# NELSON MANDELA

UNIVERSITY

# A BEHAVIOUR OF SOUTH AFRICA'S ECONOMY TOWARDS INFLOWS OF FOREIGN DIRECT INVESTMENT (FDI) FROM BRICS ECONOMIES

ΒY

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# DECLARATION

In accordance with Rule G5.6.3. I hereby declare that this thesis, 'A behaviour of South Africa's economy towards inflows of foreign direct investment (FDI) from BRICs economies', is my own work and that all the sources used or quoted have been identified and acknowledged by means of appropriate referencing, and that I have not previously submitted this thesis, for assessment, to another University or for any other qualification.

Signature: ....

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Date:

#### Abstract

This study investigated a behaviour of South Africa's economy towards inflows of foreign direct investment (FDI) from Brazil, Russia, India and China (BRICs) economies, during the period 1997 to 2016. The BRICs bloc was coined in 2001 by then chairperson of Goldman Sachs Asset Management, Jim O'Neil. According to Goldman Sach (2001), the BRICs group was collectively expected to overtake the major economic powers over the span of a few decades. Their growth is expected to shape a new economic order and replace the currently dominant advanced economies. South Africa joined the BRICs bloc in 2010 as the jeweler of the world and as a gateway to Africa. It joined the BRICs group at the time when economic growth was at a sluggish rate, and the savings and investment were at the lowest rate. The country had a high unemployment rate, high levels of poverty and income inequality. On the other hand, the BRICs economies had limited intra-BRICs flows amongst themselves.

It is against this background that this study investigated the long run impact of BRICs FDI inflows on South Africa's economic growth, and the causality relationship between South Africa's economic growth and BRICs FDI inflows. This study contributes to the body of knowledge of economics in South Africa and the literature on foreign direct investment and economic growth in South Africa.

The study employed two cointegration methods to investigate the behaviour of South Africa's economy towards inflows of foreign direct investment from BRICs economies. These are fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS). For granger causality, the study employed Stacked and Dumistrescu Hurlin tests. All the models used time series annual data from 1997 to 2016.

The Unit root test results confirmed that the variables were stationary at first difference using panel Im, Pesaran, Shin (IPS) and Levin, Lin, Chu (LLC). The research employs four regressions, first, Economic growth and foreign direct investment (i.e. private sector, banking sector and both sectors), human capital, physical capital, household consumption, government expenditure, exports, and

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arable land; Second, Employment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; third, Economic complexity and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; finally, Unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; finally, Unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land. The cointegration results for private FDI and economic growth, employment, economic complexity, and unemployment. The results show only economic complexity has significant effect on foreign direct investment and other variables show insignificant results. However, this effect is smaller compared to other growth determinants which are included in the regressions.

The cointegration results for bank FDI. These results show more similarities with private FDI results and few differences. However, this effect is smaller compared to other growth determinants included in the regressions. These growth determinants, however, show a positive effect of human capital and household consumption on economic growth which is expected. Other interesting results are exports being positively related with economic growth and unemployment but negative with employment and insignificant with economic complexity. Another one is government spending negatively influence economic growth, employment and positively influence unemployment. But insignificant for economic complexity. Total FDI results and other variables. These results are also similar to private and bank FDI results discussed above. Economic complexity shows significant effect with foreign direct investment, yet other variables are insignificant. . Further results show human capital positively related with economic growth, which is expected. However, physical capital and household consumption negatively affects growth. Another one exports show positive influence on economic growth but negatively related with employment. Yet, insignificant with economic complexity and unemployment. Other results government spending shows negative influence with employment but insignificant with economic growth, economic complexity and unemployment.

The results for nonlinearity between the variables under review. The results that employment and economic complexity are nonlinear with foreign direct investment and no nonlinearity between unemployment, economic growth and foreign direct investment. For employment, low levels of foreign direct investment (LFDI\_private)

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adversely affects employment but at higher levels (FDI\_private\_SQ) is insignificant. For economic complexity, low levels of foreign direct investment are insignificant for economic complexity but at higher levels there is a positive effect of squared foreign direct investment on economic complexity. Further results show that economic growth and employment are nonlinear with human capital, physical capital, household consumption and exports. Physical capital and household consumption adversely affect economic growth, yet positively affects employment. Human capital positively affects economic growth, employment, and unemployment. Exports positively affect economic growth, but negatively affect employment. Further results show nonlinearity between employment and government expenditure. Government expenditure adversely affects employment. Also, economic growth and unemployment show nonlinearity with arable land. Arable land adversely affects economic growth but positively affects unemployment.

Nonlinear results for economic growth and economic complexity with foreign direct investment but no nonlinearity in other remaining variables. For economic growth, low levels of foreign direct investment there is a positive effect of foreign direct investment on economic growth, however, at higher levels foreign direct investment are insignificant. For economic complexity, low levels of foreign direct investment are insignificant, yet, higher levels of foreign direct investment there is a positive influence of foreign direct investment on economic complexity.

Further results show economic growth and employment that are nonlinear with human capital, physical capital, and household consumption. Human capital positively affects both economic growth and employment. Physical capital and household consumption are adversely affecting economic growth, yet positively affects employment. Further results show nonlinearity between economic growth and government expenditure. Government expenditure adversely affects employment. More results, employment, and unemployment show nonlinearity results with exports. Exports adversely affect employment but positively affects unemployment. Results show economic growth and unemployment that are nonlinear with arable land. Arable land adversely affects economic growth, but positively affect unemployment.

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Nonlinear results for economic complexity only and other variables show no nonlinearity in the regressions. For economic complexity, low levels of foreign direct investment are insignificant, but at higher levels of foreign direct investment there is positive effect of foreign direct investment on economic complexity. More results show economic growth and employment that are nonlinear with human capital, physical capital, household consumption and exports. Human capital and exports positively affect economic growth, employment, and unemployment. Whereas, physical capital and household consumption adversely affects economic growth and unemployment, yet positively affects employment. Further results show nonlinearity between employment and government expenditure. Government spending adversely affects employment. Further results unemployment, yet adversely affects economic growth. The following section discusses granger causality results.

This study also employed granger causality tests. The causality results between economic growth, employment, economic complexity, unemployment, and private foreign direct investment. The causality results show that there is granger causality between economic growth and economic complexity with private foreign direct investment. Whereas, between bank foreign direct investment and other variables there is no granger causality. However, between total foreign direct investment and economic growth and employment there is granger causality.

There are a number of policy recommendations that can be drawn from the study. The study results in overall revealed that BRICs (private and bank) FDI inflows had a positive impact on South Africa's economic growth between 1997 and 2016. The study results suggest that the policy makers should focus the attention on lobbying foreign direct investment from BRICs economies, since this study shows positive impact and relationship between South Africa's economic growth and BRICs FDI inflows. The BRICs economies should focus on enhancing investment partnership, preventing protectionism, and promoting intra-BRICS flows. In addition, South Africa should eliminate barriers affecting business with BRICs countries. Policy makers should promote the building of new companies (for example Greenfield Investment) so that the economy of South Africa could grow and create employment.

# DEDICATION

To the Almighty God and my Lord and saviour Jesus Christ who gave me strength to see through the writing of this thesis:

I dedicate this thesis to my wife Angel Dingela for her encouragement throughout the period of the study.

I further dedicate it to my children, Isiphile, Uthando and Njongo and to all Assemblies of God men who prayed with me for the completion of this thesis.

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# LIST OF ACRONYMS

| AD      | Authorised Dealers   |
|---------|--|
| ADEP    | Aquaculture Development and Enhancement Programme          |
| ADF     | Augmented Dickey Fuller                                    |
| AMG     | Augmented mean group                                       |
| ANC     | African National Congress                                  |
| AIK     | Akaike Information Criterion                               |
| AIS     | Automotive Investment Scheme                               |
| APSS    | Agro-Processing Support Scheme                             |
| ARDL    | Autoregressive Distributing Lag                            |
| B-BBEE  | Broad- Based Black Economic Empowerment                    |
| BIT     | Bilateral InvestmentTreatise                               |
| BPS     | Business Process Services                                  |
| BRICS   | Brazil, Russia, India, China and South Africa              |
| CDP     | Cluster Development Programme                              |
| CIP     | Critical Infrastructure Programme                          |
| CPFP    | Capital Projects Feasibility Programme                     |
| CPI     | Consumer Price Index                                       |
| CTCIP   | Clothing and Textile Competitiveness Improvement Programme |
| CUSUM   | Cumulative Sum of Recursive                                |
| CUSUMSQ | Cumulative Sum of Recursive Squares                        |
| DEA     | Department of Economic Affairs                             |
| DF      | Dickey Fuller  |
| DOLS    | Dynamic Ordinary Least Squares                             |
| DPIIT   | Department for Promotion of Industry and Internal Trade    |
| DTI     | Department of Trade and Industry                           |
| ECB     | External Commercial Borrowing                              |
| EE      | Equity Equivalence   |
| EF      | Economic Freedom   |
| EFTA    | European Free Trade Association                            |

| EMIA  | Export Marketing and Investment Assistance |
|-------|--|
| EOU   | Export Oriented Units                      |
| EPA   | European Partnership Agreement             |
| EU    | European Union                             |
| EJV   | Equity Joint Venture                       |
| FATCA | Foreign Asset Tax Compliance Act           |
| FAS   | Federal Antimonopoly Service               |
| FCNR  | Foreign Currency Non-Resident              |
| FDI   | Foreign Direct Investment                  |
| FEM   | Fixed Effect Model                         |
| FGLS  | Fully Generalized Least Squares            |
| FIPS  | Foreign Investment Promotion Board         |
| FMOLS | Fully Modified Ordinary Least Squares      |
| FPE   | Final Prediction Error                     |
| FPI   | Foreign Portfolio Investment               |
| FMOLS | Fully Modified Least Squares               |
| GCC   | Guff Cooperation Council                   |
| GDP   | Gross Domestic Product                     |
| GEAR  | Growth Employment and Redistribution       |
| GMM   | Generalized Method of Moments              |
| HCI   | Human Computer Interaction Conference      |
| HQ    | Hannan-Quinn Information Criterion         |
| IDZ   | Industrial Development Zone                |
| IIA   | International Investment Agreement         |
| IPA   | Investment Promotion Agency                |
| IR    | Information Regulator                      |
| ІТ    | Inflation Target                           |
| IPLC  | International Production Life Cycle        |
| IPS   | Im Pesaran Shin                            |
| ІТО   | International Trade Organisation           |

| JSE   | Johannesburg Stock Exchange                            |
|-------|--|
| KPSS  | Kwiatkowski-Phillips-Schmidt-Shit                      |
| LLC   | Levin Lin Chin   |
| LSDV  | Least Squares with Dummy Variables                     |
| MCEP  | Manufacturing Competitiveness Enhancement Programme    |
| MHCV  | Medium and Heavy Commercial Vehicles                   |
| MNC   | Multinational Companies                                |
| MNE   | Multinational Enterprises                              |
| NDRC  | National Development and Reform Commission             |
| NDP   | National Development Plan                              |
| NPC   | National People's Congress                             |
| NRI   | Non-Resident Indian                                    |
| OECD  | Organisation for Economic Co-operation and Development |
| OFDI  | Outward Foreign Direct Investment                      |
| OLS   | Ordinary Least Squares                                 |
| PI    | Production Incentive                                   |
| POPI  | Protection of Personal Information                     |
| PP    | Phillips and Perron                                    |
| RBI   | Reserve Bank of India                                  |
| R&D   | Research and Development                               |
| REM   | Random Effect Model                                    |
| REER  | Real Effective Exchange Rate                           |
| SACU  | Southern Africa Customs Union                          |
| SADC  | Southern African Development Community                 |
| SARB  | South African Reserve Bank                             |
| SARS  | South African Revenue Service                          |
| SBRT  | Single Brand Product Retail Trading                    |
| SFCAB | State Foreign Currency Administration Bureau           |
| SIC   | Shwarz Information Criterion                           |
| 0.011 |  |

| SSAS   | Sector- Specific Assistance Scheme                   |
|--------|--|
| SUR    | Seemingly Unrelated Regression                       |
| TDCA   | Trade Development and Cooperation Agreement          |
| TIDCA  | Trade Investment & Development Cooperation Agreement |
| TIFA   | Trade and Investment Framework Agreement             |
| TNC    | Transnational Companies                              |
| UECM   | Unrestricted Error Correction Model                  |
| UNCTAD | United Nations Conference on Trade and Development   |
| UK     | United Kingdom                                       |
| USA    | United State of America                              |
| VAR    | Vector Autoregressive Model                          |
| VAT    | Value Added Tax                                      |
| VECM   | Vector Error Correction Model                        |
| WPC    | Workplace Challenge Programme                        |
| WOS    | Wholly Owned Subsidiary                              |
| ωтο    | World Trade Organisation                             |

#### CHAPTER ONE

### INTRODUCTION AND BACKGROUND TO THE STUDY

#### 1.1 INTRODUCTION

Following the 2007/08 Global financial crisis, both developed and developing countries have not fully recovered from the great recession that resulted in an economic turmoil across the world. The impact of the crisis caused nearly a million job losses in South Africa in 2009 alone, and the unemployment rate remained as high as more than 25 percent (Rena & Soni, 2014). The government reacted by, among other things, attracting foreign direct investment (FDI) to boost economic growth. The relationship between economic growth and FDI has been a subject of discussion for many researchers, economists and policy analysts (Simionescu, 2016).

Pelinescu and Randulescu (2009) assert that FDI influences economic growth and development of host countries in several ways. First, in any host country, the FDI manifests itself in the form of transnational companies (TNCs) establishing local operations, usually through one or more affiliates. These foreign affiliates interact with the local economy by building production facilities and hiring workers, many of whom will require training. Secondly, since the affiliates become elements of the TNCs involved, they are part of the TNCs' respective value chains, both within the host country and internationally. They establish backward (with suppliers) and forward (with distributors and sales organisations) linkages, which could stimulate production in supplier and distributor firms and companies in the host country and constitute a channel for the transfer of technology.

Thirdly, the affiliates might have a variety of indirect spillover effects on local firms, for example through the impact of competition that might spur local firms to improve their performance or, conversely, they might induce failure because of affiliates' greater efficiency. Finally, potential increases in employment and income due to the entry of FDI projects might result in multiplier effects on the entire host economy, while at the same time potential crowding out of that economy's domestic enterprises by FDI might have opposite impact. Pelinescu *and* Randulescu (2009) further state that the FDI has an amplified effect on the local economy beyond the initial direct effect of affiliated operations.

The extent and nature of these effects, and the net outcomes for a host economy, depend, among other factors, on the scale of the initial FDI, the technology used, the number of people employed and the training and wages offered (Pelinescu & Randulescu, 2009). Other factors are the market orientation of foreign affiliates in the economy, the degree to which the affiliates procure goods and service inputs locally and the proportion of profits reinvested, as well as the conditions prevailing in the host economy (Pelinescu & Randulescu, 2009).

According to the World Bank (2014), several studies concluded that FDI promotes economic development of the host country by promoting productivity growth, exports, transfer of technology and creating employment opportunities for economically active citizens in the host country. In contrast, a few studies found no relationship between FDI and economic growth. Examples of these are Chakraborty and Basu (2002) in India, Mazenda (2012) in South Africa, Rahman (2015) in Bangladesh and Khobai *et al.* (2017) in South Africa. On the other hand, a faster economic growth attracts more FDI inflows (Choi, 2004; Carkovi & Levine, 2002; Kherfi & Soliman, 2005; Fidrmuc & Kostagianni, 2015; Cichy & Gradon, 2016). This study sought to investigate the behaviour of South Africa's economic growth towards inflows of foreign direct investment from Brazil, Russia, India and China (BRICs) economies during the period 1997 to 2016.

#### 1.2 BACKGROUND TO THE STUDY

The Brazil, Russia, India and China (BRIC) alliance was coined in 2001 by then chairperson of Goldman Sachs asset management, Jim O'neill. According to Goldman Sachs (2001), the BRIC group was collectively expected to overtake the major economic powers over the next few decades. Their growth is expected to shape a new economic order and replace the currently dominating advanced economies. According to Bloomberg News (15 June 2012), the BRIC group collectively accounted for approximately 11 percent of world gross domestic product (GDP) in 1990 and this increased to about 25 percent in 2011. China has been an outstanding emerging economy in the BRIC group, recording economic growth of about 10 percent in the past 10 years. China is known as the factory of the world, Brazil the garden of the world, Russia the gas station of the world and India as the back office of the world. The BRIC countries are said to have a lot in common in terms of population, GDP and

unemployment. South Africa joined this bloc in 2010, extending the name to BRICS. It joined the bloc as the jeweler of the world and as a gateway to Africa (Provincial Treasury RSA, 2013).

The formation of BRICS is an effort by its members to foster cooperation in order to meet global challenges, especially those faced by emerging economies. The collaboration of these countries aims to meet economic needs of this century, which include investment and trade increase (Provincial Treasury RSA, 2013). The study by Goldman Sachs (2001) explains the originality of the BRICs group, which was coined by Jim O'neil, who forecasted that these economies would be among the six largest economies by 2050. Furthermore, Goldman Sachs (2003) predicted that by 2040, GDP for BRICs economies would collectively be larger than the Group of Six (G6) in terms of United States (US\$) dollars. By 2025, it is predicted that BRICs economies will account for over half the size of the G6. Another study by Goldman Sachs (2009) updates its growth forecast for the BRICs economies due to the faster economic growth that these economies were realising. The revised figures indicate that BRICs economies would be as large as the G7 by 2032. China is forecasted to be as big as the US by 2027.

In the second BRICs summit held on the 16<sup>th</sup> of April 2010 in Brazil, the year South Africa joined the BRICs group, the focus was on identifying intra-BRICs cooperation initiatives. The current study also focuses on the intra-BRICS foreign direct investment (FDI) flows.

In 2009 the trade relationship between South Africa and Brazil accounted for 1 percent of South Africa's total trade, and despite trade declining in 2009, South Africa's exports to Brazil grew by 3 percent in the 2005-2009 period. South Africa mostly exports machinery, mineral products and chemical products to Brazil while it imports animal food products and tobacco products from Brazil (WTO, 2010).

Russia is one of the world's largest gas and oil producers and exporters with significant proven reserves and extensive expertise and technological capacity. In 2016, petroleum and gas accounted for far more than 50 percent of Russia's exports (EIA, 2017). The energy sector drove Russia's economic boom as from 2003 to 2008 with high commodity prices (Mpungose & Chkoniya, 2019). South Africa has a strong incentive to engage on energy cooperation with Russia. Starting in 2008, South Africa

has been plagued by an electricity crisis due to ageing and insufficient generation infrastructure (Mpungose *et al.*, 2019). The situation has prompted the need to diversify and increase the country's electricity supply, which hampers economic growth. It was against this background that Russia and South Africa began negotiations on a nuclear energy deal in 2010 (Mpungose *et al.*, 2019).

Another BRICS country is India. Major Indian investors in South Africa include Tata (automobiles, IT, hospitality and ferrochrome plant), UB Group (breweries, hospitality), Mahindra (automobile) and a number of pharmaceutical companies including Ranbaxy and CIPLA as well as IT companies and some investments in the mining sector. There is also growing South African investments in India, led by SAB Miller (breweries), ACSA (upgrading of Mumbai airport), Sanlam and Old mutual (Insurance), AITECH (set top boxes), Adcock Ingram (pharmaceutical), Rand Merchant Bank (banking). Annually, approximately 1.2 million Indian tourists visit South Africa while approximately 60 000 South Africa tourists visit India (HCI, 2017).

As of 2015/16, there were 140 medium sized and/or large Chinese companies in South Africa with a combined investment of US\$ 13 billion, and who employed around 30 000 South Africans (Yansong, 2016). Significant investments by Chinese firms in South Africa include Hisense Group, an automobile assembly plant in Coega Industrial Park, and Hebei Jidong Development Group Cement Plan (Yansong, 2016).

Given the background to the economy and to foreign direct investment above, this study investigates the behaviour of South Africa's economy towards inflows of foreign direct investment from BRICs economies.

### 1.3 EMPIRICAL LITERATURE

This section discusses studies from developing countries and from mixed countries. The studies are divided into two parts according to nature of results, namely positive and negative results.

### 1.3.1 Developing economies studies

On one hand, Louzi and Abadi (2011) and Alfaro, Chanda, Ozcan and Sayek (2006), Tabassum and Ahmed (2014), Belloumi (2014) and Mahembe and Odhiambo (2015 have found a negative effect of FDI on economic growth. On the other hand, Caner and Hansen (2004), Khaliq and Noy (2007), Alfaro (2003), Effendi and Soemantri (2003), Kohpaiboon (2003), Obowa (2001), Zhang (2001), Balasurbramanyam, Salisu and Sapsford (1996), Blin and Ouattara (2009), Lean and Tan (2011), Trinh and Nguyen (2015), Behname (2012), Gudaro, Chhapra and Sheikh (2012), ) Adhikary (2015), Alshehry (2015), Carp (2012), Modou and Liu (2017), Nguyen (2006), Hoang *et al.* (2010), Anwar and Nguyen (2010), Odhiambo (2011), Hansen and Rand (2006), Herzer (2008), Bengoa *et al.* (2003), Khobai *et al.* (2017), Jugurnath *et al.* (2016) and Chowdhury *et al.* (2005) have found positive effect of FDI on economic growth.

Louzi and Abadi (2011) used the FDI-led growth hypothesis in testing the effect of foreign direct investment on economic growth in Jordan. The vector error correction approach from 1990-2009 time series data was used to generate an econometric model that captures two-way linkages between variables of interest. Results from the study showed that FDI inflows do not exert an independent influence on economic growth.

In the case of Bangladesh, Shimul *et al.* (2009) attempted to find the long-run relationship or cointegration between FDI and economic growth using time series data of 1973 to 2007. The results of their Granger Casuality test indicate that FDI and openness are not significantly causing the GDP per capita both in the short and in the long run. Their study thus suggests adopting appropriate steps so that FDI can be used as a contributing factor to economic development. Geijer (2008) also found similar results by using a multiple regression analysis with GDP per capita as dependent variable in Mexico.

Using cross-section regression for 71 developing countries, Alfaro, Chanda, Ozcan, and Sayek (2006) examined whether economies with well- developed financial markets could benefit and increase their economic growth with the attraction of FDI. They argue that lack of development of the domestic financial markets could reduce the domestic economy's ability to benefit from potential FDI spillovers. The study results indicated that in most of the 71 developing countries in the sample, FDI had a negative effect on economic growth.

Furthermore, Tabassum and Ahmed (2014) examined the relationship between foreign direct investment and economic growth of Bangladesh during the period 1972 to 2011. Their study evaluated the association between FDI and economic growth using the multiple regression method by considering the relationship between real

gross domestic product, foreign direct investment and openness of the trade policy regime. The results of their study indicated that domestic investment exerts positive influence on economic growth whereas foreign direct investment has no significance.

