, R.K. and Mishra, P.P., 2015. Determinants of India's service exports. *Reviving growth in India*, 107.
- Sakyi, D. and Egyir, J., 2017. Effects of trade and FDI on economic growth in Africa: an empirical investigation. *Transnational Corporations Review*, 9(2), pp.66-87.
- Sala-i-Martin, X.X. and Barro, R.J., 1995. *Technological diffusion, convergence, and growth* (No. 735). Center Discussion Paper.
- Salinas, G. and Aksoy, A., 2006. *Growth before and after trade liberalization* (No. 4062). The World Bank. Washington DC.
- Salinas, G., Gueye, C. and Korbut, O., 2015. Impressive growth in Africa under peace and market reforms. *Journal of African Economies*, 24(1), pp.101-127.
- Sato, R., 1964. The Harrod-Domar model vs the Neo-Classical growth model. *The Economic Journal*, 74(294), pp.380-387.
- Say, J.B., 1836. *A treatise on political economy: or the production, distribution, and consumption of wealth*. Grigg & Elliot.
- Schmitz, H. and Knorringa, P., 2000. Learning from global buyers. *Journal of development studies*, 37(2), pp.177-205.
- Schwellnus, C., 2007. *The effect of domestic regulation on services trade revisited*. Paris: CEPII.
- Schumacher, R., 2012. Free trade and absolute and comparative advantage. *Universität Potsdam: Potsdam, Germany*.
- Scikit learn: <https://scikit-learn.org/stable/auto_examples/linear_model/plot_quantile_regression.html> viewed 30 October 2022.
- Seo, H.J., Kim, H. and Lee, Y.S., 2020. The Dynamic relationship between inequality and sustainable economic growth. *Sustainability*, 12(14), p.5740.
- Serletis, A., 1992. Export growth and Canadian economic development. *Journal of Development Economics*, 38(1), pp.133-145.
- Scikit-learn.org, <https://scikit-learn.org/stable/auto_examples/linear_model/plot_quantile_regression.html>; viewed 25 October 2022.
- Shafaeddin, M., 2006. *Is The Industrial Policy Relevant In The 21st Century?* (No. 6643). University Library of Munich, Germany.
- Shahbaz, M. and Rahman, M.M., 2010. Foreign capital inflows-growth nexus and role of domestic financial sector: an ARDL co-integration approach for Pakistan. *Journal of*

- Economic Research*, 15(3), pp.207-231. Shioji, E. and Vu, T.K., 2012. Physical capital accumulation in Asia 12: Past trends and future projections. *Japan and the World Economy*, 24(2), pp.138-149.
- Shi, Y., Guo, S. and Sun, P., 2017. The role of infrastructure in China's regional economic growth. *Journal of Asian Economics*, 49, pp.26-41.
- Shostack, G.L., 1977. Breaking free from product marketing. *Journal of marketing*, 41(2), pp.73-80.
- Siddiqui, K., 2016. International trade, WTO and economic development. *World Review of Political Economy*, 7(4), pp.424-450.
- Sims, E., 2012. Intermediate Macroeconomics: Economic Growth and the Solow Model. *University of Notre Dame*.
- Sinha, D., 1998. Government expenditure and economic growth in Malaysia. *Journal of Economic Development*, 23(2), pp.71-80.
- Smith, A., 1776. *An inquiry into the nature and causes of the wealth of nations: Volume One*. London: printed for W. Strahan; and T. Cadell, 1776.
- Solow, R.M., 1956. A contribution to the theory of economic growth. *The quarterly journal of economics*, 70(1), pp.65-94.
- Spatafora, N. and Warner, A.M., 1999. Macroeconomic and Sectoral Effects of Terms-of-Trade Shocks: The Experience of the Oil-Exporting Developing Countries. *IMF Working Papers*, 1999(134).
- Stiglitz, J.E. and Yusuf, S. eds., 2001. *Rethinking the East Asian Miracle*. World Bank Publications.
- Straub, S., 2008. Infrastructure and growth in developing countries: recent advances and research challenges. *Policy Research Working Paper Series*, (4460).
- Su, D.T., Nguyen, P.C. and Schinckus, C., 2019. Impact of Foreign Direct Investment, Trade Openness and Economic Institutions on Growth in Emerging Countries: The Case of Vietnam. *Journal of International Studies*, 12(3), pp.243-264.
- Sun, P. and Heshmati, A., 2010. *International Trade and its Effects on Economic Growth in China* (No. 5151). Institute of Labor Economics (IZA).
- Sultanuzzaman, M.R., Fan, H., Mohamued, E.A., Hossain, M.I. and Islam, M.A., 2019. Effects of export and technology on economic growth: Selected emerging Asian economies. *Economic research-Ekonomska istraživanja*, 32(1), pp.2515-2531.
- Suwa-Eisenmann, A. and Verdier, T., 2007. Aid and trade. *Oxford Review of Economic Policy*, 23(3), pp.481-507.
- Swan, T.W., 1956. Economic growth and capital accumulation. *Economic record*, 32(2), pp.334-361.