Belloumi (2014) investigated the relationship between trade, FDI and economic growth for Tunisia for the period of 1970 to 2008. The study employed autoregressive distribution lag (ARDL) model and revealed that the bound test suggests that the variables of interest are bound together in the long run when FDI is the dependent variable. However, the study indicated that when economic growth is the dependent variable, there is no significant granger causality from FDI to economic growth in the short run.

Mahembe and Odhiambo (2015) examined the causal relationship between inward foreign direct investment and economic growth in Southern African Development Community (SADC) countries. The study covered a panel of 15 SADC countries for the period 1980 to 2017. Panel unit root results showed that both variables in the two SADC country group were integrated of order one. Panel cointegration tests showed that the variables for low-income country group were not cointegrated, while the variables for the middle-income countries were cointegrated. The study also employed granger causality tests within a VAR framework, and causality tests for the middle-income country group were.

The study's panel granger causality results for the low-income countries showed no evidence of causality in either direction. However, for the middle-income countries panel results showed no evidence of a unidirectional causality flow from GDP to FDI in both the long and in the short run. Mahembe and Odhiambo (2015) conclude that the FDI-led growth hypothesis does not apply to SADC countries.

On the other hand, using threshold regression techniques developed by Caner and Hansen (2004), Jyun-Yi and Chih-Chiang (2008) investigated whether the impact of FDI on economic growth is dependent upon different absorptive capacities. The empirical results of their study showed that FDI alone plays an ambiguous role in contributing to economic growth based on a dataset of 62 countries covering the period from 1975 to 2000. Moreover, under the threshold regression, the study found that initial GDP and human capital are important factors in explaining FDI. FDI was

found to have a positive and significant impact on growth when host countries have better levels of initial GDP and human capital.

Khaliq and Noy (2007) investigated the impact of foreign direct investment on economic growth using detailed sectoral data for FDI inflows to Indonesia for the period 1997-2006. They used the methodology of augmented production function specification and regression methodology with time fixed effects. The study concluded that, in the aggregate level, FDI has a positive effect on economic growth. However, when accounting for the different average growth performance across sectors, the beneficial impact of FDI is no longer apparent. When examining different impacts across sectors, estimation results showed that the composition of FDI matters for its effect on economic growth. A few sectors reflected a positive impact of FDI, and one sector even showed a robust negative impact of FDI on economic growth.

Alfaro (2003) used cross-country regression and time series data for the period 1981-1999 to examine the effect of foreign direct investment on growth in primary, manufacturing and service sectors. Alfaro found out that FDI plays a positive role in economic growth. These effects emanate mainly from the manufacturing sector.

Effendi and Soemantri (2003) conducted a panel data study on foreign direct investment and regional economic growth in Indonesia. Time series data were used for the year 1987-2000 to generate an econometric model from 26 provinces in Indonesia. The Generalized Least Squares method was used as an estimation technique. Findings of the study indicated that FDI has a positive and significant effect on regional economic growth in the short run but not in the long run.

Kohpaiboon (2003) introduced the export variable in the growth- FDI equation when examining the effect of foreign direct investment on economic growth in Thailand. The vector error correction approach, using data from 1970 to 1999, was used to generate the econometric model. The study results revealed that there is unidirectional causality between FDI and GDP.

Obwona (2001) employed the investor surveys approach and econometric techniques to investigate the relationship between FDI and economic growth for Uganda. Pull factors such as growth prospects, liberalised exchange rate, low inflation and fiscal discipline were regarded as important variables in attracting foreign direct investment. However, the importance of each of the variables depended on the type of investment and motivations or strategy of investors (Obwona, 2001). The survey approach utilised combined data from local and foreign investors about their decision-making process when investing in Uganda. The findings from the survey showed that foreign investors were concerned with the level of security in terms of a stable macro-economic and political environment and credible policy reforms. This implies that increased foreign investment was a result of stable investment environment provided by government through its policies and institutions (Obwona, 2001). On the other hand, the same study also carried econometric tests on time series data from the period 1975 to 1991. The study results showed a positive relationship between foreign direct investment and economic growth in Uganda.

Zhang (2001) studied 11 Latin American and Asian countries for the period between 1970 and 1997 and reported that FDI was more likely to promote growth in Asia than in Latin America. Furthermore, Zhang (2001) found that FDI tends to promote economic growth when the host country adopts liberalised trade policies, to improve education and maintain macroeconomic stability.

Blin and Outtara (2009) investigated foreign direct investment and economic growth in Mauritius using Autoregressive Distributed Lag (ARDL) bounds test approach to cointegration for the period 1975 to 2000. The long run results indicated that foreign direct investment exerts a highly significant positive impact on economic growth in Mauritius. As for domestic investment, private investment showed a positive and highly significant impact, whilst the effect of public investment was positive but only significant at the 10 percent level.

Lean and Tan (2011) examined the linkage between foreign direct investment, domestic investment and economic growth in Malaysia for the period 1970 to 2009. The study employed Johansen's multivariate cointegration procedure. The FDI, DI and economic growth were cointegrated in the long run. FDI was found to have a positive impact on economic growth.

Trinh and Nguyen (2015) investigated the impact of FDI inflows on economic growth in Vietnam for the period 1990 to 2013 using the time series analysis technique. The unit root test and cointegration approach were applied to ensure that the regression was not spurious. The empirical results revealed that FDI inflows, domestic

investment, trade openness and secondary education have positive impacts on economic growth in Vietnam.

A study by Behname (2012) investigated the influence of foreign direct investment on economic growth in Southern Asia for the period 1977 to 2009. The study employed the random effect model. The study results revealed that foreign direct investment has a positive and significant effect on economic growth. Consistent with the work of Bahname (2012), Abdullahi *et al.* (2012) conclude that FDI promoted economic growth in selected countries in Africa and Asia in the period 1990 to 2009. Thus, Abdullahi *et al.* (2012) recommend more openness of the economies, more investment in infrastructure and more political commitment to the fight against corruption.

Gudaro, Chhapra and Sheik (2012) analysed the influence of external direct investment on economic growth in Pakistan during the period 1981 to 2010. The multiple regression model was employed to examine the link between national gross domestic products under overseas direct investment. Their results revealed a positive and significant association of gross domestic product with foreign direct investment. The study concluded that the foreign direct investment is an essential instrument for national output development in the developing countries through transfer of technology, improvement in competition in domestic input market, enhancement of human capital development and contribution of corporate tax revenues in the host country.

Adhikary (2015) investigated the linkage between FDI, trade openness, capital formation, human capital and economic growth rate in Nepal using the vector error correction model (VECM). The study revealed that a long run equilibrium relationship exists between variables. Besides, trade openness and FDI have a dynamic positive effect on the GDP per capita growth rate in Nepal.

Alshehry (2015) used the Johansen cointegration framework to evaluate the causal relationship between foreign direct investment and economic growth in Saudi Arabia between 1970 and 2012. The study was guided by the endogenous growth theory and it integrated an analysis of two additional variables, namely domestic capital investment and trade openness. The results showed that there is at minimum a long run relationship between FDI inflows, economic growth, domestic capital investment

and trade openness. Moreover, Granger causality tests showed that FDI inflows promote both short and long run economic growth.

Carp (2012) emphasises the importance of the FDI flows on the host country's economic growth, through the view of the representative, theoretical and empirical research for the approached field. In analysing the literature review concerning the effects of FDI in the beneficiary country, the results revealed that the impact of capital flow exerted, in the host country, some absorptive capacity, human capital and technological advancement. Similarly, following Insah (2013), the elasticity of economic growth with respect to FDI had a positive and significant impact at 1 per cent level through applying the dynamic ordinary least squares techniques.

Modou and Liu (2017) conducted the impact of Asian foreign direct investment and trade on Africa's economic growth during the period 1980 to 2015 using weighted fully modified ordinary least squares (FMOLS). The study indicated that both FDI and trade openness significantly contribute to economic growth. The study also indicated that a unidirectional causality runs from FDI to economic growth, indicating FDI-growth-led hypothesis while a bidirectional causality is detected between trade and economic growth, which validates the feedback-effect.

In the case of Vietnam, Nguyen (2006) examined the impact of foreign direct investment and economic growth using panel data from the period 1995 to 2016. The study revealed that there is a positive and significant impact of FDI on economic growth in 61 of Vietnam's provinces. Hoang *et al.* (2010) found similar results that there is positive and significant impact of FDI on economic growth in Vietnam.

A study by Hoang *et al.* (2010) investigated if foreign direct investment caused economic growth in Vietnam. The study employed the granger causality model. The results of the study revealed that foreign direct investment caused economic growth in Vietnam.

Anwar and Nguyen (2010) examined the nexus between foreign direct investment and economic growth in 61 provinces of Vietnam during the period 1996 to 2005. The study analyses were based on the simultaneous equations model. The study results revealed that bidirectional causality exists between foreign direct investment and economic growth in Vietnam. The study results further suggested that the impact of foreign direct investment on economic growth in Vietnam would be larger when more

resources are invested in education and training, financial market development and in reducing the technology gap between the foreign and local firms.

Odhiambo (2011) studied the causal relationship between foreign capital inflows and economic growth using the autoregressive distribution lag (ARDL) bounds testing procedure. The study found unidirectional causality of foreign capital inflows on economic growth of Tanzania.

Using a sample of 31 developing economies, Hansen and Rand (2006) found that foreign direct investment has a significant positive effect on economic growth through knowledge transfers and adoption of new technology. In addition, Herzer (2008) investigated the long run relationship between outward foreign direct investment and domestic output using panel data for the period 1971 to 2005. The results showed that outward foreign direct investment has positive long run effects on domestic output. Moreover, the results suggested increased outward foreign direct investment is both a cause and a consequence of increased domestic output.

Bengoa *et al.* (2003) explored the interplay between economic freedom, foreign direct investment and economic growth using panel data analysis for a sample of 18 Latin America countries for 1970 to 1999. The study results showed that economic freedom in the host country is positive determinant of foreign direct investment inflows. Furthermore, the results also suggested that foreign direct investment is positively correlated with economic growth in the host countries. The host country requires, however, adequate human capital, economic stability and liberalised markets to benefit from long run capital flows.

Khobai *et al.* (2017) examined the causal relationship between economic growth and trade openness in Argentina covering the period between 1970 and 2016. Foreign direct investment and capital were incorporated as additional variables to form a multivariate framework. The study employed autoregressive distributed lag (ARDL) model. The findings from the ARDL bound test validated the existence of a long run relationship between economic growth, trade openness and foreign direct investment. The results further indicated that there is a long run causality flowing from trade openness, foreign direct investment and capital to economic growth in Argentina.

Jugurnath *et al.* (2016) investigated and analysed the impact of foreign direct investment on economic growth for a panel of 32 Sub-Saharan African countries

during the period 2008 to 2014. The study used both static panel regression techniques and dynamic panel estimates. The evidence from the statistical analysis suggested that aggregated foreign direct investment has a positive and significant impact on economic growth in Sub-Saharan African countries.

Using the Bhagwati hypothesis to predict the effect of trade (exports) and foreign direct investment on economic growth, a study by Sakyi *et al.* (2017) investigated the extent to which the interaction of trade (exports) and foreign direct investment have an impact on economic growth for a sample of 45 African countries for the period 1990 to 2014. The study results revealed that trade and foreign direct investment have a positive and significant impact on economic growth in 45 African countries.

Chowdhury *et al.* (2005) produced empirical evidence on the relationship between foreign direct investment and economic growth obtaining from single equation and simultaneous equation estimates for 140 countries. The results indicated a positive and statistically significant estimate of coefficient of foreign direct investment and economic growth.

### 1.3.2 Mixed economies studies

Li and Liu (2005) investigated the impact of foreign direct investment on economic growth for a mixture of 84 developed and developing countries. They identified a significant positive endogeneous relationship from the mid-1980's. For a mixture of 71 developed and developing countries comprising of 20 OECD and 51 non-OECD countries, Alfaro *et al.* (2004) established that the impact of FDI on economic growth is more pronounced the more developed the financial markets of the host country are. Furthermore, in undertaking a comparative analysis for EU and ASEAN countries, Moudatsou and Kyrkilis (2011) found that FDI has a positive influence on growth for both regional bloc even though this effect is more pronounced in ASEAN countries.

A summary of the discussed previous studies is presented in Appendix 1 of this report. The next section discusses the problem statement.

### 1.4 PROBLEM STATEMENT

The ambitious goal to achieve sustainable high economic growth has been driven by the desire to address the social and economic challenges experienced by South African citizens. Among other socioeconomic challenges, South Africa has been experiencing high levels of poverty, unemployment and income inequalities, which are the huge problems for the country. On the other hand, there is limited intra-BRICS FDI flows among the economies. According to Unctad (2013), BRICS outward stock in other BRICS countries increased from 0.1 percent in 2003 to 2.5 percent in 2011, compared to the 10.5 percent that BRICS represents in world inward stock. In addition to this, there is limited visibility of BRICs companies in South Africa and the same applies to the visibility of South African companies in the BRICs countries.

In efforts to stimulate economic growth, FDI is regarded as one of the key instruments that could drive economic growth in the country (Almafraji *et al.*, 2014; Asid, 2014; Tabassum *et al.*, 2015; Awolusi *et al.*, 2016; Makhetha *et al.*, 2017). The positive long run savings-investment and savings-growth relationships across countries have been established by several studies (World Bank, 2011). Consistent with this, South Africa's savings and investment rates have been highly correlated; the coefficient of correlation between the two series from 1960-2010 is 0.72 (World Bank, 2011).

South Africa's record on savings and FDI has been very low in the past years. The national savings rate has remained caught in the 15-17 percent range since the early 1990s, averaging just under 16 percent over 2006-10 (SARB, 2013). The divergence is reflected in a large current account deficit that is covered largely by international portfolio flows, which cannot be relied on over an extended period (World Bank, 2011).

Furthermore, with a shortfall in national savings to cover its domestic investment, South Africa has had to rely on a large current account deficit. Financing this requires foreign investment, which, largely, has been adequate dependent heavily on portfolio flows rather than the more reliable foreign direct investment. Between 2002 and 2008, portfolio investment by foreigners averaged 2.4 percent of GDP, compared with FDI of only 1.5 percent (World Bank, 2011).

The composition of FDI and portfolio flows matters for the recipient country, especially one as savings-starved as South Africa. FDI is far more reliable as a source of external financing. It brings benefits to the recipient country, such as new technology, advanced managerial skills and links with global markets and production networks that, under appropriate conditions, can enhance productivity and lead to higher economic growth (Borenstein *et al.*, 1998).

A good economy also promotes investment by allowing companies to realise high profits, which in turn means high stock prices. However, South Africa's economic growth has been sluggish over the past years, posting an overall growth rate of less than 4 percent from 1990 to 2007, falling to 3.1 percent in 2008 and 1.8 percent in 2009, before a slight recovery of 4.6 percent during the first quarter of 2010 (SARB, 2013). The country has been struggling to reach at least 5 percent recently. According to the National Treasury (2018), South Africa has experienced a period of protracted economic weakness, mainly as a result of domestic constraints. This is reflected in low levels of private investment, persistently high and rising unemployment, and declining real per capita income. Therefore, this thesis did an empirical investigation of the behaviour of South Africa's economy towards inflows of foreign direct investment from BRICs economies for the period 1997 to 2016. This study is of great scholarly interest because South Africa is in need of enhancing economic growth and alleviating socio-economic problems.

### 1.5 RESEARCH OBJECTIVES

The study sought to investigate the behaviour of the South African economy towards inflows of foreign direct investment from BRICs economies. The study specifically set out to:

- (i) Examine the long run impact of BRICs FDI inflows on South African economic growth
- (ii) Examine the long run impact of BRICs FDI inflows on South African employment rate
- (iii) Examine the long run impact of BRICs FDI inflow on South African unemployment rate
- (iv) Examine the long run impact of BRICs FDI inflows on South African economic complexity
- (v) Determine the causal relationship between BRICs FDI inflows and economic growth, unemployment, employment and economic complexity of South Africa
- (vi) Provide policy recommendations based on the empirical findings

### 1.6 RATIONALE OF THE STUDY

South Africa is attracting a very low margin of foreign direct investment and low economic growth. That results in high employment rates, high inequality and high poverty rate among other problems. This study contributes to the body of literature and knowledge on foreign direct investment and economic growth by examining the impact of BRICs FDI inflows on South Africa's economic growth. This study is different from other studies that focus on FDI and economic growth in that it is contemporary and it focuses on the period from 1997 to 2016.

The study contributes to the empirical literature by estimating the impact of FDI on economic growth utilising both the autoregressive-distributing lag (ARDL) model and the quantile regression model to estimate the impact of FDI and economic growth. To the knowledge of the researcher, no study in South Africa has estimated the impact of BRICs FDI inflows on South Africa's economy. The majority of the studies have focused on the effect of FDI on economic growth in South Africa (see Mazenda, 2012; Masipa, 2014; Mbeki, 2016; Abreu, 2016).

The findings from the study will contribute to both the academic and economic policy fields. Within the academic field, the study provides a deeper insight regarding the impact of BRICs FDI inflows on South Africa's economic growth. On the economic policy field the study shows which BRICs direct investment sector contributes in the economy of South Africa.

### 1.7 METHODOLOGY OF THE STUDY

The study employed panel cointegration tests through kao test, fully modified least squares (FMOLS) and Dynamic ordinary least squares (DOLS) tests to determine if there is an existence of cointegration between economic growth, employment, economic complexity and unemployment, and foreign direct investment inflows. The study also employs granger causality tests through Stacked and Dumistrescu Hurlin tests to examine if there is an existence of causality between economic growth, employment, employment, economic complexity and unemployment, and foreign direct investment inflows.
# 1.8 STUDY HYPOTHESES

This study tests the following hypotheses:

- H<sub>0</sub>: FDI inflows from Brazil do not have a positive and statistically significant effect on South Africa's economic growth.
   H<sub>A</sub>: FDI inflows from Brazil have a positive and statistically significant effect on South Africa's economic growth.
- H<sub>0</sub>: FDI inflows from Russia do not have a positive and statistically significant effect on South Africa's economic growth.
   H<sub>A</sub>: FDI inflows from Russia have a positive and statistically significant effect on South Africa's economic growth.
- H<sub>0</sub>: FDI inflows from India do not have a positive and statistically significant effect on South Africa's economic growth.
   H<sub>A</sub>: FDI inflows from India have a positive and statistically significant effect on South Africa's economic growth.
- H<sub>0</sub>: FDI inflows from China do not have a positive and statistically significant effect on South Africa's economic growth.
   H<sub>A</sub>: FDI inflows from China have a positive and statistically significant effect on South Africa's economic growth.

# 1.9 ORGANISATION OF THE STUDY

The study is organised as follows:

Chapter 1 introduces the subject matter of the study. It discusses the background to the study and presents a conceptualisation of foreign direct investment and economic growth in South Africa. The chapter also discusses the research problem, objectives of the study and justification of the study.

Chapter Two provides a discussion of the theoretical and empirical literature on foreign direct investment and economic growth, unemployment and employment. The chapter reviews various studies, which have mixed results. Some studies had positive results on the relationship between foreign direct investment and economic growth, unemployment and employment and others found a negative impact between the variables.

Chapter Three presents an overview of the macroeconomic trends in Brazil, Russia, India, China and South Africa (BRICS) economies. The chapter presents trends of FDI inflows in relation to South Africa's economic growth from 1997 to 2016. The determinants of FDIs in South Africa are also included in this chapter.

Chapter Four discusses the overview of foreign direct investment in South Africa.

Chapter Five discusses the foreign direct investment policies in BRICS countries.

Chapter Six discusses the methodology of the study on foreign direct investment, unemployment, employment, economic complexity and economic growth.

Chapter Seven presents a discussion of the results on BRICS foreign direct investment inflows and South Africa's economic growth during the period under review.

Chapter Eight summarises the findings of the study. The chapter concludes all the arguments and findings of the study. This chapter also proffers a set of recommendations for improving the economic growth of South Africa.

#### 1.10 SUMMARY

This chapter introduced the subject of foreign direct investment and economic growth in South Africa. The chapter also highlighted the importance of boosting economic growth and attracting more foreign direct investment in South Africa. Several studies have proven that FDI enhances economic growth of the host country. However, results of some studies disagree with those findings.

The chapter discussed the BRICs group alliance, which was coined in 2001 by then chairperson of Goldman Sachs asset management, Jim O'neill. The BRICs group alliance envisaged to overtake the major economic powers over the next few decades. Their growth was expected to shape a new economic order, replacing the dominating advanced economies. China has been an outstanding emerging economy in the BRICS group, recording economic growth of about 10 percent in the past 10 years. China is known as the factory of the world, Russia the gas station of the world, India the back office of the world and South Africa, which joined in 2010, the Jeweler of the world and a gateway to Africa. BRICS is an effort by its members to foster cooperation in order to meet global challenges, especially those faced by emerging economies.

The ambitious goal to achieve sustainable high economic growth has been driven by the desire to address the social and economic challenges experienced by South Africans. Among other socioeconomic challenges, South Africa has been experiencing high levels of poverty, unemployment and income inequalities. This study's main objective was to investigate the behaviour of South Africa's economic growth towards inflows of foreign direct investment from BRICs economies from 1997 to 2016.

In addition to the challenges South Africa's economy is facing, the country's record on savings and foreign direct investment has been very low in the past years. The national savings rate has remained in the 15-17 percent range since the early 1990's, averaging just under 16 percent over 2006-10 (SARB, 2013).

The majority of studies conducted investigated the relationship between foreign direct investment and economic growth in South Africa, and only focused on one regression analysis and FDIs from different countries. However, this study mainly focused on FDI inflows from BRICs economies and the study employed two regression namely ARDL and Quantile model. Chapter Two does the theoretical literature review on foreign direct investment theories. It also reviews empirical literature.

### LITERATURE REVIEW

### 2.1 INTRODUCTION

This chapter presents a theoretical review of economic growth theories, FDI theories, and empirical literature on the impact of FDIs on economic growth, employment and unemployment. The aim of the empirical review is to discuss the previous studies with a view to finding any gaps relating to FDIs and economic growth in South Africa.

The theoretical review explores the ancient economic growth theories with a view to showing the contribution of the primary sources, and to assessing the economic growth theory that guided the current study. On the other hand, the empirical review explores the co-integration of FDIs and economic growth. This serves to determine the existence of long-term relationships between these variables.

This chapter starts with theoretical review, which discusses the new endogenous economic growth theories, namely Frankel's (1962) AK model, Cass's (1965) endogenous growth model, Romer's (1986) endogenous growth model, and Lucas' (1988) endogenous growth model. This is followed by the FDI theories, which include the Product cycle theory of Vernon (1966), Currency area theory (Capital market theory), Industrial organization theory, Monopolistic advantage theory, Oligopolistic theory, Internalization theory, Eclectic paradigm, and FDI institutional fitness. Afterwards, an empirical review that discusses International studies, South African studies and BRICS studies is done and gaps are identified in the literature. The chapter ends with a summary.

## 2.2 THEORITICAL REVIEW

#### 2.2.1 New Endogenous economic growth theories

This section discusses the endogenous growth theories and focuses on Frankel's (1962) endogenous growth model, Cass' (1965) endogenous growth model, Romer's (1986) endogenous growth model and Lucas' (1988) endogenous growth model.