Taiwo, M. and Abayomi, T., 2011. Government expenditure and economic development: empirical evidence from Nigeria. *European journal of business and management*, 3(9), pp.18-28.

Technology Readiness Index - https://tcdata360.worldbank.org/indicators/hf74f651d?country=BRA&indicator=741&viz=line_chart&years=2007,2017

Thangavelu*, S.M. and Rajaguru, G., 2004. Is there an export or import-led productivity growth in rapidly developing Asian countries? A multivariate VAR analysis. *Applied Economics*, 36(10), pp.1083-1093.

Thirlwall, A.P., 2000. *Trade, trade liberalisation and economic growth: theory and evidence* (Vol. 63). Côte d'Ivoire: African Development Bank.

Trejos, S. and Barboza, G., 2015. Dynamic estimation of the relationship between trade openness and output growth in Asia. *Journal of Asian Economics*, 36, pp.110-125.

United Nations Central Product Classification (CPC) Code contained in document: MTN.GNS/W/120.

UNCTAD Geneva. (2013). *World investment report 2013—Chapter IV*. Accessed August 23, 2015, <http://unctad.org/en/PublicationsLibrary/wir2013_en.pdf> viewed 1 November 2020.

United Nations Conference on Trade and Development (UNCTAD) 2017, *The role of the services economy and trade in structural transformation and inclusive development*, TD/STAT.44.

United Nations Conference on Trade and Development (UNCTAD) 2019, *Handbook of Statistics 2019*, TD/B/C.I/MEM.4/14.

United Nations LDC classification: <<https://unctad.org/topic/least-developed-countries/list>>, viewed 22 October 2019.

Van der Marel, E. and Sáez, S., 2016. Servicification, Regulation and Economic Performance in GVCs. In *World Bank Background Paper prepared for the conference, "Making Global Value Chains Work for Economic Development and Shared Prosperity," Beijing, March* (pp. 17-18).

Vandermerwe, S. and Rada, J., 1988. Servitization of business: adding value by adding services. *European management journal*, 6(4), pp.314-324.

Van Ha, H. and Tran, T.Q., 2017. International trade and employment: A quantile regression approach. *Journal of Economic Integration*, pp.531-557.

Vargo, S.L. and Lusch, R.F., 2004. The four service marketing myths: remnants of a goods-based, manufacturing model. *Journal of service research*, 6(4), pp.324-335.

Veiderpass, A. and Andersson, P., 2007. Foreign aid, economic growth and efficiency development. *Swedish Agency for Development Evaluation*.

Vermeulen, B., Kesselhut, J., Pyka, A. and Saviotti, P.P., 2018. The impact of automation on employment: just the usual structural change?. *Sustainability*, 10(5), pp.1661-1688.