## 2.2.1.1 Frankel's (1962) AK model

Endogenous growth models focus on the accumulation of physical capita and assume that the savings (or investment) rate has a permanent positive contribution to the longrun growth rate (Chirwa *et al.*, 2018). The aggregate production function can also show increasing returns to scale if a portion of the capital employed is utilised for innovative capital that contributes to technological progress (Chirwa *et al.*, 2018). They add that such innovative capital can be in the form of improvement in the organisation, quality of labour, external economies of scale and technical change. The Cobb-Douglas production function takes the following form:

$$Y = aK^{\beta}L^{\alpha}$$
 2.1

Where *Y* is total output, *a* is a constant, *K* and *L* are the quantities employed of capital and labour, and where the exponents sum to unity.

#### 2.2.1.2 Cass's (1965) endogenous growth model

Cass' (1965) study elaborates the problem of optimum saving first discussed by Frank Ramsey in 1928. The aim of the Cass model was to develop a growth theory where the central principle was to determine an optimum feasible growth path that focused on maximising social welfare. His argument was that for any economy, the social objective is to ensure that consumer goods are adequately provided over time. For this to be done, the optimal feasible growth path could not be determined without maximising the utility of current consumption per capita (Chirwa *et al.*, 2018). In the Cass (1965) framework, the determination of the savings rate is, therefore, endogenous, contrary to Solow's prediction (Chirwa *et al.*, 2018). In the Cass model, national income is used to satisfy consumption and investment over time. The general equilibrium in intensive form is, therefore, where the output is equated to the sum of consumption and investment thus:

$$y(t) = c(t) + z(t)$$
2.2

Where y(t) is a single homogenous output and c(t) and z(t) are homogenous consumption and investment, respectively. The key message from Cass's (1965)

model is that policy choices can influence the rate of savings and investment (Chirwa *et al.*, 2018).

# 2.2.1.3 Romer's (1986) endogenous growth model

The Endogenous growth theory encompasses a class of models that goes beyond the Solow (1956) model, and attempt to endogenise technology (Arrow, 1962). Arrow (1962) submits that the growth of the effectiveness of labour is the result of workers' cumulative experience in producing commodities or learning by doing. This implies that labour productivity is now endogenous, and is an increasing function of a cumulated aggregate investment by firms.

Romer (1986), who built upon the contributions of Frankel (1962) and Arrow (1962), set a major step forward in endogenising technological progress. The basic idea of the approach was that technology grows in population to the macroeconomic capital stock and potentially offsets the effect of diminishing returns. Arrow (1962) states that capital stock, in such a setting, should be considered as a broad concept, including human and intangible capital. This approach is currently known as the "AK approach" because it results in a production function of the form Y=AK with a constant. The essential idea of the Romer (1986) model is that knowledge can be considered a kind of renewable capital good, where K should be interpreted as knowledge.

The crucial assumption in the Romer (1986) model is that knowledge does have a non-decreasing marginal product, that is,  $\alpha + \beta \ge 1$ . This can be interpreted as allowing for non-decreasing social returns to capital (knowledge), which result in non-decelerating growth. In addition, the endogenous growth model depends on savings and investment in human capital on one hand (Lucas, 1988; Mankiw, Romer & David, 1992), and research and development (R&D) on the other (Mattana, 2004).

In the endogenous growth model, investment is considered a crucial factor that affects economic growth. Romer (1986) further argues that this class of models has a knife-edge character due to the assumption of constant returns to scale with respect to reproducible factors. Any deviation from this assumption will have significant effects in the very long run. With slightly decreasing returns, growth will have a significant effect in the very long run, whereas, with slightly increasing returns, growth will accelerate indefinitely (Lucas, 1988).

One of the main insights that can be drawn from endogenous growth theory is a link between financial development and economic growth. In other words, in order for a country to grow, it must develop its financial systems. Financial systems may affect economic growth by providing such functions as facilitating the trading, hedging, diversifying, and pooling risk. These functions affect growth by leveraging the rate of capital information. Levine (2005:86) argues that "...financial systems influence growth by easing information and transaction costs, and thereby improving the acquisition of information about firms, corporate governance, risk management, resource mobilisation, and financial exchange". Mckinnon (1973) and Shaw (1973) show that countries that have high economic growth also have developed financial markets, and their developed financial markets lead to higher economic growth. This is through increasing the size of savings and improving the efficiency of investment.

#### 2.2.1.4 Lucas (1988) endogenous growth model

Another form of the endogenous growth model that includes a significant factor of production, namely human capital, was pioneered by Lucas (1988). Lucas classifies human capital as development in skilled level where the productivity of the workers can be increased by enhancing their skilled level (Chirwa *et al.*, 2018). Lucas further assumes that human capital has two effects, namely effects on existing factors of production and the production function and effects on time allocation that affects human capital accumulation (Lucas, 1988). Lucas' model framework conforms to the classical triangle first discovered by JB Say's praxeological deduction on the significance of labour in the accumulation of output or income (Chirwa *et al.*, 2018). Lucas' (1988) human capital growth model has two solutions to resolve: first, an optimal path and, secondly, an equilibrium path. On one hand, the optimal path aims to maximise consumer utility subject to the production function and the endogenous human capital accumulation function. On the other hand, the equilibrium path involves maximising the endogenous human capital accumulation function function

$$L(t)C(t) + K(t) = AK(t)^{\beta} [u(t)h(t)L(t)]^{1-\beta}h_{a}(t)^{\gamma}$$
2.3a

Where  $h_a(t)^{\gamma}$  represents an external effect of human capital, *A* is a constant level of technology, and h(t) is human capital accumulation. If  $\gamma = 0$ , then there are no

external effects and the balanced growth path for the human capital growth model is a concave function with a straight line that passes through the origin (Lucas, 1988). Yet, if  $\gamma > 0$ , the human growth model become convex function. The accumulation of human capital is linked to the rate of change in human capital. Lucas employs a formulation similar to that by Uzawa (1965) and Rosen (1976), where the growth rate of human capital accumulation is as follows:

 $h(t) = h(t)\delta[1 - u(t)]$  2.3b

The solution to Lucas' human capital growth model is based on one key restriction, namely that, for the model to hold, the value of the constant relative risk aversion factor should be equal to one or greater than one (Chirwa *et al.*, 2018). Based on this limitation, the Lucas model provides an economic growth model where human capital leads to growth effects rather than level effects and is subject to the value of the preference  $\rho$ , the growth rate for human capital accumulation  $\delta$ , and the constant relative risk aversion parameter  $\sigma$  (Lucas, 1988). The key assumption of the Lucas human capital endogenous growth assumes increasing returns based on human capital development function that is convex (Chirwa *et al.*, 2018).

The shortcomings of the endogenous growth models discussed is the problem of determining the optimal values of the intangible parameters that become subjective to the valuation of the benevolent dictator or social planner (Chirwa *et al.*, 2018). Moreover, as Lucas (1988) argues, even the parameters in the endogenous growth models do not result in growth effect. The following section discusses the foreign direct investment theories.

#### 2.2.2 Foreign Direct Investment theories

This section discusses the foreign direct investment (FDI) theories, namely Product cycle theory of Vernon (1966), Current area theory (capital market theory), Industrial organization theory, Monopolistic advantage theory, Oligopolistic theory, Internalization theory and FDI institutional fitness.

#### 2.2.2.1 **Product cycle theory of Vernon (1966)**

Product cycle theory was pioneered by Vernon (1966), and it focuses on consumer durables and was based on United States of America's experience in the post war period. The product cycle theory was a response to the observation that US firms were among the first to develop new labour saving techniques in response to the high cost of skilled labour and a large domestic market (Vernon, 1966). Vernon further suggests that the role of foreign direct investment (FDI) follows a three-stage life cycle of a new product, and the stages are innovation, growth and maturity. The assumption of Vernon's theory is that firms that develop the product in their domestic market would shift the manufacturing plants to the countries that have tremendous unskilled labour, rather than sell or licence their technology to host country competition.

Vernon explains the three-product life cycle stage as follows: in the innovation stage, a new technology advanced product is invented under the intensive research and development efforts by the lead enterprise in advanced industrial countries (Vernon, 1966). This product is first introduced in the home market, and close co-ordination of production and sales is undertaken while the product is improved. As the customers like the new product, they would like to pay a premium price for it and the location of the product requires high per capita income, and a strong technological base. Afterwards, as the product is accepted by the customers, sales are augmented based on demand (Vernon, 1966).

The growth stage relates to the period when the product starts to be exported to other countries. The production method and sales channel are also improved for the enhancement of productivity with respect to increased demand (Vernon, 1966). In this stage, other enterprises start to mimic the product since the market responds positively to the product. In addition, at this stage customers start to become sensitive to the price. Cost saving becomes a big issue for the leading enterprise to keep its advantage and become realistic to shift production of the product to other countries (Vernon, 1966).

The product eventually reaches the maturing stage, while the production process is standardised, and the cost is reduced (Vernon, 1966). Competition from similar

products diminishes profit margins and threatens margins on both exports and home market. To keep the initial standard played by research and development (R&D) of managerial skills at the innovation stage and growth stage, low-cost labour becomes crucial to meet the requirements of cost saving in the producing process. To do so, the production location relocates to low wage labour in developing countries through FDI (Vernon, 1966). The cost of marketing exports of the product from these countries may be minimum compared to other rivalries since the productivity is standardised. FDI in this model is undertaken as a monopolistic defense of the market (Vernon, 1966).

The shortfall of the Vernon (1966) product cycle theory is that it only considered the situation from the US perspective and emphasised the technology advantage from the leading firm in developed countries. As a result, the theory could not explain the FDI with no advanced technology like the textile and garments industry. It also did not consider FDI among developing countries.

#### 2.2.2.2 Currency area theory (capital market theory)

This theory is often known as currency area theory and is considered one of the earliest theories that describe foreign direct investment (FDI) (Makoni, 2015). The capital market theory was pioneered by Aliber (1970; 71), who argues that foreign investment is arose as a result of capital market imperfections. According to Nayak and Choudhury (2014), FDI is precisely the result of differences between origin and host country currencies. Aliber (1970) states that weaker currencies have a higher FDI- attraction ability and are better able to take opportunity of differences in the market capitalisation rate, compared to stronger country currencies. He further adds that origin country multinational corporations (MNC) are based in hard currency areas and can leverage at a lower interest rate than host country companies since portfolio investors overlook the foreign aspects of origin country MNCs. This provides the origin country enterprise the advantage since they can access cheaper sources of capital for their overseas affiliated and subsidiary companies compared to local companies.

This theory has shortcomings, which were identified later by scholars (Makoni, 2015). An example of the challenges is the fact that the capital market theory ignores the basic currency risk management fundamentals. One of the major criticisms of this theory is that the theory does not apply in the case of less developed countries with highly imperfect or non-existent capital markets and those with heavily regulated foreign exchange rates (Lall, 1979). In addition, Nayak *et al.* (2014) state that this theory does not explain investment between two developed countries with similar strength currencies, nor between weak currency from developing country and developed country with stronger currency.

## 2.2.2.3 Industrial Organisation theory

Hymer (1970) developed the Industrial Organisation Theory. The theory explains international production in an imperfect market framework. In other words, the theory emphasises that a firm's decision to invest overseas is explained as a strategy to capitalise on certain capabilities not shared by competitors in foreign countries (Morgan & Katsikeas, 1997).

Furthermore, this theory also asserts that firms operating offshore are faced with domestic rivalry. For instance, foreign investors venturing into other economies face competition from local entities. This is the result of local entities having better understanding of the market in terms of ease of doing work, language, consumer preferences, culture, rules and regulations, attitude, legal system and foreign exchange risk (Vyas & Giri, 2016; Dinkar & Rahul, 2014).

Foreign firms offset the above disadvantages through market power<sup>1</sup>, which merely applies to imperfect markets. The common sources of market power are patent protected technology, marketing, management skills, economies of scale and cheap source of finance (Nayak & Choudhury, 2014). Nayak and Choudhury add that in the common source of market power the technology superiority patent furnishes the greatest advantage to international firms in the sense that technology inventions facilitate the introduction of new products in both existing and new markets. Caves (1971) submits that the significance of Hymer's theory is that it articulates the point that the advantages are transmitted effectively from one unit of a firm to another, irrespective of the fact that they are either situated in one country or in several countries.

<sup>&</sup>lt;sup>1</sup> Market power is the ability of a firm to profitably raise the market price of a good and service over marginal cost.

Most foreign investors leverage on the advantages of imperfect competition for maximising profit in the host country. Wilhelms and Witter (1998) assert that investors make the country selection based on the comparative advantage of transportation and local regulatory trade barriers.

Even though Hymer's theory paved the way for many researchers after him, there were still shortcomings that were highlighted by critics. Many researchers have claimed that the theory failed to explain the FDI thoroughly since it came short of telling where and when FDI takes place (Dinkar and Rahul, 2014).

# 2.2.2.4 Monopolistic Advantage theory

This theory was first proposed by Hymer (1970) in his doctoral thesis and was later expanded by Kindleberger (1969). It explains the reasons multinational companies (MNCs) are able to compete successfully against local firms. This theory argues that MNCs prefer foreign direct investment, because it provides the firm control over resources and capabilities in the foreign market and a degree of monopoly power relative to foreign competitors. Key sources of monopolistic advantage include proprietary knowledge, patents, unique know-how and sole ownership of other assets.

Most of the foreign firms that are operating in the monopoly market tend to exploit the domestic market. On that point, Gelan (2009) argues that MNCs are likely to prosper from their activities at the expense of the domestic firms. A long-term expansion of the domestic firms may be stagnant because of the monopoly power of MNCs that disadvantage the efficiency of the domestic firms (Gelan, 2009).

According to Kindleberger (1969) and Nayak and Choudhury (2014), MNCs' advantages are likely to take place in the imperfect market. The main aspects of the Monopolistic Advantage Theory are superior knowledge, economies of scale<sup>2</sup>, marketing, technology and management skills and that foreign firms are likely to exploit the domestic market. In many cases, the government of the host country comes up with regulations and policies that would regulate the incoming of foreign countries so that it could alleviate the impact of exploitation of the domestic market.

<sup>&</sup>lt;sup>2</sup> Economies of scale is a proportionate saving in costs gained by a increase level of production.

# 2.2.2.5 Oligopolistic theory

This theory was pioneered by Knickerbocker (1973), with the aim of explaining foreign direct investment (FDI) in the oligopoly market. Knickerbocker argues that firms in the oligopoly<sup>3</sup> market imitate the behaviour of the rival firm (Sooklall and Hoolash, 2016). According to Head, Mayer and Rie (2002), researchers on FDI have long recognised two significant motives for choosing a country as the place for new facility. First, firms aspire to gain improved access to that country's market. Second, firms want to exploit the relatively excessive factors situated in the country.

Knickerbocker further explains that foreign entry by a firm may lead to a rival reaction. A number of factors may contribute to this; for example, when a foreign firm is uncertain of production cost in the host country to which they currently export, they face a risk of being under-priced by a competitor that switches from exporting to establishing a manufacturing subsidiary in the host country.

According to Altomonte and Pennings (2003), the only way for the firm to circumvent the phenomenon of being under-priced is through imitating the rival's FDI. For instance, the moment a rival firm sets up a plant in their exporting country, the rival will follow suit. This is due to the fear that their export market may be at risk of rival takeover as the opposing firm will gain more accurate knowledge about the foreign market, and will, henceforth, supply the overseas market with greater ease (Sooklall and Hoolash, 2003).

## 2.2.2.6 Internalization theory

The theory was coined by Buckley and Casson (1976), following the work of Coase (1937). They stress the focus on the intermediate inputs and technology (Nayak and Choudhury, 2014). Buckley and Casson shifted the focus of the international investment theory from country-specific towards industry-level and firm-level determinants of FDI (Nayak and Choudhury, 2014). In other words, this theory tries to explain the growth of multinational enterprise (MNEs) and their motivations for achieving FDI (Denisia, 2010).

<sup>&</sup>lt;sup>3</sup> Oligopoly market Is one where there are very few but large firms which dominate the whole market (Sooklall and Hoolash, 2016)

Buckely and Casson demonstrate that MNEs are structured in a way that focuses on internal activities to develop specific advantages, which are then utilised (Denisia, 2010). Internationalisation is also explained as internalisation theory in the corpus or literature. Buckely and Casson explain the theory based on three assumptions. First, firms augment profits in an imperfect market. Secondly, internal markets are created when intermediate products are in an imperfect market. Thirdly, MNEs are a result of internalisation markets.

Nayak and Choudhury (2014) state that a firm may choose to internalise by utilising backward and forward integration. For instance, the output of one firm subsidiary can be used as an input to the production of another subordinate company. The Internationalisation theory is also considered very imperative by Dunning, who uses it in the eclectic theory but argues that the theory explains certain parts of FDI flows and does not cover them in detail. This theory is combined with other principles like organisational behaviour, location of the firm's operations and theories of innovation that help firms to achieve robust benefits (Buckley & Casson, 2009). Furthermore, this theory is market driven and takes advantage of transfer pricing, reduced risks and increased proceeds.

The internationalisation theory is applicable in South Africa. For example, China has made Greenfield investment in Automobile, which cost it R11 billion in building the plant in Port Elizabeth. Therefore, the internationalisation has played a pivotal role in attracting foreign funds to South Africa.

## 2.2.2.7 Eclectic paradigm

The Eclectic Paradigm or Eclectic Theory, as it was originally known, was pioneered by Dunning in 1973. It is also known as the Ownership, Location and International (OLI) advantage theory of Foreign Direct Investment. The theory seeks to offer a general framework for determining the extent and patterns of both foreign owned production undertaken by a country's own enterprises and those of domestic production owned by foreign enterprises.

In this theory, Dunning (1973) differentiates between two types of investment that a firm can choose to undertake, namely portfolio investment (FPIs) and foreign direct investment (FDIs). FPI is defined as the passive holdings of securities and other financial assets, which do not involve active management or control of the securities

issuer. FPI is positively influenced by high rates of return and reduction of risk through geographic diversification. The return on FPI is normally in the form of interest payments or non-voting dividends. On the other hand, FDI is defined as the acquisition of foreign assets for the purpose of control (Dunning, 1973).

This theory was triggered by a question that rose from Dunning after he studied the research by Rostas (1948) and Frankel (1955) about American Anglo labour productivity in the United States (US) manufacturing industry that was, on average, 2 to 5 times higher than that in the United Kingdom (UK) industry. This whole scenario prompted Dunning to figure the possible cause of the difference in performance between the US and UK industries. Dunning (1973) then identified the three different pillars of multinational enterprises, and these are popularly known as the O-L-I paradigm. O–stands for ownership advantage, L–stands for location advantage and I–stands for internalisation advantage.

These three pillars focus on different questions that every foreign investor seeks to answer. The first pillar is ownership advantages, and it addresses the Why question (Why go abroad?). According to Dunning (1973), this question hypothesises that foreign firms have one or more firm specific advantages. Examples include ownership advantage and core competency, which allow these firms to overcome the operating costs in a foreign country.

The next pillar is location advantage or country specific advantages. According to Dunning (1973), this pillar addresses the Where question (Where to locate?). Dunning (1973) further states that the decision of a firm to move offshore is based on the firm specific advantage, in combination with factors in a foreign country. Factors such as labour and land are imperative in determining the location of a foreign firm in order for it to make proceeds. In addition, Dunning (1973) states that the choice of investment location depends on several complex calculations that include economic, social and political factors to determine whether investing in that country is profitable or not.

The last pillar is internalisation advantage (internal route). This pillar addresses the How question? (i.e. how to go abroad?). The foreign investor can have several choices of entry mode, which can range from the extent of markets to the hierarchy (i.e. entirely owned subsidiary). In addition, the foreign investor can choose internalisation if the

market does not exist or functions poorly, that is, if transaction costs of the external route are high (Dunning, 1973).

### 2.2.2.8 FDI Institutional Fitness

This theory was created by Wilhems and Witter (1998). The term FDI fitness refers to a country's ability to attract, absorb and retain FDI by reacting swiftly to dangers and opportunities, creativity and flexibility in carving out a niche in which a country can survive against competitors. It is the country's ability to adapt, or to fit to the internal and external expectations of its investors, which provides countries with the advantage in attracting FDI inflows (Makoni, 2015). This theory states that is the institutions, policies and implementation, rather than generic inflexible variables that provides a country with competitive advantage in the global FDI market (Wilhelms *et al.*, 1998). Wilhelms further states that countries with high institutional fitness. High institutional fitness means that a country's institutions are transparent, well-functioning, reliable and predictable (Wilhelms *et al.*, 1998).

Moreover, this theory attracts analogy with the Darwinian concept of the survival of the fittest by suggesting that it is not necessarily the largest and strongest countries that entice FDI but those which adapt most cleverly and fittingly to existing conditions (Wilhelms *et al.*, 1998). This theory further indicates why FDI flows are distributed so unevenly and often out of proportion to natural resources and some disadvantaged countries have been able to attract relatively larger FDI inflows than others that are more richly endowed with natural resources. According to the theory, there are four main FDI fitness institutions, namely government, market, education, and socioculture. Wilhelms et al. (1998) states that the higher the degree of receptiveness and integration of a country's socio culture, the greater the capacity for attraction of FDI due to the perceived cultural proximity by foreign investors. For example, the East African region may be recognised as a suitable FDI location by investors from the region due to cultural proximity. Education fitness creates favourable environments for FDI through information, research, development and technology (Karau and Mburu, 2016). They further indicate open that competitive markets with protective regulation attract more FDI than markets subjected to direct regulation. Moreover, the

government fitness is responsible for regulation and coordination of the other three institutions through policies and their implementation that in turn determine FDI inflows. FDI fitness institution interacts in various forms to influence one another but the net effect of this interaction affects FDI inflows (Karau *et al.*, 2016). The next section is the empirical review.

# 2.3 EMPIRICAL LITERATURE REVIEW

The empirical literature review compares the findings of the different studies. It focuses on their objectives, the methods used and the findings. This study shows four categories of relationships, namely foreign direct investment and economic growth, employment and foreign direct investment, unemployment and foreign direct investment, and economic complexity and foreign direct investment. Each category is segregated into three sections: international studies, South African studies and BRICS studies. Furthermore, the section identifies gaps in the empirical literature.

# 2.3.1 Economic growth and foreign direct investment studies

# 2.3.1.1 International studies

Anna (2007) investigated the impact of foreign direct investment on economic growth in China during the period 1994 to 2003. The study employed Johansen cointegration test and vector error correlation model for causality. The results show a long run relationship between FDI and economic growth in China. In addition, there is FDI granger cause economic growth.

A study by Almafraji *et al.* (2014) examined the impact of foreign direct investment on economic growth in Qatar. The study used the vector autoregressive model (VAR) for cointegration and causality for the period 1990 to 2010. The study results reveal that there is positive and significant impact of FDI inflows on economic growth in Qatar.

Omran and Bolbol (2003) investigated the impact of foreign direct investment and financial development on economic growth in Arab countries. The study employed the threshold regression technique. The results show that the FDI inflows have a positive and significant impact on economic growth.

Another Chinese study by Yao (2006) examined the relationship between foreign direct investment, exports and economic growth, using a large panel data set

encompassing 28 Chinese provinces for the period 1978 to 2000. Yao's study employed a generalised method of moments (GMM) as an estimation technique. The study results show that FDI has a strong and positive impact on economic growth. It also reveals that the two development policies adopted in China are useful for other developing and transitional economies.

Apergis and Lyroudi (2008) examined the relationship between foreign direct investment and economic growth in Transition countries during 1991 to 2004. The study employed the GMM technique. The results show a positive relationship between foreign direct investment and economic growth and FDI granger causes economic growth.

In Bangladesh, Hussain and Haque (2016) examined the relationship between foreign direct investment, trade and economic growth through estimations of annual time series data from the period 1973 to 2014. Their study used a vector error correlation model (VECM). Their results show a long run relationship between foreign direct investment and economic growth.

Iqbal *et al.* (2013) studied the impact of foreign direct investment on economic growth in Pakistan, with the objective of validating the casual relationship between the two variables and using the data over the period 1983 to 2012. The analysis employed by the study to test the relationship is the Cobb-Douglas production function. The results reveal that there is a positive relationship between FDI and GDP in Pakistan.

A study by Antwi and Zhao (2013) investigated the impact of foreign direct investment and gross national income on economic growth in Ghana. The study employed the Johansen cointegration technique and VAR as well as VECM for causality. The period covered was 1980 to 2010. The results of the study show a long run relationship between FDI and economic growth in Ghana.

Dash and Sharma (2011) investigated the link between foreign direct investment, trade, and economic growth in post-reform India during the period 1991 to 2006. The study used a vector autoregressive model and granger non-causality test of Toda and Yamamoto (1995). The results show a positive relationship between foreign direct investment and economic growth. In addition, the study showed a bidirectional causality between foreign direct investment and economic growth in lndia.

Ogbokor (2011) examined the impact of foreign direct investment on economic growth in Namibia for the period 1990 to 2014, using Johansen cointegration and VECM. The study results show that there is a long run relationship between foreign direct investment and economic growth and there is causality between the variables.

A study by Olumuyiwa (2013) investigated the impact of foreign direct investment on economic growth in a pre and post deregulated Nigeria. The study used a pairwise granger causality test for the period 1970 to 2010. The results indicate that there is causal relationship between economic growth and foreign direct investment in Nigeria.

In Ghana, Sakyi, Commodore and Opoku (2012) investigated the foreign direct investment, trade openness and economic growth within the framework of endogenous growth literature. The study employed autoregressive distributed lag model (ARDL) for the period of 1970 to 2011. The study results suggest that the interaction of foreign direct investment and exports has been crucial in fostering growth, thus validating the famous Bhagwati hypothesis.

Moreover, Awolusi and Adeyeye (2016) examined the impact of foreign direct investment on economic growth in Africa, for the period 1980 to 2013, using ordinary least squares (OLS) and GMM. Like other studies discussed above, the results of Awolusi and Adeyeye's study show that there is significant and positive impact of foreign direct investment on economic growth in African countries.

A study by Sothan (2017) analysed the causality between foreign direct investment and economic growth in Cambodia during the period 1980 to 2014. The study employed the Johansen cointegration technique, vector autoregressive model and granger causality test, based on the vector error correction model. The results show a positive and significant impact of foreign direct investment on economic growth in Cambodia.

Gudaro, Chhapa and Sheika (2012) studied investigates the impact of foreign direct investment on economic growth in Pakistan during the period 1981 to 2010, with the help of Multiple regression models. The results reveal a positive and significant association of gross domestic product and foreign direct investment in Pakistan. The study concludes that foreign direct investment is an essential instrument for national output development in developing countries through transfer of technology,

improvement in competition in domestic input market, enhancement of human capital development and contribution to corporate tax revenues in the host countries.

Vu, Gangness and Noy (2008) investigates the impact of foreign direct investment on economic growth in China and Vietnam during the period 1990 to 2003. The study employs fully generalised least squares (FGLS) and least squares with dummy variables (LSDV). The empirical results show that foreign direct investment has a positive and significant impact on economic growth in both countries.

Makwembere (2014) examines the influence of sector foreign direct investment on economic growth in developing countries. They employ generalised least squares (GLS), GMM and LSDV technique. The results indicate that there is a positive and significant impact of sectoral foreign direct investment on economic growth.

In Nigeria, examines foreign private capital and economic growth for the period 1980 to 2013. The study employs ordinary least squares (OLS) regression technique. The empirical results show that foreign capital inflow has a positive but insignificant effect on economic growth in Nigeria.

A study by Campbell (2012) investigates the impact of foreign direct investment inflows on economic growth in Barbados in the long and short run from 1979 to 2008, with the use of the Engle-Granger two step procedure. The study shows that in the long run, a 1 per cent increase in FDI inflows will expand economic growth by 0.10 per cent, while in the short run, the relationship between FDI and economic growth would be positive. These results imply that any policy by government aimed at boosting economic growth using FDI inflows will have to be considered for the long run, since FDI inflows in the short run will not work for the economy of Barbados.

Tsitouras (2016) examines the impact of inward foreign direct investment on economic growth in Greece, in the long and short run for the period 1980 to 2013. The study employs the ARDL model to identify the long run relationship between inwards FDI and economic growth. The study results reveal that inwards FDI has positive and significant impact on boosting economic growth in Greece.

Moudatsou (2003) conducts a study on the impact of foreign direct investment on economic growth in the European Union (EU) using data from the period 1980 to 1996. The study employs granger-sims causality technique. The empirical results show that

foreign direct investment has a positive impact on the economic growth rate of EU economies both directly and indirectly.

An Australian study carried by Pandya and Sisombat (2017) examines the impact of foreign direct investment inflows on economic growth for the period 2001 to 2015 through the help of Cobb Douglas production. The study results highlight that foreign direct investment inflows contribute to Australian economic growth. Thus, the policy makers should make the attraction of foreign direct investment a priority in Australia.

Simionescu (2016) conducts a study on the relationship between economic growth and foreign direct investment inflows in the European Union (EU-28) during the 2008/9 economic crisis. The study employs the panel vector autoregressive model and Bayesian techniques for the period 2008 to 2014. The results identified a reciprocal and positive relationship between foreign direct investment and economic growth in EU-28. Moreover, the results, in some countries, revealed negative and insignificant impact of foreign direct investment on economic growth. However, the study concludes that most of the 28 European countries show positive and significant impact of foreign direct investment on economic growth.

Koojaroenprasit (2012) examines the impact of foreign direct investment on economic growth in South Korea for the period 1980 to 2009 with the help of Multiple regression model. The results reveal positive and significant impact of FDI on economic growth in South Korea.

Jyun-Yi and Hsu (2008) investigates the impact of foreign direct investment on economic growth. They use the Threshold regression techniques in 62 developed countries for the period 1975 to 2000. The study results indicate a positive and significant impact of foreign direct investment on economic growth in 62 developed countries.

Choe (2003) uses a panel vector autoregression model to explore the interaction between foreign direct investment and economic growth in 80 developed countries for the period 1971-1995. The study shows positive and significant impact of foreign direct investment on economic growth in 80 developed countries. Moreover, granger causality results indicate bi-directional causality between foreign direct investment and economic growth.

Stamatious and Dritsakis (2014) investigated the relationship between unemployment, foreign direct investment and economic growth in Greece using annual time series for the period 1970 to 2012 with the help of ARDL technique and VECM for granger causality. The results confirmed a long run relationship between foreign direct investment and unemployment. The VECM granger causality results indicated both in the short run and in the long run a strong unidirectional causality between the foreign direct investment and unemployment.

Vietnam study by Anwar *et al.* (2010) examines the link between foreign direct investment and economic growth for the period of 1996-2005. The study utilised a simultaneous equations model, which revealed that in overall terms a mutually reinforcing two-way linkage between foreign direct investment and economic growth exists in Vietnam.

A study by Ray (2012) investigates the impact of foreign direct investment on economic growth during a 1990 until 2011 in India. The empirical analysis on basis of ordinary least squares method suggested that there is positive relationship between foreign direct investment and economic growth and vice versa.

Lean and Tan (2011) examined the linkage between foreign direct investment, domestic investment, and economic growth in Malaysia for the period of 1970-2009. The study employed VAR and Johansen cointegration approach. The results revealed position cointegration between foreign direct investment and economic growth.

Jayachandran and Seilan (2010) studied the relationship between trade, foreign direct investment, and economic growth for India for the period 1970-2007. The Johansen cointegration analysis suggested that there is a long run relationship and granger causality results showed that there is a causal relationship between the examined variables.

On the other hand, few studies have found adverse results on the impact of foreign direct investment on economic growth in international countries. Bhat *et al.* (2004) examines the causal relationship between foreign investment and economic growth in India for the period 1990 to 2002. The study employs granger causality test and results reveal that there is no causality between foreign direct investment and economic growth in India.

Ozyigit and Eminer (2010) conduct a study on the linkage between foreign direct investment, human capital investment and economic growth in Turkey. The study employs ARDL bounds test analysis for cointegration and a granger causality test. The results indicate that there is a negative and insignificant impact of foreign direct investment on economic growth in Turkey. Moreover, there is no causal relationship between the variables.

Another study had similar results in Turkey. Aga's (2014) study employed the time series technique to analyse the effect of foreign direct investment on economic growth. It used annual data for the period 1980 to 2012. The study employed the vector autoregressive model for cointegration and vector error model for causality. The results show that there is no cointegration between foreign direct investment and economic growth. In addition, there is no causal linkage between the two variables in Turkey.

Gammoudi *et al.* (2016) explored the relationship between foreign direct investment and economic growth in countries in the Middle East and North Africa (MENA) for the period 1985 to 2009. The study employed the generalised method of moments technique and the results were mixed. The results in Guff Cooperation Council (GCC) show positive relationship between FDI and GDP, yet, in Non-GCC there is adverse relationship between the variables.

Carkovic and Levine (2005) investigated the relationship between foreign direct investment and economic growth in 72 European and American countries for the period 1960 to 1995. The study used GMM panel estimator. The results indicate that there is negative and insignificant impact of foreign direct investment on economic growth in the 72 European and American countries.

Lyroudi, Papanastisiou and Vamvakadis (2004) investigated the impact of foreign direct investment on economic growth in the United States and Western Europe for the period 1995 to 1998. They employed the Bayesian econometric technique. The results indicate that there is negative and insignificant impact of foreign direct investment on economic growth in the United States and Western Europe countries.

A study by Lyroudi *et al.* (2004) investigated foreign direct investment and economic growth in transition economies. The study used Bayesian analysis and results show

that foreign direct investment does not exhibit any significant relationship with economic growth for transition countries.

Falki (2009) investigated the impact of foreign direct investment on economic growth in Pakistan for the period 1980-2006. The relationship between foreign direct investment and economic growth is analysed using the production function based on the endogenous growth theory. The results of the study show a negative and statistically insignificant relation between the economic growth and foreign direct investment inflows in Pakistan. Table 2.1 below presents a summary of the international studies discussed above.

 Table 2.1: Summary of international studies on the relationship between FDI and economic growth

| Author(s)         | Country(s)  | Period | Method       | Variable(s)    | Findings      |
|-------------------|-------------|--------|--------------|----------------|---------------|
| Anna (2007)       | China       | 1994-  | Vector auto- | Gross          | There is      |
|                   |             | 2003   | regessive    | domestic       | cointegration |
|                   |             |        | model        | product        | between GDI   |
|                   |             |        | (VAR) and    | (GDP) and      | and FDI. In   |
|                   |             |        | Vector error | Foreign direct | addition, FDI |
|                   |             |        | model        | investment     | granger       |
|                   |             |        | (VECM)       | (FDI)          | cause GDP.    |
| Almafraji et      | Qatar       | 1990-  | VAR model    | GDP and FDI    | There is      |
| <i>al.</i> (2014) |             | 2010   |              |                | cointegration |
|                   |             |        |              |                | between the   |
|                   |             |        |              |                | variables.    |
| Omran and         | Arab        | -      | Ihreshhold   | FDI, GDP,      | There is      |
| Bolbol            | countries   |        | regression   | and Financial  | cointegration |
| (2003)            |             |        | technique    | development    | between the   |
|                   |             | 4070   |              |                | variables.    |
| Yao (2006)        | China       | 1978-  | Generalised  | FDI and GDP    | There is      |
|                   |             | 2004   | method of    |                | cointegration |
|                   |             |        | moments      |                | between the   |
| An argia and      | Trancition  | 1001   |              |                | Variables.    |
| Apergis and       | I ransition | 1991-  | GIVIIVI      | FDI and GDP    | I nere is     |
|                   | countries   | 2004   | technique    |                |               |
| (2006)            |             |        |              |                |               |
| Husson and        | Banaladaah  | 1072   | V/AD model   | EDI Exporto    | Thoro         |
|                   | bangladesh  | 1973-  |              | FDI, EXPOILS,  | Inere is      |
|                   |             | 2014   |              | and GDP        |               |
| (2010)            |             |        |              |                | variables In  |
|                   |             |        |              |                | addition      |
|                   |             |        |              |                | thoro is      |
|                   |             |        |              |                | hidirectional |
|                   |             |        |              |                |               |
|                   |             |        |              |                | causality     |

|                                  |          |               |  |  | between GDP<br>and FDI.   |
|----------------------------------|----------|---------------|--|--|---|
| lqbal <i>et al.</i><br>(2013)    | Pakistan | 1983-<br>2012 | Cobb<br>Douglas<br>production<br>function  | FDI, GDP,<br>Labour,<br>Capital,<br>Exports,<br>Imports, and<br>Health | There is<br>cointegration<br>between FDI<br>and GDP.  |
| Antwi and<br>Zhao (2013)         | Ghana    | 1980-<br>2010 | VAR model<br>and VECM  | FDI, GDP,<br>and Gross<br>national<br>Income (GNI)                     | There is<br>cointegration<br>between GDP<br>and FDI. In<br>addition, GDP<br>granger<br>cause FDI.   |
| Dash and<br>Sharm<br>(2011)      | India    | 1991-<br>2006 | VAR model<br>and Toda<br>and<br>Yamamoto<br>granger<br>non-<br>causality<br>test | FDI, Trade,<br>and GDP   | There is<br>cointegration<br>between FDI<br>and GDP. In<br>addition,<br>there is<br>bidirectional<br>causality<br>between GDP<br>and FDI. |
| Ogbokor<br>(2011)                | Namibia  | 1970-<br>2010 | VAR model<br>and VECM  | GDP, FDI,<br>and Real<br>exchange<br>rate (RER),<br>Openness<br>index  | There is<br>cointegration<br>between FDI<br>and GDP. In<br>addition,<br>there is<br>bidirectional<br>causality<br>between FDI<br>and GDP. |
| Olumuyiwa<br>(2013)              | Nigeria  | 1970-<br>2010 | Pairwise<br>granger<br>causality   | GDP and FDI  | There is<br>causality<br>between GDP<br>and FDI.  |
| Sakyi <i>et al.</i><br>(2015)    | Ghana    | 1970-<br>2011 | Autoregress<br>ive<br>distributed<br>lag bounds<br>testing<br>approach<br>(ARDL) | FDI, Trade<br>openness,<br>and GDP                                     | There is<br>cointegration<br>between GDP<br>and FDI.  |
| Awolusi and<br>Adeyeye<br>(2016) | Africa   | 1980-<br>2013 | GMM<br>technique   | GDP, Human<br>capital (HC),<br>International<br>technology             | There is<br>cointegration<br>between GDP<br>and FDI.  |

|                              |                         |               |  | transfer (IT),<br>Labour force,<br>FDI, and<br>Gross capital<br>formation<br>(GCF)                  |   |
|------------------------------|-------------------------|---------------|--|---|---|
| Sothan<br>(2017)             | Cambodia                | 1980-<br>2014 | VAR model<br>and VECM  | GDP, FDI,<br>Manufacturin<br>g, and<br>Domestic<br>investment                                       | There is<br>cointegration<br>between GDP<br>and FDI. In<br>addition,<br>there is<br>bidirectional<br>causality<br>between FDI<br>and GDP. |
| Gudaro et<br>al. (2012)      | Pakistan                | 1981-<br>2010 | Multiple<br>regression<br>model  | GDP, FDI,<br>and<br>Consumer<br>price index<br>(CPI)  | There is<br>cointegration<br>between GDP<br>and FDI.  |
| Vu <i>et al.</i><br>(2008)   | China and<br>Vietnam    | 1990-<br>2003 | Fully<br>generalised<br>least<br>squares<br>(FGLS) and<br>Least<br>squares<br>dummy<br>variables<br>(LSDV) | GDP, FDI,<br>Labour,<br>Capital,<br>Human<br>capital,<br>Exports,<br>Import, and<br>Infrastructure. | There is<br>cointegration<br>between FDI<br>and GDP.  |
| Makwember<br>e (2014)        | Developing<br>countries | 1996-<br>2013 | Generalised<br>least<br>squares<br>(GLS) and<br>LSDV   | FDI and GDP   | There is<br>cointegration<br>between FDI<br>and GDP.  |
| Tobi <i>et al.</i><br>(2015) | Nigeria                 | 1980-<br>2013 | Ordinary<br>least<br>squares<br>(OLS)<br>regression<br>technique   | GDP, Gross<br>savings, and<br>FDI   | There is<br>cointegration<br>between FDI<br>and GDP.  |
| Campbell<br>(2012)           | Barbados                | 1979-<br>2008 | Engle-<br>granger two<br>step<br>procedure   | FDI and GDP   | There is<br>cointegration<br>between FDI<br>and GDP.  |
| Tsitouras<br>(2016)          | Greece                  | 1980-<br>2013 | ARDL<br>model  | GDP,<br>Exports, and<br>FDI   | There is<br>cointegration<br>between FDI<br>and GDP.  |

| Moudatsou<br>(2003)                  | European<br>Union<br>countries | 1980-<br>1996 | Granger-sim<br>causality<br>test                          | FDI, Trade,<br>Capital,<br>Education,<br>and GDP   | There is<br>causality<br>between FDI<br>and GDP.   |
|--------------------------------------|--------------------------------|---------------|---|--|--|
| Pandya and<br>Sisombat<br>(2017)     | Australia                      | 2001-<br>2015 | Cobb-<br>Douglas<br>production<br>function                | GDP,<br>Exports, FDI,<br>and<br>Employment   | There is<br>cointegration<br>between FDI<br>and GDP.   |
| Simionescu<br>(2016)                 | European<br>Union<br>countries | 2008-<br>2014 | Panel VAR<br>model,<br>Bayesian<br>techniques<br>and VECM | GDP and FDI  | There is<br>cointegration<br>between FDI<br>and GDP. In<br>addition, FDI<br>granger<br>causes FDI. |
| Koojaroenpr<br>asit (2012)           | 1980-2009                      | 1980-<br>2009 | Multiple<br>regression                                    | FDI, GDP,<br>Employment,<br>Exports,<br>Human<br>capital, and<br>Domestic<br>capital<br>investment | There is<br>cointegration<br>between FDI<br>and GDP.   |
| Jyun-Yi and<br>Chin-chiang<br>(2008) | 62<br>developed<br>countries   | 1975-<br>2000 | Threshold<br>regression<br>technique                      | GDP, FDI,<br>and Human<br>capital  | There is<br>cointegration<br>between FDI<br>and GDP.   |
| Odongo<br>(2012)                     | Uganda                         | 1970-<br>2010 | VAR model   | FDI, GDP,<br>Exports, and<br>Imports   | There is<br>cointegration<br>between FDI<br>and GDP.   |
| Choe (2003)                          | 80<br>Countries                | 1971-<br>1995 | Panel VAR<br>model  | FDI, GDP,<br>and Gross<br>domestic<br>investment<br>(GDI)  | There is<br>cointegration<br>between FDI<br>and GDP.   |
| Stamatious<br><i>et al.</i> (2014)   | Greece                         | 1970-<br>2012 | ARDL<br>technique<br>and VECM<br>granger<br>causality     | FDI, and GDP   | There is<br>cointegration<br>between FDI<br>and GDP  |
| Anwar <i>et al.</i><br>(2010)        | Vietnam                        | 1996-<br>2005 | Simultaneou<br>s equation<br>model                        | FDI and GDP  | There is a<br>cointegration<br>between FDI<br>and GDP  |
| Ray (2012)                           | India                          | 1990-<br>2011 | OLS   | FDI and GDP  | There is a cointegration between FDI and GDP   |

| Lean and<br>Tan (2011)                 | Malaysia                                       | 1970-<br>2009      | VAR and<br>Johansen<br>cointegratio<br>n approach | FDI and GDP  | There is a<br>cointegration<br>between FDI<br>and GDP  |
|--|--|--------------------|---|--|--|
| Bhat <i>et al.</i><br>(2004)           | India  | 1990-<br>2012      | Granger<br>causality<br>test                      | FDI and GDP  | There is no<br>causality<br>between FDI<br>and GDP.  |
| Ozyigit and<br>Eminer<br>(2011)        | Turkey   | After<br>1970      | ARDL<br>model                                     | GDP, FDI,<br>Human<br>capital<br>investment  | There is no<br>cointegration<br>between FDI<br>and GDP.  |
| Aga (2014)                             | Turkey   | 1980-<br>2012      | VAR model<br>and VECM                             | GDP, FDI,<br>Domestic<br>investment<br>(DIN), and<br>Trade<br>liberalisation<br>(TL)   | There is no<br>cointegration<br>between FDI<br>and GDP   |
| Gammoudi<br><i>et al.</i> (2016)       | Middle East<br>and North<br>Africa<br>(MENA)   | 1985-<br>2009      | GMM<br>technique                                  | GDP, FDI,<br>Purchasing<br>power parity<br>(PPP), Urban<br>population<br>growth<br>(POP), and<br>Secondary<br>gross school<br>enrolment<br>(SEC) | The results<br>were mixed.<br>Some<br>countries<br>found<br>cointegration,<br>whereas,<br>some found<br>no<br>cointegration. |
| Carkoviz<br>and Levine<br>(2005)       | 72<br>European<br>and<br>American<br>countries | 1960-<br>1995      | GMM<br>technique                                  | FDI and GDP  | There is no<br>cointegration<br>between FDI<br>and GDP.  |
| Lyroudi <i>et</i><br><i>al.</i> (2004) | United<br>States and<br>Western<br>Europe      | 1995<br>to<br>1998 | Bayesian<br>regression<br>technique               | FDI and GDP  | There is no<br>cointegration<br>between FDI<br>and GDP.  |
| Lyroudi et<br>al. (2004)               | Transition<br>economies                        | -                  | Bayesian<br>analysis                              | FDI and GDP  | There is<br>negative<br>relationship<br>between the<br>variables   |
| Falki (2009)                           | Pakistan                                       | 1980-<br>2006      | Engle and<br>granger and<br>OLS                   | FDI and GDP  | There no<br>cointegration<br>between the<br>variables  |

Source: Author's own compilation from empirical literature review

### 2.3.1.2 South African studies

There are a few studies investigating the relationship between foreign direct investment and economic growth. The results are mixed, but the majority of report a positive relationship between FDI and GDP. Only a few report a negative relationship between FDI and economic growth.