- Vohra, R., 2001. Export and economic growth: Further time series evidence from less-developed countries. *International Advances in Economic Research*, 7(3), pp.345-350.
- Voon, J.P. and Chen, E.K., 2003. Contributions of capital stock quality improvement to economic growth: the case of Hong Kong. *Journal of Asian Economics*, 14(4), pp.631-644.
- Wacziarg, R. and Welch, K.H., 2008. Trade liberalization and growth: New evidence. *The World Bank Economic Review*, 22(2), pp.187-231.
- Wang, K.M., 2011. Health care expenditure and economic growth: Quantile panel-type analysis. *Economic Modelling*, 28(4), pp.1536-1549.
- Were, M., 2015. Differential effects of trade on economic growth and investment: A cross-country empirical investigation. *Journal of African trade*, 2(1-2), pp.71-85.
- Winters, L.A., 2003. The economic implications of liberalizing mode 4 trade. *Moving People to Deliver Services*, World Bank, Washington DC.
- Wright, L.K., 1995. Avoiding services marketing myopia. *Understanding services management*. Chichester: Wiley & Sons, pp.33-56.
- World Bank, *World Development Indicators Database* - <<https://databank.worldbank.org/source/world-development-indicators>>, viewed 5 October 2019.
- World Bank, *World Governance Indicators Database* - <<https://info.worldbank.org/governance/wgi/>>, viewed 5 October 2019.
- World Bank. <<https://blogs.worldbank.org/opendata/new-country-classifications-income-level-2019-2020>> viewed 18 November 2020.
- World Bank classification - <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups> - viewed 20 March 2021.
- World Bank, 2003. *The East Asian Miracle: Economic Growth and Public Policy*, Washington, DC: Oxford University Press.
- World Bank Group, 2019. FDI data base website: <<https://data.worldbank.org/indicator/BX.KLT.DINV.CD.WD>>, viewed 19 November 2020.
- World Bank Group., <<https://www.worldbank.org/en/news/press-release/2019/04/08/record-high-remittances-sent-globally-in-2018>>, viewed 30 December 2019.
- World Bank. <<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>>, viewed 5 October 2022.
- World Bank. <<https://blogs.worldbank.org/education/how-low-human-capital-can-limit-productivity-improvements-examples-turkey-and-peru>> viewed 6 February 2023.
- World Trade Organization (WTO), <https://www.wto.org/english/res_e/statis_e/trade_datasets_e.htm#TISMOS>, viewed 5 January 2020.
- World Trade Organization (WTO), World Trade Report (2010). Trade in natural resources. World Trade Organization: Geneva

World Trade Organization (WTO), 2019, *The future of services trade*, World Trade Report. Geneva.

World Trade Organization (WTO). <https://www.wto.org/english/tratop_e/serv_e/mouvement_persons_e/mouvement_persons_e.htm>, viewed 28 December 2019.

Wu, Y., 2007. Export performance in China's regional economies. *Applied Economics*, 39(10), pp.1283-1293.

Yanikkaya, H., 2003. Trade openness and economic growth: a cross-country empirical investigation. *Journal of Development economics*, 72(1), pp.57-89.

Yao, W., Kinugasa, T. and Hamori, S., 2013. An empirical analysis of the relationship between economic development and population growth in China. *Applied Economics*, 45(33), pp.4651-4661.

Young, A., 2014. Structural transformation, the mismeasurement of productivity growth, and the cost disease of services. *American Economic Review*, 104(11), pp.3635-67.

Zafar, A., 2011. Mauritius: An economic success story. *Yes Africa can: Success stories from a dynamic continent*, pp.91-106.

Zahonogo, P., 2016. Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade*, 3(1-2), pp.41-56.

Zeithaml, V.A., Berry, L.L. and Parasuraman, A., 1996. The behavioral consequences of service quality. *Journal of marketing*, 60(2), pp.31-46.

Zones, S.E., United Nations Conference on Trade and Development (UNCTAD) World Investment Report 2019 (WIR).