Masipa (2014) examined the relationship between foreign direct investment, employment and economic growth in South Africa for the period 1990 to 2013 through the help of vector autoregressive model for cointegration and vector error model for causality. The results show cointegration between FDI and economic growth. In addition, there is bidirectional causality between the variables.

Nchoe (2016) investigated the impact of foreign direct investment on economic growth in South Africa for the period between 1970 and 2014. The study employed the VAR model and VECM, and the results reveal cointegration between FDI and economic growth. In addition, FDI granger causes GDP.

Another study by Masipa (2018) examined the relationship between foreign direct investment, real effective exchange rate, government expenditure and economic growth in South Africa for the period 1980 to 2014 with the help of VECM. The results indicate existence of causal relationship between FDI and GDP.

Sunde (2017) investigated the impact of foreign direct investment, exports and economic growth in South Africa. The study employed the autoregressive distributed lag (ARDL) model for the 1990 to 2014 period. The results show cointegration between FDI and economic growth.

Moreover, Meyer and Habanabakize (2018) explored the relationship between foreign direct investment, political risk and economic growth in South Africa during the 1995 to 2016 period. The study used ARDL model and the results show cointegration between FDI and economic growth.

On the contrary, Mazenda (2012) and Strauss (2015) both found no cointegration between foreign direct investment and economic growth. Both studies employed the VAR model. Table 2.2 below is a summary of the South African studies discussed above.

| Author(s)         | Country(s)      | Period        | Method                      | Variable(s)  | Findings  |
|-------------------|-----------------|---------------|-----------------------------|--|---|
| Masipa (2014)     | South<br>Africa | 1990-<br>2013 | VAR<br>model<br>and<br>VECM | GDP, FDI,<br>and<br>Employment   | There is<br>cointegration<br>between FDI<br>and GDP. In<br>addition, FDI<br>granger<br>causes<br>GDP.                                     |
| Mazenda<br>(2012) | South<br>Africa | 1980-<br>2010 | VAR<br>model                | FDI,<br>Domestic<br>Investment<br>(DI), Foreign<br>market debt,<br>and GDP   | There is no<br>cointegration<br>between FDI<br>and GDP.   |
| Nchoe (2016)      | South<br>Africa | 1970-<br>2014 | VAR<br>model<br>and<br>VECM | FDI, GDP,<br>Agriculture<br>sector, and<br>Industry<br>sector  | There is<br>cointegration<br>between FDI<br>and GDP. In<br>addition,<br>there is<br>bidirectional<br>causality<br>between FDI<br>and GDP. |
| Strauss<br>(2015) | South<br>Africa | 1994-<br>2013 | VAR<br>model                | FDI, GDP,<br>Human<br>capital,<br>Technological<br>progress,<br>Physical<br>capital stock,<br>Institutional<br>indicators,<br>and Financial<br>market<br>development | There is no<br>cointegration<br>between<br>GDP and<br>FDI.  |
| Masipa (2018)     | South<br>Africa | 1980-<br>2014 | VECM                        | FDI, GDP,<br>Real<br>exchange<br>rate, and   | There is<br>causal<br>relationship  |

 Table 2.2: Summary of SA studies on relationship between FDI and economic growth

|                                     |                 |               |                              | government<br>expenditure          | between FDI and GDP.   |
|-------------------------------------|-----------------|---------------|------------------------------|------------------------------------|--|
| Sunde (2017)                        | South<br>Africa | 1990-<br>2014 | ARDL<br>model<br>and<br>VECM | FDI, Exports,<br>and GDP           | There is<br>cointegration<br>between<br>GDP and<br>FDI. In<br>addition, FDI<br>granger<br>causes<br>GDP. |
| Meyer and<br>Habanabakize<br>(2018) | South<br>Africa | 1995-<br>2016 | ARDL<br>model                | FDI, GDP,<br>and Political<br>risk | There is<br>cointegration<br>between FDI<br>and GDP.   |

Source: Author's own compilation from empirical literature review

## 2.3.1.3 BRICS studies

The relationship between foreign direct investment and economic growth has been researched extensively over the past decades. Most of the studies have found that there is co-integration between FDI and economic growth. This section reviews studies that have focused on BRICS countries. It can be mentioned at this point that the literature on these countries is limited.

Agrawal (2015) examined the relationship between foreign direct investment and economic growth in the BRICS economies through the pair-wise granger causality analysis and the vector error correlation model (VECM) for the period 1989 to 2012. The results confirm that foreign direct investment and economic growth are cointegrated at the panel level, and this indicates the presence of long run equilibrium relationship between them. On the other hand, causality results indicate that there is a long run causality extending from foreign direct investment to economic growth in the economies. These results imply that FDI flows have a significant impact on boosting the economic growth of the BRICS economies.

A study by Sandrey (2013) analysed FDI inflows and outflows in the perspective of BRICs economies in South Africa during the period 2008 to 2010. No regression model was employed in the study. The results of that study revealed that South Africa has lesser amounts of funds held offshore than BRICS countries have in South Africa for the period of analysis (i.e. 2008 - 2010).

Narender and Devi (2015) examined the relationship between FDI and economic growth in BRICS economies during the period 1996 to 2003. The study was done through a literature survey and it found that the FDI is necessary for fostering the economic growth of the BRICS countries.

A study by Haydaroglu (2016) examined the interaction between economic freedom (EF), foreign direct investment and economic growth for the period 1995 to 2015, through the help of the panel data model, which used three different techniques, namely common constant, fixed effects and random effects under generalised method of moments (GMM). The results of that study indicate that the EF is positively associated with economic growth, and FDI is cointegrated with economic growth. Haydaroglu (2016) concludes that both EF and FDI have significant influence on economic growth. Similar results are confirmed by the study of Mishra and Agarwal (2017), which found that FDI has statistical and significant impact on economic growth. The study employed correlation analysis for the period 2000 to 2015.

Nistor (2015) conducted a study to analyse the implication of FDI flows on BRICS economies for the period 2004 to 2008, without the use of the econometric model. The study shows that FDI inflows have a positive impact on the development of BRICS countries' economies.

A study by Prabhakar *et al.* (2015) examined the role played by FDI and trade openness in economic growth in BRICS countries for the period 2007 to 2015. Their study employed the panel data model, both random and fixed effect under GMM. The results show that FDI, trade openness and economic growth have cointegration between them.

Sien (2013) conducted a study to investigate the relationship between FDI and economic growth in BRICS countries for the period 1980 to 2011. They used annual time series data. The study results reveal that FDI is positively correlated with economic growth.

A study by Sridharan *et al.* (2009) examined the impact of FDI on economic growth in BRICS economies. The study employed the Johansen cointegration and VECM, covering the period 1990 to 2007. The results show cointegration exists between FDI and economic growth.

It is apparent that in the studies on BRICS countries, no study has been done that is similar to the current study. The current study investigates the impact of BRICS FDI inflows on South Africa's economic growth. The summary of the previous studies discussed in this section is presented in Table 2.3 below.

| Author(s) | Country(s)                 | Period | Method     | Variable(s) | Findings             |
|-----------|----------------------------|--------|------------|-------------|----------------------|
| Agrwal    | Brazil,                    | 1989-  | VAR model  | Foreign     | There is             |
| (2015)    | Russia,                    | 2012   | and VECM   | direct      | cointegration        |
|           | India,                     |        |            | Investment  | between the          |
|           | China, and<br>South Africa |        |            | (FDI) and   | GDP (i.e.            |
|           | (BRICS)                    |        |            | domestic    | economic             |
|           | ( /                        |        |            | product     | growth).             |
|           |                            |        |            | (GDP)       |                      |
| Sandrey   | BRICS                      | 2008-  | -          | FDI         | The study            |
| (2013)    |                            | 2010   |            |             | results              |
|           |                            |        |            |             | revealed that        |
|           |                            |        |            |             | South Africa         |
|           |                            |        |            |             | has lesser           |
|           |                            |        |            |             | amounts of           |
|           |                            |        |            |             | funds held           |
|           |                            |        |            |             | offshore             |
|           |                            |        |            |             | than BRICS           |
|           |                            |        |            |             | countries            |
|           |                            |        |            |             | have in              |
|           |                            |        |            |             | South Africa         |
|           |                            |        |            |             | for the              |
|           |                            |        |            |             | period of            |
|           |                            |        |            |             | analysis (i.e.       |
|           |                            |        |            |             | 2008 -               |
|           |                            |        |            |             | 2010).               |
| Norondor  | PDICS                      | 1006   | Litoratura |             | The study            |
| and Davi  | DRIUS                      | 2003   | survey     |             | found that           |
| (2010)    |                            |        |            |             | necessary            |
|           |                            |        |            |             | for fostering<br>the |

Table 2.3: Summary of BRICS studies between FDI and economic growth

|                                   |       |               |                       |   | economic<br>growth of the<br>BRICS<br>countries.   |
|-----------------------------------|-------|---------------|-----------------------|---|--|
| Haydaroglu<br>(2016)              | BRICS | 1995-<br>2015 | GMM<br>technique      | FDI,<br>Economic<br>freedom<br>(EF),<br>Imports,<br>Money<br>supply,<br>Infrastructure<br>quality | There is a<br>positive<br>relationship<br>between FDI<br>and<br>economic<br>growth.  |
| Nistor<br>(2015)                  | BRICS | 2004-<br>2008 | -                     | FDI and GDP   | The study<br>shows<br>through<br>surveys that<br>there is<br>positive<br>relationship<br>between FDI<br>and<br>economic<br>growth. |
| Prabhakar<br><i>et al.</i> (2015) | BRICS | 2007-<br>2015 | GMM<br>technique      | FDI, GDP,<br>and Exports  | There is a<br>positive and<br>significant<br>relationship<br>between FDI<br>and<br>economic<br>growth.                             |
| Sridharan et<br>al. (2009)        | BRICS | 1990-<br>2007 | VAR model<br>and VECM | FDI and GDP   | There is a<br>positive and<br>significant<br>result<br>between FDI<br>and<br>economic<br>growth.                                   |

Source: Author's own compilation from empirical literature review

# 2.3.2 Foreign direct investment and employment studies

Foreign direct investment as a key element of globalisation and of the world economy is a driver of employment, technological progress, productivity improvement and ultimately economic growth (Asiedu, 2002). The issue of employment is very germane to any economy; therefore, one of the main macroeconomic objectives of any country is to attain full employment (Salami & Oyewale, 2013). This section discusses the previous international, BRICS and South African studies on the relationship between foreign direct investment and employment.

## 2.3.2.1 International studies

Rizvi and Nishat (2009) investigated the impact of foreign direct investment on employment opportunities in Pakistan, India and China for the period 1985-2008. The study employed Johansen, Pedroni and the Seemingly Unrelated Regression (SUR) model. The results show a long run relationship between foreign direct investment and employment.

A study by Habib and Sharwar (2013) examined the relationship between foreign direct investment and employment in Pakistan for the period 1970-2014. It used the Johansen cointegration approach. The study results indicate cointegration between the variables.

A Nigerian study by Salami and Oyewale (2013) also examined the relationship between foreign direct investment and employment for the period 1990-2010 through the Ordinary Least Squares (OLS) and Engle Granger cointegration. The results show a long run relationship between FDI and employment.

A study by Joshi and Ghosal (2009) investigated the impact of foreign direct investment on employment in Oman for the period 1995-2006. It used the correlation test. The findings show a positive correlation between the variables.

Another Pakistan study by Sarwar and Mubarik (2014) examined the effect of foreign direct investment on employment during 1984-2010 through the ARDL approach. The study results show a long run relationship between FDI and employment.

Abor and Harvey (2008) investigated the impact of foreign direct investment on employment in Ghana for the period 1992-2002. The simultaneous panel regression model showed that there is a long run relationship between FDI and employment.

In contrast, Mehra (2013) investigated the impact of foreign direct investment on employment in India for the period 1970-2007. They utilised the multiple regression approach. The results found no cointegration between the variables. A summary of the previous studies as reviewed above is presented in the table below.

| Author(s)                          | Country(s)                       | Period        | Method   | Variable(s)   | Findings  |
|------------------------------------|----------------------------------|---------------|--|---|---|
| Rizvi and<br>Nishat<br>(2009)      | Pakistan,<br>India, and<br>China | 1985-<br>2008 | Johansen,<br>Pedroni and<br>Seemingly<br>unrelated<br>regression<br>(SUR)      | FDI,<br>Employment,<br>GDP  | There is a<br>long run<br>relationship<br>between<br>FDI and<br>employment  |
| Habib and<br>Sharwar<br>(2013)     | Pakistan                         | 1970-<br>2011 | Johanson<br>cointegration<br>approach  | FDI,<br>Employment,<br>GDP per<br>capita,<br>Exchange<br>rate         | There is a<br>long run<br>relationship<br>between<br>FDI and<br>employment  |
| Salami and<br>Oyewale<br>(2013)    | Nigeria                          | 1990-<br>2010 | Ordinary<br>Least<br>Squares<br>(OLS) and<br>Engle<br>Granger<br>cointegration | FDI,<br>Employment,<br>Exchange<br>rate, Import,<br>Rural<br>populace | There is a<br>long run<br>relationship<br>between<br>FDI and<br>employment  |
| Joshi and<br>Ghosal<br>(2009)      | Oman                             | 1995-<br>2006 | Correlation<br>test  | FDI and<br>Employment   | There is a<br>positive<br>correlation<br>between<br>FDI and<br>employment   |
| Sarwar<br>and<br>Mubarik<br>(2014) | Pakistan                         | 1984-<br>2010 | ARDL<br>approach   | FDI and<br>Employment   | There is a<br>long run<br>relationship<br>between<br>FDI and<br>employment  |
| Abor and<br>Harvey<br>(2008)       | Ghana                            | 1992-<br>2002 | Simultaneous<br>panel<br>regression<br>model                                   | FDI,<br>Employment<br>and Wages                                       | There is a<br>long run<br>relationship<br>between<br>FDI and<br>employment  |
| Mehra<br>(2013)                    | India                            | 1970-<br>2007 | Multiple<br>regression<br>approach   | FDI,<br>Employment<br>and GDP   | There is no<br>long run<br>relationship<br>between<br>FDI and<br>employment |

 Table 2.4: Summary of International studies on relationship between FDI and employment

Source: Author's own compilation from empirical literature review
## 2.3.3 Foreign direct investment and Unemployment studies

Many studies have been conducted on the topic of foreign direct investment and unemployment. However, these studies have found mixed results. The section below discusses international studies.

## 2.3.3.1 International studies

A study by Balcerzak *et al.* (2011) examined the impact of foreign direct investment on economic growth in Poland for the period 1995 to 2009 with the help of vector autoregressive model. The results found cointegration between foreign direct investment and unemployment.

A Turkey study by Gocer *et al.* (2013) was performed to establish the relationship between foreign direct investment and unemployment using data of the period 2000Q1 to 2011Q1. The results of the analysis show a cointegration between foreign direct investment and unemployment in Turkey.

Fabus' (2015) study examined the impact of foreign direct investment on unemployment in selected regions of the Slovak Republic (Bratislava, Zilina, Presov and Kosice). The variables were examined by means of a correlation analysis. As a result, the indirect dependence between the examined variables has been confirmed. In other words, there is positive correlation between the variables.

Baya and Susmaz (2017) investigated the long run effect of both foreign direct investment and domestic investment on unemployment in 21 emerging economies for the period 1994 till 2014. The study employed panel data analysis and the augmented mean group (AMG) estimator. The empirical findings show a cointegration among domestic investment, foreign direct investment and unemployment.

A study by Mustafa and Azizun (2020) examined the impact of foreign direct investment on unemployment in six countries in the Middle East and North Africa: Egypt, Jordan, Lebanon, Morrocco, Tunisia and Turkey. The study employed panel data for the period 1990 to 2018, using the fixed effect model (FEM) and random effect model (REM) and panel VAR (Granger causality tests). The results show that foreign direct investment reduces the unemployment rate. In addition, the study further revealed that there is no causal relationship in the short term between foreign direct investment and unemployment.

Hilom-Polinon and Hakim (2019) examined the impact of entry modes of foreign direct investment, namely Greenfield investment and Brownfield investment, towards unemployment in 25 Asian countries for the period 2006-2015, where the countries were divided into three groups: total, developing and developed Asian countries. The study employed ordinary least square or fixed effect instrumentals variables. The results show mixed findings where both total and developed Asian countries are negatively significant between foreign direct investment and unemployment.

Malaysian study by Irpan *et al.* (2016) examined the impact of foreign direct investment on the unemployment. Data used in the study is annual data spanning from 1980 to 2012. Autoregressive distributed lag model is used to determine the long run relationship between the variables. The study results found that foreign direct investment significantly influence the unemployment rate in Malaysia.

Kurtovic, Siljkovic and Milanovic (2015) investigated the long-term relationship between foreign direct investment and unemployment in the countries of the Western Balkans (WB). The study used panel data time series for the period 1998 to 2012. The study employed vector error correction model and granger causality test. The results show that there is a long-term relationship between foreign direct investment and unemployment. In addition, foreign direct investment positively influences the reduction of unemployment in most countries of the WB.

A Turkey study by Karimov *et al.* (2020) analysed the impact of foreign direct investment inflows on macroeconomic variables, among them the unemployment rate. The study used time series data that covered the period 1980-2017. The study used Johansen cointegration and granger causality tests. Based on the results, it was confirmed that there was at most one presence of the cointegration among the analysed series. In addition, the results of granger causality test show unidirectional causality from foreign direct investment to unemployment.

Mucuk and Demirsel (2013) investigated the effect of foreign direct investment on unemployment in seven developing countries, namely Argentina, Chile, Colombia, Philippines, Thailand, Turkey and Uruguay by using the panel data analysis. Pedroni panel cointegration was performed using yearly data from 1981-2009. The results show cointegration between foreign direct investment and unemployment.

A study by Nikolaev and Stancheva (2013) in Bulgaria analysed the effect of foreign direct investment on unemployment for the period 1997-2012. The study employed correlation analyses and results found positive correlation between foreign direct investment and unemployment.

As study by Palat (2011) evaluated inward foreign direct investment flows into the Japanese economy and unemployment development for the period 1983-2009 with the use of correlation analysis. The study results revealed positive correlation between foreign direct investment and unemployment.

A Pakistan study by Zeb, Qiang and Sharif (2014) explored the impact of foreign direct investment on unemployment, among other explanatory variables such as corruption, population size and inflation. The study covers the period 1995 to 2011. Ordinary least square was employed and the results show that foreign direct investment plays a significant role in unemployment reduction in Pakistan.

In contrast, some studies found no cointegration between foreign direct investment and unemployment. Ismail *et al.* (2009) investigated the effect of foreign direct investment on unemployment in Turkey for the period 2000 to 2007. The study results show no cointegration between foreign direct investment and unemployment.

Jauadi (2014) shed the light on the effect of foreign direct investment on unemployment in Saudi Arabia from 1991-2012. The study employed the Johansen cointegration technique. The results show no cointegration between foreign direct investment and unemployment.

A study by Ozughalu and Ogwumike (2013) analysed the effect of foreign direct investment, economic growth and exports on unemployment. The study is based on annual time series data from 1984 to 2010 and it used the VAR technique. The results of the study indicate, among other things, that economic growth, exports and foreign direct investment do not provide the desired solution to the problem of unemployment in Nigeria, both in the short and long run.

Another Nigerian study by Johnny *et al.* (2018) examined the impact of foreign direct investment on unemployment from 1980 to 2015. The study used the Johansen cointegration technique. The results indicate a negative and insignificant relationship between foreign direct investment and unemployment in Nigeria.

A study by Mkombe *et al.* (2020) explored the effect of foreign direct investment on youth unemployment in the Southern African Development Community (SADC) region using panel data for the period 1994-2017. The results from the feasible generalised least squares (FGLS-Parks) technique show that foreign direct investment has an insignificant effect on reducing youth unemployment in the SADC region. Table 2.5 below presents a summary of the previous studies discussed above.

| Author(s)                              | Country(s)  | Period        | Method  | Variable(s)   | Findings  |
|--|---|---------------|---|---|---|
| Balcerzak<br>et al.<br>(2011)          | Poland  | 1995-<br>2009 | VAR model   | FDI and<br>Unemploym<br>ent                               | There is<br>cointegration<br>between FDI<br>and<br>unemployment     |
| Gocer <i>et</i><br><i>al.</i> (2013)   | Turkey  | 2000-<br>2011 | Boundary<br>test<br>approach  | FDI and<br>Unemploym<br>ent                               | There is<br>cointegration<br>between FDI<br>and<br>unemployment     |
| Fabus<br>(2015)                        | Slovak<br>Republic<br>(Bratislava,<br>Zilina,<br>Presov and<br>Kosice)  | 1998-<br>2013 | Correlation<br>analysis   | FDI and<br>Unemploym<br>ent                               | There is<br>cointegration<br>between FDI<br>and<br>unemployment     |
| Bayar et<br>al. (2017)                 | 21 Emerging<br>market<br>economies  | 1994-<br>2014 | Augmented<br>Mean Group<br>(AMG)<br>approach  | FDI,<br>Domestic<br>Investment<br>and<br>Unemploym<br>ent | There is<br>cointegration<br>between the<br>FDI and<br>unemployment |
| Mustafa et<br>al. (2020)               | Middle East<br>and North<br>Africa<br>countries<br>(Egypt,<br>Jordan,<br>Lebanon,<br>Morocco,<br>Tunisia &<br>Turkey) | 1980-<br>2018 | Fixed Effect<br>Model<br>(FEM) and<br>Random<br>Effect Model<br>(REM) &<br>VAR<br>(Granger<br>causality<br>tests) | FDI and<br>Unemploym<br>ent                               | There is<br>cointegration<br>between the<br>FDI and<br>unemployment |
| Karimov <i>et</i><br><i>al.</i> (2020) | Turkey  | 1980-<br>2017 | Johansen<br>cointegratio<br>n and<br>Granger  | FDI and<br>Unemploym<br>ent                               | There is<br>cointegration<br>between the<br>FDI and<br>unemployment |

Table 2.5: Summary of International studies between FDI and unemployment

|  |  |               | causality   |                                     |   |
|--|--|---------------|---|-------------------------------------|---|
| Hilon-<br>Polinon <i>et</i><br><i>al.</i> (2019) | Asian<br>countries   | 2006-<br>2015 | Fixed effect<br>estimator   | FDI and<br>Unemploym<br>ent         | There is<br>cointegration<br>between FDI<br>and<br>unemployment   |
| Irpan <i>et al.</i><br>(2016)                    | Malaysia   | 1980-<br>2012 | ARDL<br>approach  | FDI,<br>Unemploym<br>ent and<br>GDP | There is<br>cointegration<br>between the<br>variables   |
| Kurtovic <i>et</i><br><i>al.</i> (2015)          | Western<br>Balkans<br>countries  | 1998-<br>2012 | Vector error<br>correction<br>model<br>(VECM) and<br>Granger<br>causality<br>test | FDI and<br>Unemploym<br>ent         | There is<br>cointegration<br>between the<br>variables   |
| Karimov <i>et</i><br><i>al.</i> (2020)           | Turkey   | 1980-<br>2017 | Johansen<br>cointegratio<br>n and<br>granger<br>causality                         | FDI and<br>Unemploym<br>ent         | There is<br>cointegration<br>between the<br>variables   |
| Mucuk <i>et</i><br><i>al.</i> (2013)             | 7<br>Developing<br>countries<br>(Argentina,<br>Chile,<br>Colombia,<br>Philippines,<br>Thailand,<br>Turkey, and<br>Uruguay) | 1981-<br>2009 | Pedroni<br>panel<br>cointegratio<br>n technique                                   | FDI and<br>Unemploym<br>ent         | There is<br>cointegration<br>between FDI<br>and<br>unemployment   |
| Nikolaev<br><i>et al.</i><br>(2013)              | Bulgaria   | 1997-<br>2012 | Correlationa<br>I analysis  | FDI and<br>Unemploym<br>ent         | There is<br>cointegration<br>between the<br>variables   |
| Palat<br>(2011)                                  | Japan  | 1983-<br>2012 | Correlation<br>analysis   | FDI and<br>Unemploym<br>ent         | ThereiscointegrationbetweentheFDIandunemployment  |
| Stamatiou<br>s et<br>al.(2014)                   | Greece   | 1970-<br>2012 | ARDL, and<br>VECM<br>granger<br>causality   | FDI and<br>Unemploym<br>ent         | There is a long<br>run<br>relationship<br>the variables.<br>In addition,<br>there is<br>unidirectional<br>causality |

|                                       |  |               |   |  | between the variables.                                   |
|---------------------------------------|--|---------------|---|--|--|
| Zeb <i>et al.</i><br>(2014)           | Pakistan   | 1995-<br>2011 | OLS<br>technique                                      | FDI,<br>Unemploym<br>ent,<br>corruption,<br>population<br>size,<br>Inflation | There is<br>cointegration<br>between the<br>variables    |
| Ismail <i>et</i><br><i>al.</i> (2009) | Turkey   | 2000-<br>2007 | VAR model   | FDI,<br>Unemploym<br>ent, Exports<br>and GDP                                 | There is no<br>cointegration<br>between the<br>variables |
| Chang<br>(2007)                       | Taiwan   | 1981-<br>2003 | VAR model   | FDI,<br>Unemploym<br>ent, GDP,<br>Trade<br>openness                          | There is no<br>cointegration<br>between the<br>variables |
| Nguyen<br>(2019)                      | Central Asia                                     | 1997-<br>2016 | VAR model   | FDI,<br>Unemploym<br>ent and<br>GDP  | There is no<br>cointegration<br>between the<br>variables |
| Jaouadi<br>(2014)                     | Saudi Arabia<br>(KSA)                            | 1991-<br>2012 | Johansen<br>cointegratio<br>n                         | FDI and<br>Unemploym<br>ent  | There is no<br>cointegration<br>between the<br>variables |
| Johnny <i>et</i><br><i>al.</i> (2018) | Nigeria  | 1980-<br>2012 | Johansen<br>cointegratio<br>n                         | FDI and<br>Unemploym<br>ent  | There is no<br>cointegration<br>between the<br>variables |
| Mkombe<br>et al.<br>(2020)            | Southern<br>African<br>Developmen<br>t Community | 1994-<br>2017 | Feasible<br>Generalised<br>least<br>squares<br>(FGLS) | FDI and<br>Unemploym<br>ent  | There is no<br>cointegration<br>between the<br>variables |
| Ozughalu<br>et al.<br>(2013)          | Nigeria  | 1983-<br>2010 | VAR model   | FDI,<br>Unemploym<br>ent, Exports<br>and GDP                                 | There is no<br>cointegration<br>between the<br>variables |

Source: Author's own compilation from empirical literature review

The next section discusses the gaps identified in the literature.

## 2.3.4 Gaps identified in the literature

It is apparent that no study in the empirical review section that investigated the impact of BRICS foreign direct investment inflows on South African economic growth. Therefore, the contemporary study is crucial to fill this gap in the literature. It was also observed that no employed the panel fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS). These gaps make the current study relevant in the body of knowledge.

## 2.4 SUMMARY

This Chapter provided a review of the theoretical and empirical review on the relationship between foreign direct investment and economic growth. Economic growth theories and foreign direct investment theories were discussed. The discussion of the economic growth theories focused on endogenous growth theories since these theories incorporate investment in the production function, specifically the Romer (1986) endogenous growth model.

In the empirical literature, different studies were discussed. Most of the studies conclude that there is a positive and significant impact of foreign direct investment on economic growth. However, some studies contradict this and indicate that there is no cointegration between foreign direct investment and economic growth. These differences can be ascribed to the different models used, the application of different data sets from different countries, periods of the data used, and variables used. The following chapter presents the macroeconomic trends in BRICS economies from 1997 to 2016.

### **CHAPTER THREE**

## MACROECONOMIC TRENDS IN BRICS ECONOMIES (1997-2016)

#### 3.1 INTRODUCTION

This chapter presents the macroeconomic trends in the BRICS economies in the period before and during the review. The macroeconomic variables discussed in this chapter are derived from the empirical literature in Chapter Two. As indicated in Chapter Two above, the main macroeconomic variables that explain economic growth are foreign direct investment (FDI) flows, trade balance (Exports and Imports), and real effective exchange rate (REER). The aim in presenting the macroeconomic trends is mainly to show how the BRICS economies have been performing in relation to respective variables during the period under review.

The chapter begins by providing the trends and then presents a narrative about those trends. It also highlights some relationships between certain variables in order to detect how certain variables relate to one another. The destination of foreign direct investment flows from BRICS countries to other economies is also dealt with in the chapter. The chapter also pays attention to determinants of FDIs in South Africa.

#### 3.2 MACROECONOMIC TRENDS IN BRICS COUNTRIES

This section presents all the macroeconomic variables and trends that the study focused on in explaining the economic growth. The macroeconomic variables were indicated in the previous section as foreign direct investment (FDI) inflows, trade openness and real effective exchange rate (REER).

Figure 3.1 below illustrates the performance of foreign direct investment (FDI) flows in Brazil, Russia, India and China (BRIC) in the South African economy. In the figure below, Indian FDI flows in late 1997 to 1998 were below China's FDI flows to South Africa. In 2001 and late 2007, Indian FDI flows intersected with China's FDI flows. South African inward flow of FDI from India grew significantly from above 6 to 10 million USD in 2007. Afterwards, the upward trajectory was maintained at above 10 million USD. The figure depicts China as a second leading country to invest in South Africa, after India. China's FDI flows to South Africa fluctuated around 8 million USD and after 2013 they became stationary. The third country showed in the figure was Russia with the FDI flows of 8 million USD in 2005. Russia had a quiet time of no investment in South Africa during the period 2006 to 2008. In 2009, Russia started again to invest with 8.3 million USD to South Africa, but in a diminishing rate. The FDI flows from Russia to South Africa declined to 6 million USD in 2004. Brazil is depicted as the fourth country in the figure that invested in South Africa. Between 1997 and 2001, Brazil invested 2.2 million USD in South Africa. In 2001, there was a sharp increase of 4.4 million USD in FDI flows to South Africa. Afterwards, Brazil increased the FDI flows, but these remained below the value of its counterparts.



Figure 3.1: BRIC FDI inflows into South Africa's economy from 1997 to 2016.

Figure 3.2 below illustrates the relationship between South Africa's exports to Brazil and imports from Brazil during the period under review. In 1998, South Africa exported more than it imported from Brazil. The exports were in positive trajectory and imports in negative trajectory. This implies a good state of the economy in South Africa. However, in 2009, the country was affected by the economic recession, which impacted on the entire exports and imports between the countries. Afterwards, South Africa imported more than it exported to Brazil. In 2011, the country exported more than it imported, but at a diminishing rate. In 2015, the exports from South Africa to Brazil decreased while imports showed an upward trajectory. This implies negative state of the economy of South Africa.

Source: South African Reserve Bank (2018)

Figure 3.2: South Africa's exports and Brazil imports from 1997 to 2016.



#### Source: World Bank (2018)

Below, Figure 3.3 illustrates South Africa's exports to Russia and imports from Russia. In 1998, South Africa had high exports to Russia and minimum imports from Russia; the exports were above 1.5 percent and imports were below zero. This implies a good state of the economy for South Africa. From 2002 until 2008, there was no clear trajectory between the South Africa's exports and Russia's imports. In 2009, the economic recession affected the exports and imports of both countries. In 2015, the exports showed a decreasing trend and imports showed an upward trajectory. This implies a negative state of the economy of South Africa.

Figure 3.3: South Africa's exports and Russia's imports from 1997 to 2016.



Source: World Bank (2018)

Figure 3.4 below illustrates South African exports and Indian imports from 1997 to 2016. South Africa's exports to India in 1998 were higher than imports but the trend was diminishing. From 2002, South Africa's imports from India were more than its exports to India by more than 0.4 percent. The year after that, the imports and exports decreased. In 2008, exports and imports reached negative percentages due to financial crisis. In 2009, the exports and imports recovered at a similar rate, but in 2010, both exports and imports decreased until they reached a negative percentage. In 2015 onwards, South African exports and imports recovered at a similar rate.

Figure 3.4: South Africa's exports and India's imports, during 1997 to 2016.



Source: World Bank (2018)

Figure 3.5 below illustrate the exports and imports from and to South Africa during the period 1997 to 2016. In 1997, South Africa exports and imports were at a high trajectory. In 2000/01, imports and exports dropped to below 0.1 percent. Afterwards, exports and imports recovered but imports were dominating exports. This is negative for the economy of South Africa. From 2003 to 2009, the exports and imports diminished, especially in 2009 because of the financial economic recession. Afterwards, the exports and imports improved but imports from China dominated the market in South Africa. From 2010 to 2015, exports and imports decreased until they reached a negative percent. In late 2015, exports and imports showed a sign of upward trajectory.

Figure 3.5: South Africa's exports and China's imports from 1997 to 2016



Source: World Bank (2018)

Below, Figure 3.6 illustrates the real effective exchange rate in BRICS countries during the period 1997 to 2015. According to Khomo and Aziakpono (2016) the real effective exchange rate (REER) is the weighted average of a country's currency in relation to an index or basket of other major currencies. BRICS countries trade with the two popular currencies, the US dollar and European pound. Figure 3.6 illustrates the currencies of the BRICS economies against the US dollar. Brazil, Russia and South Africa show an instability of currencies against the US dollar. This was due to many factors, including political instability, US financial crisis in 2008/09, Russia's financial crisis in 2014/15 and the Brazil recession in 2014. All these factors had a tremendous impact on the real effective exchange rate of BRICS countries. On the other hand, China and India's real effective exchange rates showed stronger results against the US dollar. China and India's better REER against the popular trading currency was due to strong economies. China and India dominate other BRICS economies in many things; for instance, China and India recorded higher economic growth compared to their counterparts. In addition, Figure 3.7 shows the performance of the currencies of the BRICS countries against the US dollar.



Figure 3.6: BRICS Real Effective Exchange Rate (REER) from 1997 to 2016

Source: World Bank (2018)

Figure 3.7 below illustrates Brazil, Russia, India, China and South Africa's (BRICS) gross domestic product (GDP) growth rates during the period under review. In 1998, the Russian economy experienced significant increase of growth rate from -0.2 percent to above 0.3 percent. Afterwards, the country declined to below 0.2 percent. China is recorded as a leading economy amongst its counterparts with a growth rate of above 0.4 percent. South Africa, India and China growth rates were fluctuating between 0.3 percent high and 0.1 percent. The 2008/9 US financial crisis adversely affected all the BRICS economies. However, Russia was the most affected country amongst other BRICS countries with the growth rate recorded -0.3 percent. South Africa was recorded as the second most negatively affected country as indicated in Figure 3.7 below, with the growth rate reaching below 0 percent. Brazil recorded a growth rates of 0.1 percent and 0.3 percent respectively during the period of economic recession. After the economic recession, and this affected the entire country. Since

the beginning of 2014 up to 2015, the economic growth trajectory was diminishing. In 2015, Russia also faced economic recession, which led to a decline in the value of the Russian Ruble (i.e. currency). Towards the end of the 2015, Russia showed signs of recovery whereas Brazil showed signs of stationarity.



Figure 3.7: BRICS economic growth rates from 1997 to 2016

Having outlined the various macroeconomic trends in the foregoing sections, the next section discusses the relationship between economic growth and Foreign Direct Investment (FDI) flows.

## 3.3 THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND FOREIGN DIRECT INVESTMENT IN BRICS COUNTRIES

This section presents the relationship of the trends between gross domestic product (GDP) and foreign direct investment (FDI). Figure 3.8 below illustrates the relationship between South Africa's economic growth and BRICS FDI flows during the period under review. The figure shows a positive relationship between India, China and Brazil FDI flows and South Africa's economic growth. This implies that the FDI flows from these economies have great significance to the economy of South Africa. On the other hand, Russia shows a negative relationship of FDI flows to South Africa. This implies that the Russian FDI flows to South Africa have an adverse effect on the economy during the period under review.

Source: World Bank (2018)



Figure 3.8: South Africa's GDP and BRIC FDI inflows from 1997 to 2016

Source: World Bank (2018)

The following section discusses the overview of the BRICs countries and South Africa's foreign direct investment.

# 3.4 THE OVERVIEW OF THE BRICS AND SOUTH AFRICA'S FOREIGN DIRECT INVESTMENT

This section focuses on the overview of the BRICs and South Africa's foreign direct investment under the following subsections; Intra-BRICS foreign direct investment, the top countries investing in South Africa, the main sectors that attract BRICs FDI inflows and the sectors from which South Africa invests in BRICs economies.

## 3.4.1 Intra-BRICS foreign direct investment

According to Unctad (2013), the bilateral FDI stock among BRICS countries is limited, although it has grown fast over the past decade from US\$ 260 million in 2003 to US\$ 29 billion in 2011. BRICS outward stock to other BRICS countries increased from 0.1 percent in 2003 to 2.5 percent in 2011 (see Table 3.1 below).

Furthermore, Brazil's direct investment in other BRICS countries is modest at US\$ 0.5 billion. Brazil's bilateral economic relations are the strongest with China, but they are mainly driven by trade due to Brazilian exports of primary goods to China. The presence of Brazilian companies in China is limited, and their main business activity is the provision of services (such as finance, business consulting and trading), sales and distribution of their products and procurement.

China is the largest investor among the BRICS countries, with a total of nearly US\$ 425 billion in FDI stock worldwide. However, Chinese outward FDI stock to other BRICS countries accounts for only 2.2 percent. South Africa and the Russian Federation have been important targets of outward FDI from China, with FDI stocks of US\$ 4.1 billion and US\$ 3.8 billion respectively by the end of 2011. The countries were the eighth and ninth largest recipients of Chinese FDI. The services sector accounts for a major share of Chinese FDI stock in South Africa and Russia. At the stock level, the amounts of Chinese FDI in Brazil and India were comparably small, at US\$ 1.1 billion and US\$ 657 million respectively. However, in 2010, China made a big upstream acquisition of US\$ 7.1 billion in Petrochemical Corp. (Sinopec), even though it was not necessarily all translated into FDI.

Total outward FDI stock of India in other BRICS countries amounted to US\$ 2 billion by the end of 2011, in which the Russian accounted for three-fourths. The amounts of Indian FDI stock in Brazil, China and South Africa were US\$ 74 million, US\$ 229 million and US\$194 million respectively (Unctad, 2013). Indian transnational corporation (TNCs) in the IT services industry, such as Infosys and Wipro, have expanded their business activities into Brazil and China through greenfield investment (Unctad, 2013). Indian companies have also been active in extractive industries in Russia and manufacturing in South Africa. For instance, in Russia, India's state-owned ONGC Videsh participated in various oil and gas exploration projects, and Tata Group has invested in automotive and ferrochrome in South Africa. One-fifth of the outward FDI stock of South Africa was located in the BRICs, mainly in China, in 2011 (Unctad, 2013). Russia is the second largest, followed by India and Brazil to have attracted marginal volumes of investment from South Africa. In terms of sectoral distribution, South African outward FDI in BRICS is concentrated in mining, infrastructure and construction, and finance and business services.

Russian TNCs have found their way into the BRICS countries, increasing their stock to US\$ 1.1 billion. In contrast to TNCs from other BRICS countries, the main aim of Russian TNCs is not simply to secure the supply of raw materials to their home country, but also to expand their control over the value chains of their own natural resources, to build sustainable competitive advantages and to strengthen their market positions in key developing countries. For example, Rosneft formed a joint venture with CNPC (Chinese company) to develop oil extraction projects in Russia and downstream operations in China (Unctad, 2013).

| Home    | Host economy |        |       |       |        |        |       |        |
|---------|--------------|--------|-------|-------|--------|--------|-------|--------|
| economy | BRICS        | Brazil | China | India | Russia | South  | World | Share  |
|         |              |        |       |       |        | Africa |       | in the |
|         |              |        |       |       |        |        |       | world  |
|         |              |        |       |       |        |        |       |        |
| BRICS   | 28           | 1      | 13    | 1     | 7      | 4      | 1 130 | 2.5%   |
|         | 599.5        | 222.4  | 570.8 | 795.6 | 671.50 | 339.1  | 238   |        |
| Brazil  | 514.1        | -      | 447.5 | 15.8  | 0.1    | 50.7   | 202   | 0.3%   |
|         |              |        |       |       |        |        | 586   |        |

## Table 3.1: Outward FDI stock from BRICS countries to other BRICS countries in2011 (Millions of dollars)

| China  | 9 552.5 | 1     | -     | 657.4 | 3 763.6 | 4     | 424 | 2.2%  |
|--------|---------|-------|-------|-------|---------|-------|-----|-------|
|        |         | 071.8 |       |       |         | 059.7 | 781 |       |
| India  | 1 987.1 | 73.9  | 228.7 | -     | 1 490.4 | 194.1 | 62  | 3.2%  |
|        |         |       |       |       |         |       | 600 |       |
| Russia | 1 139.9 | -     | 123.1 | 982.3 | -       | 34.5  | 361 | 0.3%  |
|        |         |       |       |       |         |       | 738 |       |
| South  | 15      | 76.8  | 12    | 140.1 | 2 417.4 | -     | 78  | 19.6% |
| Africa | 405.8   |       | 771.5 |       |         |       | 533 |       |

Source: Unctad (2013)

The figure below illustrates the share of intra-BRICS global FDI stock in 2011. It shows clearly that BRICS countries still invest more with other countries compared to one another. It was 10.5 percent of BRICS share in global inward stock compared with only 2.5 percent of share of outward FDI stock from BRICS to BRICS countries in 2011. The BRICS countries need to focus on intra-FDI flows.





BRICS share in global inward stock Share of outward FDI stock from BRICS to I

Source: Unctad (2013)

## 3.4.2 The top countries investing in South Africa

South Africa has been a reporting economy to the countries mentioned in Table 3.2 for decades. Amongst the countries listed in the table below, the United Kingdom is the highest economy with the record of 29.5 percent of direct investment in the

economy of South Africa. The least economy on the top five list during 2015 was Luxembourg, with the record of 2 percent. None of the BRICS economies featured in the top five countries investing in the South African economy. This implies that there is still limited intra-BRICS flows of investment.

| Countries  | Per cent |  |  |  |
|--|----------|--|--|--|
| United Kingdom   | 29.5     |  |  |  |
| The Netherlands  | 24.2     |  |  |  |
| United States  | 4.9      |  |  |  |
| Germany  | 3.3      |  |  |  |
| Luxembourg   | 2.0      |  |  |  |
| Sources South Africa Deserve Deals Questarly Dullatin (2017) |          |  |  |  |

| Table 3.2: FDI inflow | r from top five | e countries | investing i | n South | Africa in | า 2015 |
|-----------------------|-----------------|-------------|-------------|---------|-----------|--------|
|-----------------------|-----------------|-------------|-------------|---------|-----------|--------|

Source: South Africa Reserve Bank, Quarterly Bulletin (2017)

## 3.4.3 The main five sectors attracting FDI inflows in South Africa

Below, table 3.3 illustrates the dominating sectors in South Africa that brought direct investment in 2015. It is clearly shown in the table that the financial and insurance real estate and business services had the highest record of 40.7 percent. This implies that during this period, the majority of foreign direct investment inflows were attracted by this sector. On the other hand, the least main sector that attracted FDI inflows was trade, catering and accommodation, with the record of 4 percent. It is the opportunity for BRICS economies to come on board in South Africa and invest in the attractive sectors, so that intra-BRICS flows can be promoted.

| Table 3.3: Main sectors attracting FDI inflo | ow in South Africa in 2015 |
|--|----------------------------|
|--|----------------------------|

| Main Invested Sectors  | Per cent |
|--|----------|
| Financial & insurance service, real estate and business services | 40.7     |
| Manufacturing  | 28.9     |
| Mining   | 15.9     |
| Transport, storage & communication                               | 10.0     |
| Trade, catering and accommodation                                | 4.0      |

Source: South Africa Reserve Bank, Quarterly Bulletin (2017)

## 3.4.4 South African sectors that attract BRICs FDI inflows

Figure 3.10 below illustrates sectors that attract direct investment inflows into South Africa's economy from Brazil, Russia, India and China (BRIC). Three sectors in South Africa seem to be attractive to BRIC economies, and these are public corporation, banking sector, and private sectors. China is a dominating economy amongst the

BRICS countries in the direct investment towards South Africa's economy. Between 2007 and 2016, Brazil showed minimal direct investment towards South Africa. Brazil merely focused on the private sector, but at a very small margin of below R10 million (see Figure 3.10). The case of Russia was also like that of Brazil. Russia mainly focused on the private sector, and 2009 to 2011 was the only period that showed the influx of Russian direct investment into South Africa's economy. Afterwards, the country dropped the direct investment towards South Africa (SARB,2018). Even though India had minimal direct investment towards South Africa, they focused at least on two sectors: banks and the private sector. The major similarity among the first three economies is that they had not invested above R10 million into South Africa's economy. The dominating sectors China focused on were the banks and the private sector (see Figure 3.11).





Source: South African Reserve Bank (2018).

## 3.4.5 Sectors into which South Africa invests in BRICs economies

As illustrated in Figure 3.11 below, South Africa does not invest with high a margin in the BRICs economies, with the exception of China. It is indicated in Figure 3.11 below that South Africa invests with high margin in the China private sector. Brazil, Russia

and India are not economies that South Africa has invested in (see Figure 3.11). China's private sector is more attractive to South Africa's economy. South Africa invested above R1 million in China's private sector during the period 2007 to 2016. This implies that South Africa has a strong relationship with China.



Figure 3.11: Sectors South Africa invest into in BRICs countries during the period 2007 to 2016

Source: South African Reserve Bank (2019)

The following section discusses the determinants of foreign direct investment that featured in BRICS economies.

## 3.5 DETERMINANTS OF FDIS IN SOUTH AFRICA

The foreign direct investment (FDI) determinants that are discussed in this section are drawn from previous studies. There are various determinants of FDI that have been discussed in extant literature. The selection of the following determinants of FDIs was based on the literature that focused merely on South Africa. The previous studies identified the determinants of FDI as South African determinants of FDIs and they are discussed in the following sub-sections. These are market size, trade openness, political stability, infrastructure development, government regulation, inflation and control of corruption.

#### 3.5.1 Market size

Market size refers to the number of individuals in a certain market who are potential buyers and /or sellers of a product or service. Enterprises are interested in knowing the market size before launching a new product or service in an area and /or country. It is for this reason that the foreign direct investment (FDI) inward flow in the country has a potential market size. Market size is measured in terms of gross domestic product (GDP), which is expected to have a positive relationship with FDI. Countries having more GDP growth rate can attract more FDI inflows (Lim, 2001). Investors are keen to invest in a growing economy, where they can benefit from economies of scale and efficient utilisation of resources from the tremendous market size (Mazenda, 2012).

South Africa is a leading country in the African continent in FDI attraction. The reason for this has basis in various factors. For example, the country has the highest GDP per capita income in the African content (Unctad, 2013). Foreign investors are looking for that. This is despite the fact that GDP growth slipped further in 2016 to 0.3 per cent from 1.3 per cent in 2015 due to the poor performances of the agriculture and mining sector amid drought and sluggish commodity prices, contracting by 7.8 per cent and 4.7 per cent respectively in 2016 (Stats SA, 2017).

#### 3.5.2 Trade openness

Trade openness refers to the outward or inward orientation of a given country's economy. Outward orientation refers to economies that take significant advantage of the opportunities to trade with other countries. An empirical measure of trade openness is defined as the ratio of the total trade to GDP, and represents a convenient variable routinely used for cross-country studies on a variety of issues (Fujii, 2017). In South Africa, little FDI was received during the apartheid era as the country was less open to the rest of the world, with several capital controls (Onyeiwu & Shresthe, 2004). Afterwards, the government of South Africa was generally open to foreign investment to drive economic growth, improve international competitiveness, and access foreign markets. Most South African business sectors are open to foreign investment. Certain sectors require government approval for foreign participation, including energy, mining, banking, insurance and defence. For those sectors that require no government

approval to invest, there are few restrictions on the form or extent of foreign investment (Department of National Treasury, 2011).

Thomas and Leape (2005) argue that South African policies of trade play a minimal role in the climate for foreign investment. This implies that South Africa needs to device trade policies that are open in order to attract FDI inflows.

## 3.5.3 Political stability

Economic growth and political stability are deeply interconnected (Asiedu, 2002). On the one hand, the uncertainty associated with an unstable political environment may reduce investment and the pace of economic development. On the other, poor economic performance may lead to government collapse and political unrest. However, political stability can be achieved through oppression or by having a political party in place that does not have to compete to be re-elected (Hussain, 2014). In the case of the change of the government, foreign investors would want to be certain that such amendments would not affect their investments and business in general. The reliability and political stability determine FDI inflows.

In measuring political instability, every country would utilise the measures of probability of a change of government as well as the sum of the frequency of political assassinations and revolutions, violent unrest or riots and politically motivated strikes (Asiedu, 2002; Barro & Lee, 1993). Scholars such as Jaspersen and Aylward (2000), Hausmann and Fernandez-Arias (2000) and Schneide and Frey (1985) have found no relationship between political instability and FDI. These results imply that FDI is not influenced by political instability or vice versa.

## 3.5.4 Infrastructure development

Infrastructure development is a key driver of South Africa's growth prospects with rail and water infrastructure focal areas. It should not only be available but should serve the purpose of stimulating economic growth and attracting vast amounts of FDI inflows. In addition, it is frivolous if it is unreliable, whereas good infrastructure positively affects productivity of investment and stimulates FDI inflows (Asiedu, 2002). The maajority of the investors are aggravated by the good infrastructure of the host country. South Africa is leading in the African continent in terms of FDI inflows, and one of the factors contributing to this is good infrastructure, which most of the investors are looking for. Thomas and Leape (2005) agree with Asiedu (2002) that the quality, availability and reliability of technological infrastructure are of paramount significance.

South Africa is on a good path to unlocking economic growth through infrastructure development. The South African National Development Plan (NDP) acknowledges and values the association between economic growth and infrastructure development. The National Infrastructure Plan, with its 18 strategic integrated projects, are catalytic projects developing the economy through tangible assets such as schools, roads, hospitals, public spaces and several other amenities (Grenfel, 2015).

#### 3.5.5 Government regulation

This comprises rules a government puts in place to restrict and control the behaviour of businesses. In other words, it consists of rules and regulations governing the entry and operations of foreign investors. The entry of FDIs in the country entirely depends on government regulations, on whether or not government policies are favourable to the investors. For instance, a government policy that is open for investors promotes inflows of FDIs for the country whereas a restrictive policy discourages FDI flows (Chopra, 2003). The South African policy regarding foreign investment has been adjusted to attract more foreign investment (Mlumbi-Peter, 2015). In the past, the foreign investment regime was relatively laissez-faire, but recently, the government has shown interest in increasing its regulation of this sector. In 2013, the government announced that it was doing away with its bilateral investment treatise and it promoted policies that are less biased against foreign investors and opened more room to pursue South Africa's economic and social goals (Sharp, 2015).

#### 3.5.6 Inflation

Foreign investors always prefer host countries with low inflation rate, at least within the central bank inflation target (IT) of between 3 and 6 per cent. A high inflation rate indicates incapability of the government to balance its budget and failure of the central bank to conduct an appropriate monetary policy. The inflation rate is based on consumer price index (CPI). Through monetary policy, the South Africa Reserve Bank provides an enabling environment for production potential without giving into inflationary pressure (Munyeka, 2014). According to Nell (2000), the effects of inflation

on economic growth are innumerable and can be simultaneously positive and negative.

## 3.5.7 Control of corruption

Determination of macroeconomic and institutional determinants of FDI inflows has gained importance for countries to attract more FDI inflows. One of the most significant institutional determinants has been found to be corruption (Bayar and Alakbarov, 2016). There are two main views on the impact of corruption on FDI inflows. One view suggests that corruption affects FDI inflows negatively because it increases the costs and weakens transparency, property rights and competitive environment, and prevents efficient functioning of governments. Another view is that corruption affects FDI inflows negatively because it increases from poor institutions and regulations (Bellos and Subasat, 2011). Myrdal (1968) and Macro (1995) assert that corruption has a negative impact on the economic growth of a country, diminishes productivity and discourages foreign investment.

## 3.6 SUMMARY

This chapter discussed the macroeconomic trends in Brazil, Russia, India, China and South Africa (BRICS) economies from 1997 to 2016. This chapter clearly depicted that there is a positive relationship between BRICS economic growth and foreign direct investment, with the exception of Russia. Therefore, there is no relationship between South Africa's economic growth and foreign direct investment (FDI) from Russia.

The chapter also discussed the destination of BRICS FDI flows. It is evident that there is still limited Intra-BRICS FDI flows. The high margin of FDI flows for BRICS countries still goes to other economies that are not part of BRICS. South Africa invests mostly in European countries that are not part of BRICS economies. The sectors that attract foreign direct investment the most in South Africa are manufacturing, mining, transport, storage and communication, financial and insurance services, real estate and business service and trade, catering and accommodation.

Furthermore, sectors that attract BRIC FDI flows into South Africa were also discussed in this chapter. These are public corporation, private sector and banks. The most dominating country amongst BRICS economies to invest in South Africa is China. In turn, amongst the BRIC economies, South Africa invests mostly in China.

Lastly, determinants of FDI in South Africa were also discussed. These were drawn from previous studies. They include market size, trade openness, political stability, infrastructure development, government regulation, inflation and control of corruption. The next chapter discusses an overview of foreign direct investment in South Africa.

#### CHAPTER FOUR

## OVERVIEW OF FOREIGN DIRECT INVESTMENT IN SOUTH AFRICA

#### 4.1 INTRODUCTION

Foreign direct investment (FDI) is defined as broad capital flows in which a company or firm in one country expands or produces a subsidiary in another country. It involves acquisition of control and transfer of resources (Mun *et al.*, 2008). FDI has an important role on the economic growth of developing countries. The most important advantage for developing countries is FDI's contribution to bringing and introducing new technology, skills, training and other relevant as well as vital materials to their economies (Hossain & Hossain, 2012).

The chapter begins by discussing the types of foreign direct investment, followed by the foreign direct investment and employment creation. In addition, foreign direct investment benefits and drawbacks are discussed in the chapter. Foreign direct investment as an indication of weakness in an economy is discussed later in the chapter. The chapter concludes with an overview of foreign direct investment through a South African lens. It ends with a summary.

## 4.2 TYPES OF FOREIGN DIRECT INVESTMENT

## 4.2.1 Export-oriented investment

Export-oriented investment is described by Reuber (1973) as the type of investment that reflects a wide range of considerations such as the desire to develop secondary and more diversified sources of supply by way of obtaining lower-cost products to be used either as inputs or for sale elsewhere. Companies create markets at home or internationally to seek new sources of inputs, including raw materials, components, and parts, as well as finished products. This reflects a wide range of consideration, such as the desire to develop secondary and more diversified sources of supply and the possibility of obtaining lower-cost products. Examples of this type of investment are found in the raw materials sector. Generally, such foreign investors are mainly interested in extracting products from the host country and selling them abroad through established market channels. In making such investments, firms sometimes also create supporting infrastructure such as housing, hospitals and schools (Asafo-

Adjei, 2007). This investment focuses on the needs of a particular market, which is largely or entirely outside the host country (Reuber, 1973, p. 73).

The World Investment Report (1999) indicates that this type of investment is made with the intention of the investor to improve its competitive position at home or internationally by taking advantage of the lower cost of production that host countries offer. In these countries, lower cost is indicated by some of the following, incentives from the host country, abundance of skilled and semi-skilled labour with concurrent relatively lower wages, and political and monetary stability. With this type of investment, investors attach little significance to host countries' markets. The major factors with regard to the determination of the location of the investments are cost, as explained above, and the reliability of production.

This investment is geared towards the production of component parts. After production, the components are normally exported to a central location or to a country other than the host country for assembly into finished goods, confirming the fact that this investment is made with the object of taking advantage of the lower-cost environment in a host country (Giles & Williams, 2000).

Export-oriented investment tends to be highly profitable even in the short term. The investing company's control over the market and the rapid depreciation of its investment is made possible by high cash throw-off and is sometimes enhanced by technological obsolescence (Asafo-Adjei, 2007). If competitive conditions become less favourable in the host country relative to somewhere else, then the firm can move its investment quite quickly. Moreover, because of this high mobility, countries can easily find themselves competing with each other in making concessions to such investors in order to make their investment platforms more attractive, which in turn reduces the risk of this type of investment and hence an advantage to both the host country and the investor (Golberg & Klein, 1999).

Reuber (1973, p. 74) states that this type of investment less commonly produces final products for sale directly to consumers abroad. One may speculate on a variety of reasons for this, such as the difference in comparative advantage associated with different parts of the production process, handling and transportation costs, and the reluctance of investors to assume the risk of relying entirely on any country for the production of a full product line. Other reasons could be the advantages from the

standpoint of sale and the service of having final assembly take place in the major markets where the product is sold, as in most cases, the host country's markets are more oriented to raw materials.

There are many ways by which export-oriented FDI can help enhance a host country's manufacturing and export competitiveness. In order to attract this type of investment and to ensure that the investment translates into development gains, a host country needs to find the most effective ways of making the choice of locations as well as the target segments conducive to the kind of export activities the host country aims to foster. In today's rapidly globalising world, successful exporting needs not only competitive products, but also marketing expertise and access to international markets. Giving greater access to export-oriented FDI can provide major benefits to the host country in this respect, especially in markets in which established brand names and large distribution networks are important assets. This type of investment can also be an effective means of providing resources such as skills, training, technology, capital goods and intermediate inputs needed to exploit a country's existing comparative advantages (Helpman & Kruman, 1995).

The most prominent role played by this type of FDI in the exports of developing countries is in the manufacturing sector. In this sector, foreign affiliates tend to be leaders in export-oriented investment and in marketing. The impact of foreign affiliates on the domestic entities' export activities can be both direct and indirect. Direct effects occur when exporting foreign affiliates establish backward linkages with local firms, which then become indirect exporters. Indirect effects of the presence of export-oriented foreign affiliates occur when local firms manage to copy the operations of foreign affiliates, employ staff of foreign affiliates, and benefit from improvements in infrastructure and reduction in trade barriers undertaken in response to demand by the host country for foreign operations/investors.

Khan and Afia (1995) have a similar view to that of Helpman and Kruman (1995). However, they also point out that expanding exports is a means to an end of a country's economic development; thus, promotion of export-oriented FDI should be an integral part of the overall development strategy. Moreover, FDI can help a country in its efforts to raise exports in all kinds of industries by providing the missing elements that they need in order to compete or by improving locally based skills and capabilities.

Export-oriented FDI is generally considered an economic development and growth tool. Indeed, the positive role of export-oriented FDI, especially in the context of development, has been well documented (Lall, 2000). UNCTAD (2001:13) has therefore suggested that developing countries should actively seek to attract the right type of FDI to tap into the new international production system and that although FDI projects might not be export oriented at first, such an orientation can emerge as countries learn more about the performance of their initial investments and possibilities for expanding production in particular markets. In effect, a question is raised concerning the feasibility of accurately identifying export-oriented FDI given that orientation can change over time.

Although the potential benefits of export-oriented FDI are widely acknowledged, this does not necessarily lend support for policies aimed at targeting and promoting it (Asafo-Adjei, 2007). One reason for this is that most countries tend to take an incremental approach to foreign markets, especially new ones. Their commitment to this over time will be conditioned to a significant extent by observed performance. Policies that aim to attract export-oriented FDI may neglect or even discourage FDI that might initially be oriented towards the domestic market, but which might become more export oriented over time.

#### 4.2.2 Market-development Investment

Unlike the export-oriented type of FDI, the objective of making a market-initiated type of FDI is to sell the final output in the host country's market. However, a common feature of both types is that they thrive on feasibility of reduction in production cost. Another key consideration by the investor is the potential growth in the size of the host country's market in the long term. Although in the short to medium term the investment may not yield the expected return, if the long term view is that the host country's market will grow in size and hence become profitable, the investment may then be undertaken. Growth in the host country's market is however dependent on the general economic outlook of the host country. Hence, the macroeconomic variables and the effectiveness of the economic reform policies, other policy directives like tariffs, trade controls, taxes, subsidies and so forth, as well as various regulations imposed on the foreign investors by the host country, become fundamental to the decision to invest (Reuber, 1973; Bosworth, 1999; Collins, 1999; Aschauer, 1999).

The policies referred to in the previous paragraph are largely general in scope. They apply to foreign investment generally or to broad sectors of the economy rather than to particular projects or industries. Moreover, many of these policies confer the same advantage on domestic industries. The initiative to undertake such investment is taken by the investor. Although the incentives provided by the host country frequently have some influence on the decisions made, investors may view many of these incentives as uncertain over time and marginal in importance by comparison to long-term market consideration (Asafo-Adjei, 2007).

Market-development investment is marked by many uncertainties of the most central kind from a business standpoint: How quickly will a market develop? Can the enterprise speed up the market-development process? What share of the market can the firm capture? As the market develops and investors' knowledge and confidence grow, and they become more familiar with the risk involved, they may expand gradually into assembly activities (Reuber, 1973:75).

This type of investment may be illustrated by the following examples, as reported in Reuber (1973). A major manufacturer of tractors approached the Brazilian market by exporting initially and working directly with Brazil to establish a strong local distribution network. This required extensive training of Brazilian distributors, not only in how to sell tractors but also in how to use, service and repair them. In many cases, certain business practices were also transferred, such as inventory control for parts and record keeping for internal control purposes. The Brazilian distribution system added to make attractive margins in return for their inputs. The distribution system added more value to the host country than did the company's eventual manufacturing activities. Furthermore, after the firm had developed a large-enough market to begin the integrated manufacture of tractors in Brazil, the distribution network proved effective in handling imported combines and other enterprise equipment. The enterprise's next step was to develop the integrated manufacture of combines in Brazil, and the gradual diversification of the product range is expected to continue into the future.

A second example in Reuber (1973) relates to a major US chemical company that bought out the only local plastics manufacturer in a small Latin American country and operated on a reasonable profitable basis. The American company was not very interested in the modest return available from the existing firm but was interested in the potential returns after market development and the related infusion of technology. Their long-term objective was to create a technologically advanced self-contained plastics industry in the host country, as they knew that the existing manufacturer was operating with old technology and that the inferior quality of the output limited the number of possible end users. Furthermore, the size of the market as it stood was less than half that required to justify building the new facilities using new technology needed to bring about market growth. The American firm's strategy in the light of these conditions was three-fold: (i) to develop the country's market potential; (ii) to export more sophisticated products from other countries to the host country, and (iii) to build a new plant with advanced modern technology in the host country after the market had developed to a sufficient level (Reuber, 1973). An important feature of such a strategy is that it is very long term in its conception. This strategy also looks more creative and it will benefit both the investor and the host country (Kumar, 2003; Reuber, 1973).

Market-development FDI takes many different forms. A major aluminium company began its operations in India by selling aluminium pans and utensils door to door. Over time this led to fabricating activities, bauxite mining and smelting within India, thus forming a well-integrated local industry. The key feature to be noted in this process is that the building of production facilities followed the development of demand, and that the development of demand was a risky and time-consuming activity requiring extensive transfers of managerial and technological skills (Reuber, 1973).

With the type of investment described above, host countries have considerable bargaining power in their relationship with the investors seeking to establish a foothold in their domestic markets. As the economy expands, new investors are attracted, creating some competition among investors for available market opportunities (Reuber, 1973). In these circumstances, it may be possible not only to reduce any concessions that may have been extended to foreign investors initially but also to insist on certain concessions from these investors relating to such matters as local ownership, local content in products and reinvestment without interfering significantly with the inflow of investment (Reuber, 1973).

#### 4.2.3 Government-Initiated Investment

In comparison with the export-oriented and market-development types of FDI, government-initiated type of FDI occurs through the provision of substantial incentive structures to investors by a host country's government. These are accepted by investors whereas market as well as cost conditions may have precluded them from investing in the host country under normal or "no-incentive" circumstances. For example, in South Africa the incentive takes the following forms: relaxed foreign exchange controls, tax concessions to investors partaking in national development projects such as Coega in Port Elizabeth, indirect subsidies through the provision of specific infrastructural requirements by investors, ease of repatriation of investments and many other kinds of government support services (Department of Trade and Industry, 2006).

To protect the host country and to make the option of providing incentives to foreign investors efficient, such incentives are directed at specific projects or industries. Moreover, incentives are given by host country governments in order to attract foreign investors to either less-developed regions or regions which require improvement in certain sectors. For example, South Africa has allocated investment opportunities to each of the nine provinces (Department of Trade and Industry, 2006).

A country decided that the time had come to displace imports of synthetic rubber with those produced locally. The country was short of hard currency and lacked the technological skills to produce competitive products. To overcome these problems, it sought a joint venture arrangement with another country that held only a small share of the host country's market as an exporter to the country. This country considered it worthwhile to supply funds and technology in order to obtain a substantial minority interest in the venture and thereby increase its market share. The participating country continued to maintain its own independent distributor to handle a portion of the output under a market sharing arrangement. The plan was to produce specialised grades locally as sales volumes rose to the point where production costs became internationally competitive. The host country, however, pressed for local manufacture much earlier than the participating country felt justified in doing by economic considerations. Import-displacement investment of this kind accelerated the transfer of production and technology but at the cost of considerably higher prices for the

domestic economy. This cost was justified by the government on the grounds that it yielded a variety of intangible non-quantifiable external effects, such as the development of local management and technical skills, improved technology and a series of beneficial spill-over effects on the local industries (Reuber, 1973).

Host-country governments have historically played an important role in attracting or excluding FDI through subsidies, which is one of the most effective ways of stimulating the flow of FDI. Subsidies take several different forms. They serve to reduce the risk premium of locating abroad and so they may directly influence a firm's cost structure. One example of a subsidy which affects the firm's risk premium would be the provision of public education to increase literacy within the country. In contrast, a subsidy could be aimed at reducing a particular firm's or industry's costs of providing on-the-job training. A risk-reducing subsidy, such as the provision of social overhead capital, has direct economy-wide benefits while a cost reducing subsidy benefits a select firm or group of firms (Jones, 1998; Caves, 1982; Asafo-Ajei, 2007).

Given the framework of analysis presented above, a government-sponsored subsidy would have the unequivocal effect of increasing the probability of a firm's move to an investment location. Under the cases presented above, the view by investors is that a subsidy does not in itself reduce or compensate firms for locational risk, but does increase the risk premium for investors, i.e. a subsidy is not seen as a positive factor in a firm's cost structure or the "riskiness of a foreign location" decision making. However, this does not necessarily imply that a subsidy is independent of the firm's profit maximising level of output (Davidson, 1980).

As an incentive to FDI, a host government can tailor subsidies to reflect the relative importance of the cost or risk factor in a firm's decision to locate in the host country. Krueger (1990) indicates that the objective of this type of investment is generally rooted in the desire of a country to increase employment and output, to encourage certain kinds of activities, to promote regional development within the host country, to improve the balance of payments and to alleviate the scarcity of hard currency. Tyler (1997) argues that although such policies do not necessarily imply investment in import-displacing industries, this in fact has been the most common practice in the past.

Despite its benefits, government-initiated investment inevitably create a high degree of interdependence between the investor and the host-country's government, and an uncertain environment for both parties. The mome-country government may also be drawn into the arrangement directly or indirectly. Given that the success of the incentive depends largely on the continuation of the host country's subsidies in various forms, the investor loses much of the bargaining power once the investment is committed. The investor is therefore likely to demand excessively favourable terms at the outset as a condition for making the investment to compensate for the possible erosion of these terms once a commitment is made. For its part, the host government tends to be excessively generous in the first instance in the hope of being able to change the terms of its support once investments have been committed. On this basis, the stage is set for relatively difficult relationships to develop between investors and governments. Owing to their interdependence, and in order to minimise conflict, investment of this kind tends to give greater emphasis to joint ventures, minority interests for foreign investors and other conditional forms of FDI (Reuber, 1973).

#### 4.2.4 Merger and Acquisition and Greenfield Investment

FDI flows to developing countries surged in the 1990s to become the leading source of external finance. This rise in FDI volume was accompanied by a marked change in its composition: investment taking the form of acquisition of existing assets (M&A) grew much more rapidly than investment in mainly new assets (Greenfield FDI), particularly in countries undertaking extensive privatisation of public enterprises. For example, in 2000, South Africa attracted FDI of US\$152 million compared to US\$877 million in 1999. The poor FDI figures for 2000 are partly a reflection of the decrease in government activity, such as privatisation, which attracts foreign inflows. Approximately 60 percent of FDI into South Africa takes the form of mergers and acquisitions, largely because of state leveraged deals and the privatisation of state assets (World Investment Report, 2001).

#### Greenfield investments and Merger & Acquisitions

The UNCTAD report (2001, p. 17) asks to what extent FDI entry through the acquisition of domestic firms is different – in terms of its development impact – from entry through the establishment of a new facility (greenfield investments). There is a perception that M&As do not necessarily add productive assets or new jobs to a country. At the heart
of the concern in this regard is the notion that M&As are generally perceived as resulting mainly in a change of ownership and a shift in control from domestic to foreign hands, thereby increasing the risk of foreign domination of segments of the economy. Moreover, M&As often lead to employment loss and can be used to reduce competition and strengthen market power. They may also lead to the breaking up of the acquired firm and disinvestment of its individual parts. Such concerns exist in all countries (Asafo-Adjei, 2007).

The World Bank (2000) suggests that, especially at the time of entry and in the short term, M&As (as compared to greenfield investments) may involve, in some respects, smaller benefits or larger negative impacts from the perspective of host-country development. The UNCTAD report (2000:7) summarises the impact as follows:

The financial resources provided through M&As do not always add to the capital stock. Hence, FDI through M&As may correspond to a smaller productive investment than the same amount of greenfield FDI, or to none at all. However, when the only realistic alternative for a local firm is closure, cross-border merger or acquisition can serve as a "life preserver" (UNCTAD, 2000).

FDI through M&As is less likely to transfer new or better technology or skills than greenfield FDI, at least at the time of entry. M&As may lead directly to the downgrading or closure of local production, or functional activities in line with the acquirer's corporate strategy (UNCTAD, 2000).

FDI through M&As does not usually generate employment when it enters a country. It may even lead to layoffs, although in the case of a firm which would have gone bankrupt had it not been acquired, it can also maintain employment. Greenfield FDI, by contrast, necessarily creates new employment at entry (UNCTAD, 2000).

FDI through M&As can increase concentration and lead to anti-competitive results. However, it may prevent concentration from increasing when takeovers help preserve local firms that might otherwise have gone under. Greenfield FDI, by definition, increases the number of firms in existence and does not increase market concentration upon entry. The UNCTAD report (2000) notes that most of the shortcomings of FDI through M&As, as opposed to greenfield FDI, relate to effects at entry or soon afterwards. In the longer term, when both direct and indirect effects are taken into account, many differences between the impacts of the two modes diminish or disappear. For example, cross-border M&As are often followed by subsequent investment by the foreign acquirers; thus, over time, FDI through M&As can lead to enhanced investment in production just as greenfield FDI does. Similarly, cross-border M&As can be followed by transfers of new or better technology, especially when acquired firms are restructured to increase the efficiency of their operations. For instance, Chinese vehicle manufacturer Beijing Automotive Group's South African subsidiary, BAIC SA opened its 88 969  $m^2$  vehicle assembly plant in the Coega Industrial Development Zone, near Port Elizabeth (Arnoldi, 2018). Moreover, the company has completed the critical construction and equipment installation milestones for Phase 1 of the historic R11 billion investment in the assembly plant (Arnoldi, 2018). The BAIC SA investment, one of 26 bilateral agreements, with a total value of R94 billion, signed in 2015 between South Africa and China is the single largest investment in South Africa in 40 years. The project is the result of a memorandum of understanding between the South African government's industrial policy implementation arm, the Industrial Development Corporation (IDC), , Chinese state owned BAIC group as well as Hyundai and Mercedez branded cars for the Chinese market through its Beijing Hyundai and Beijing Benz Joint venture agreement (Arnoldi, 2018). IDC (South Africa) has a 35 percent shareholding in the plant while BAIC (China) has a 65 percent shareholding (Arnoldi, 2018).

#### 4.3 FOREIGN DIRECT INVESTMENT AND EMPLOYMENT CREATION

Cooper (1992:188) explains employment as an act where a service is rendered by a person (including legal persons) to another person in return for compensation (monetary or non-monetary). FDI contributes to economic growth directly by creating employment opportunities and indirectly through the creation of employment opportunities in other organisations (Asafo-Adjei, 2007).

Indirect employment created by foreign affiliates in host countries can be large, probably larger than that created directly (Nanak, 2000). With the growth of international production, the share of employment creation by foreign affiliates is growing. Employment creation in host countries has been partly attributed to the labour intensive nature of the economic activities established by foreign companies (World Bank, 2000).

There is a wide divergence of views concerning the effect of FDI on host countries' employment levels. The initial assumption in most host countries is that there is an increase in the level of employment when foreign investors enter a country. This view is shared by US multinationals, who contend that they are only able to maintain domestic employment in high-skill activities by transferring their labour-intensive activities abroad. This suggests that although employment levels increase, this is only at a semiskilled level. However, this is still an advantage to host countries, who are better off with this increase in employment levels than if there were no FDI at all (Glickman & Woodeward, 1989). Another side to this divergent view is that due to the sophisticated technology and the level of knowledge of foreign investors, host countries are not able to compete, which eventually leads to downsizing of the labour force (Reuber, 1973).

Reuber (1973) further elaborates that most resident firms bear most of the cost of training employees, and the degree to which investing firms finance training is extremely difficult to determine. In most cases, employees are hired at going rates for the category in question rather than at some lower rates, which increase in line with their training. In addition to FDI's effect on the level and composition of employment, there is also the question of its effect on labour income. This is because more work is created, increasing the demand for labour and thus leading to increases in salaries generally. At a broad macro level, it follows from general theoretical principles than an increase in capital stock labour income.

Focusing on wages and salaries, one would expect that as foreign investment creates more jobs it would also tend to raise wage and salary levels (Asafo-Adjei, 2007). According to Michael and Gugerty (1997), elasticity of local labour most likely to show in the market for skilled and semi-skilled workers and for highly trained professional categories seems to be the lowest. One possibility is that FDI, by increasing the integration of the local economy into the international economy, leaves the local economy more vulnerable to fluctuations in the international economy. While this may be so, cyclical savings in the economies of developed countries in recent years have probably been more moderate than in the low developed countries (LDCs). In such a situation, increased integration serves as a stabilising factor to employment in the LDCs.

Kyong-ae (2006) supports the fact that FDI creates employment. However, the negative effects of FDI on employment include that it has long been a concern of policymakers that Greenfield FDI may cause job losses in investor countries, and labour unions generally consider FDI to be the equivalent of job exporting (Asafo-Adjei, 2007). Asafo-Adjei (2007) further states that the logic is simple: as production lines are relocated overseas, firms go with workers that served the domestic lines. This serves to confirm that host countries will see an influx of foreign staff/labour (especially skilled staff) with increases in FDI. This leads to increasingly less use of skilled staff in the host country. Skilled staff are sometimes laid off or become redundant, resulting in a halt in knowledge transfer and ultimately in productivity and economic growth. A counter-argument is that the entrance of foreign investors expands the economy through competition, which creates vacancies which "surplus" skilled labour in an economy can fill, and productivity increases, which, when sustained, results in economic growth (Bartlett & Sumantra, 1998). This reasoning is, of course, over simplistic because there could never be any guarantees that if the production lines that were relocated overseas would have been able to survive the competition had they remained at investor country. If these production lines were to be eliminated (or in the process of being eliminated), then their relocation would not result in any job losses. Moreover, acquisition-type FDI results in just a transfer of ownership and does not in itself create jobs; in fact, foreign investors seek ways to reduce costs, increase revenue and generate more profits, and may go to the extent of shedding jobs (Asafo-Adjei, 2007).

However, Chinese BAIC group SA created employment for 1 540 direct construction jobs and an additional 120 people were employed in the new company in South Africa (Arnoldi, 2018).

#### 4.4. FOREIGN DIRECT INVESTMENT BENEFITS

The FDI benefits are grouped into FDI and macroeconomic growth, FDI and technology transfer, FDI and human capital enhancement, FDI and corruption, FDI and enterprise development, FDI and environment and social issues and FDI and trade integration.

#### 4.4.1 Foreign direct investment and macroeconomic growth

When one undertakes a survey study on FDI for development, questions immediately spring to mind: why FDI and why should investment have to be foreign? The answer to this question explains one of the key benefits of FDI: it is known that foreign investment (given the level of inward investment) is good for productivity growth and technological progress. The most one could hope for in any economic activity in a developing country is that it contributes to economic growth. However, as with many economic phenomena, there is no conclusive evidence one way or another, but the empirical evidence is that FDI often, though definitely not always, contributes to economic growth, and the evidence is indeed good that economic growth usually leads to reduced poverty, though not necessarily to a more equitable distribution of income (Bevan & Estrin, 2000).

Estrin (1994) states that poverty reduction is a result of economic growth through FDI, but it may not necessarily directly benefit the poor people. Nevertheless, it helps to create an economic environment and increase employment, which may help many people to move out of poverty. Furthermore, Asafo-Adjei (2007) states that the beneficial effects of FDI on poverty reduction are potentially stronger when FDI is employed as a tool to develop labour-intensive industries and is anchored in the adherence to multinational enterprises national labour law and internationally accepted labour standards.

According to Hausmann and Fernandez-Arias (2000, p. 3), the advantages of FDI in contributing to economic growth are threefold: first, some developing countries have domestic savings that are too low to finance an optimal rate of capital building. If, at the same time, they have problems tapping into international financial markets, FDI may be their best chance of alleviating financing constraints. A similar effect occurs where domestic savings may be ample, but a deficient banking system is unable to funnel the available funds to domestic investors. Second, FDI is a more stable source of external finance than portfolio investment and borrowed funds. For example, in the case of a financial crisis, loans and short-term securities investment are usually withdrawn very swiftly. Investors with a direct stake in enterprises are less likely to disinvest due to short-term considerations. Finally, Hausmann and Fernandez-Arias (2000, p. 6) further explain that perhaps, and most importantly, countries at all levels

of development may benefit from a foreign corporate presence in their business sector in that FDI has direct effects on the performance of the host country's business sector. The entry of foreign enterprises generally leads to productivity growth and enterprise development. This in turn can lead to enhanced competition, particularly in previously shielded market segments.

Lipsey (2001) argues in a similar way to Hausmann and Fernandez-Aria (2000) that FDI has become an important source of private external finance for developing and developed nations. It is different from other major types of external private capital flows as it is motivated largely by the investor's long-term prospects for making profits in production activities that they directly control. Foreign bank lending and portfolio investment in contrast are often motivated by short-term profit considerations that can be influenced by a variety of factors and are prone to herd behaviour. Lipsey (2001) illustrates these differences by referring to the pattern of bank lending and portfolio equity investments and FDI to the Asian countries that were stricken by financial turmoil in 1997. FDI flows in 1997 to the five most affected countries remained positive in all cases and declined only slightly for the group, whereas bank lending and portfolio equity investment flows declined sharply and even turned negative in 1997.

According to the World Bank Report (1997), there is empirical evidence to suggest that a dollar of FDI raises the sum of domestic and foreign investment by more than a dollar; thus, FDI complements rather than substitutes domestic investment. In addition, especially in less-developed countries, FDI has been shown to be a more efficient, stable and worthwhile type of investment to attract development than domestic investment only. The efficiency and the stability of FDI was evidenced by the fact that FDI remained high despite growing investor concerns over emerging market risk as well as the deterioration of the global economic environment (Asafo-Adjei, 2007). Moreover, FDI is said to be worthwhile due to the economic growth potential it creates when it complements domestic investment.

#### 4.4.2 Foreign direct investment and technology transfer

FDI allows the transfer of technology, particularly in the form of new varieties of capital inputs that cannot be achieved through financial investments or trade in goods and services. Baldwin and Portes (1997) report that the spill-overs (or positive externalities) generated by FDI fall into two categories, namely technology diffusion

and human capital building. FDI brings new technologies into host countries, which are eventually diffused to the broader domestic business sector. The channels through which this may take place are many but the report concludes that the most important source of technology spill-overs is vertical linkages between Multinational Corporations (MNCs) and local suppliers. Foreign-owned enterprises usually provide their suppliers with technical assistance, training and other information to improve the quality of their products. In addition, through FDI, many MNCs assist local suppliers in purchasing raw materials and intermediate goods, and in modernising or upgrading production facilities (Asafo-Adjei, 2007). An important issue is the actual uses that host countries are able to make of the technologies thus transferred. Crucially, the technologies need to be relevant to the host country's business sector beyond the specific company that receives them. In this respect, the general technological level of the host country's business sector is of great importance. Evidence suggests that for FDI to have a more positive impact than domestic investment on productivity, the technology gap between domestic enterprises and foreign investors must be relatively limited. Where important differences prevail or where the absolute technological level in the host country is low, local enterprises are unlikely to be able to absorb foreign technologies transferred via MNCs (Bevan & Estrin, 2000; Mallampally & Sauvant, 1999:12).

The above notion is supported by Meyer (1998:46), who explains that FDI can lead to beneficial technology and management skills transfer to local firms. Owing to the fact that MNCs typically have greater technological and management expertise than local firms, such expertise can be transferred to other parts of the economy. This appears to happen most clearly when the MNC is not tightly integrated with local firms. There is evidence that technology and skills transfer takes place most likely through labour mobility, professional contacts or a general rise in competitive pressure.

Information and communication technology is a very important ingredient for growth. It helps in developing a country's productive capacity in all sectors of an economy, and provides a link between economies, thereby leading to competition. It stimulates invention, innovation and wealth creation. It contributes to poverty reduction by increasing productivity and providing new opportunities, and it sharpens the effectiveness, efficiency and transparency of human capital in a society. It is comprised of indicators such as internet hosts and the number of computers,

telephone mainlines, creation of bandwidths, fax machines, TV sets, radios, users of mobile phones and subscribers to newspapers (Bevan & Estrin, 2000). In the face of global competition for FDI, potential host countries are disadvantaged if information infrastructure and information technology are inadequate.

## 4.4.3 Foreign direct investment and human capital enhancement

Recipients of FDI often contribute to employee training in the course of operating the new business, which assists in human capital development in the host country. Investment in general education is of the utmost importance in creating an environment in which foreign enterprise wish to invest. Achieving a certain minimum level is paramount to a country's ability, not only to attract FDI but also to maximise the human capital spill-over that may arise from foreign enterprise presence, since the magnitude of MNC-sponsored training is necessarily smaller than that of general education. The direct impact on human capital from FDI derives mainly from the fact that MNCs tend to provide more training and other upgrading of human capital than domestic enterprises.

The beneficial effects of training provided by FDI can supplement but not replace a generic increase in skill levels. The presence of MNCs may however provide a useful demonstration effect as the demand for skilled labour by these enterprises provides host country authorities with an early indication of what skills are in demand (Smith, 1991).

Grabbe (2001) shares a similar view that FDI can improve the skills and wages of the labour force in that MNCs provide training and better employment opportunities for development of labour. Evidence is strong that MNCs pay better and train employees more thoroughly than domestic firms in developing economies. Grabbe (2001) further explains that the presence of MNCs in the labour market provides an incentive to local firms to improve the conditions and wages of workers. However, this creates a drawback in the sense that in order to control labour costs, local firms may adopt a negative stance with regard to the reception of FDI.

Human capital levels and spill-overs are closely interrelated with technological transfers. Technologically advanced sectors in host countries are more likely to see human capital spill-overs and, conversely, economies with a high capital component lend themselves more easily to technology spill-over, since technological development

varies with the capital levels of a country. Consequently, efforts to reap the benefits of technology and human capital spill-overs could gain effectiveness when policies of technological, educational and training improvements are undertaken conjointly (Asafo-Adjei, 2007).

#### 4.4.4 Foreign direct investment and competition

FDI could also promote competition in the domestic input market. The European Commission Report (2004, p. 5) identifies two main categories of efficiency gains from FDI, namely the effects on competition and the effect on enterprise restructuring and development. As for competition, since the early 1990s, a wave of mergers and acquisitions has reshaped the global corporate landscape. At the same time, a surge in the number of strategic alliance has changed the way in which formerly independent corporate entities interact. A wave of privatisations has attracted considerable FDI (mainly in developing and emerging countries). This adds up to an increasing degree of concentration in national markets, which could have important effects on competition. Furthermore, the report suggests that the effect of FDI on host country concentration is, if anything, stronger in developing countries than in more mature economies.

However, foreign entry also has the potential to increase competitive pressure in a previously cosy national market (Asafo-Adjei, 2007). This argument is underpinned by the fact that MNC entry is generally found to raise productivity levels among host-country incumbents (albeit more consistently so in developed than in developing countries). Predictably, this effect is strongest in markets where there appears to have been little competition prior to the foreign entry (European Commission Report, 2004).

Foreign market entry may lead to the closure of weaker enterprises, which may lead to increasing market concentration, thus removing competition. Therefore, while it is desirable that strongly performing entrants be allowed to replace less productive domestic enterprises, policies to safeguard a healthy degree of competition must be in place. The best way of achieving this is by expanding the relevant market by increasing the host economy's openness to international trade. In addition, efficiencyenhancing national competition laws and enforcement agencies are needed to

minimise the anti-competitive effects of weaker firms exiting the market (Asafo-Ajei, 2007).

#### 4.4.5 Foreign direct investment and enterprise development

Foreign-orchestrated takeovers lead to changes in management and corporate governance. MNCs mostly impose their own company policies, internal reporting systems and principles of information disclosure on acquired enterprises. In addition, a number of foreign managers are normally appointed with the takeover. Where foreign corporate practices are superior to the ones prevailing in the host economy, this boosts corporate efficiency. However, in some cases, country-specific competences are an asset for managers in subsidiaries; therefore, MNCs need to strive towards an optimal mix of local and foreign management.

Foreign participation in the privatisation of government-owned enterprises is a case in point (Asafo-Adjei, 2007). The privatisation of utilities is often particularly sensitive as these enterprises often enjoy monopolistic market power within segments of the local economy. The first-best privatisation strategy is to combine privatisation with an opening of markets to greater competition. Where the privatised entity remains largely unreconstructed prior to privatisation, local authorities often try to attract foreign investors by promising them protection from competition for a designated period. In this case, there is a heightened need for strong, independent, domestic regulatory oversight (World Bank Report, 2000).

## 4.4.6 Foreign direct investment and environment and social issues

Di Mauro (2000, p. 11) posits that it is important to stress that not only does FDI affect the economy of the host country, but the foreign corporate presence also, in many cases, has important effects on social conditions and the environment. Taking the latter point first, Di Mauro (2001) explains that FDI has the potential to greatly benefit the environment in developing countries. However, for this potential to turn into tangible benefits, host country authorities need to pursue adequate environmental policies. The technologies that are normally transferred to developing countries in connection with FDI tend to be more modern and environmentally cleaner.

The World Bank report (2000) also finds little support for the assertion that efforts to attract FDI may lead to "pollution havens" or a "race to the bottom". Apparently, the

cost of environmental compliance is limited and, unsurprisingly, this is particularly the case where investors' home countries are wealthy or very environmentally concerned. The report found little evidence that foreign corporate presence in developing countries leads to a general deterioration of basic social values, such as core labour standards. On the contrary, the report found a positive relationship between FDI and workers' rights. Low labour standards may in some cases even act as a deterrent to FDI due to investors' concerns about their reputation elsewhere in the world and due to fears of social unrest in the host country.

#### 4.4.7 Foreign direct investment and trade integration

FDI contributes to further integration of industries of developing countries into the global economy by engendering foreign trade flows. Several factors are considered, including the development of international networks of related enterprises and an increasing importance of foreign subsidiaries in MNCs, strategies for distribution, sales and marketing. In both cases, this leads to an important policy conclusion, namely that a country's ability to attract FDI depends on investors' subsequent access to importing and exporting. Some countries have attempted to use FDI in a more targeted manner to either boost exports or curb imports. For the first of these points, FDI may clearly boost exports where FDI helps host countries that had been financially constrained to exploit their resource endowments or their geographical location (Asafo-Adjei, 2007)

## 4.4.8 Additional benefits of foreign direct investment

Lall (1980) indicates that FDI is generally done by MNCs, and these are usually concerned with making profits. Therefore, the investments are usually well targeted towards setting up a business that will make money and create jobs. This contrasts sharply with aid and loans to governments, which are often squandered through corruption or spent inefficiently on unnecessary infrastructure or other vanity projects (Asafo-Adjei, 2007). Profits generated by FDI contribute to corporate tax revenue. A successful foreign-owned firm will generate profits and hence tax revenue for the host country. The taxes can then be spent on necessary infrastructure, social programmes and education among other beneficial initiatives. This is a strong incentive for government encouragement of FDI (Asafo-Adjei, 2007).

Jayaratnam (2003) argues that FDI does not only improve skills and wages of labour and lead to technology transfer, but it can also provide additional demand for output of local producers. Another key component of positive spill-over is increased demand for inputs from local suppliers that new MNCs can create, leading to increased profits and higher tax revenues for the state. A key determinant of the benefits to national income from FDI is the extent to which the foreign companies source locally rather than import its inputs (Asafo-Adjei, 2007). FDI is also viewed as "good cholesterol" because it is thought to be down and cannot leave the host country so easily at the first sign of trouble. Unlike short-term debt, direct investment in a country is immediately re-prices in the event of a crisis (Christie, 2003).

Lim (2001) concurs with Christie (2003) by elaborating on the fact that FDI is thought to be more useful to a country than investment in the equity of its companies because equity investments are potentially "hot money" which can leave at the first sign of trouble, whereas FDI is durable. In addition, since FDI is usually in the form of a factory or some other fixed object, it is very illiquid and thus a long-term investment. Moreover, MNCs are less apt to leave the country during speculative periods. This is one reason FDI is so important to a country. Alfaro (2003:14) also concurs that because FDI is generally spent on real assets such as plant and equipment, the capital embodied in FDI cannot flee a country in times of crisis as easily as debt capital can.

The presence of foreign firms may improve access of the host country to international markets, since many are well connected globally in terms of access to financial markets, consumer outlets and transportation networks. Foreign firms can act as catalysts for domestic exporters by providing externalities that augment the exporting prospects of domestic firms. Foreign firms may be seen as natural conduits for information about foreign markets, foreign consumers and foreign technology, and they provide channels through which domestic firms can distribute their goods (Aitken *et al.*, 1997).

## 4.5 FOREIGN DIRECT INVESTMENT DRAWBACKS

In spite of the various benefits of FDI discussed above, FDI is not without drawbacks to a host country. Several drawbacks are discussed in detail below, namely that FDI may lead to decapalisation, monopolistic power, environmental degradation, exploitation of natural resources, strain on international relations, dissipation of potential gains, information bias between host and investor countries, excessive borrowing in the domestic credit market, damaging competition, social disorder, and undue influence on the shaping of policy.

## 4.5.1 Decapitalisation

If foreign ownership becomes too extensive, decapitalisation can occur. As foreign owned firms become established and profitable, they begin to repatriate earnings to their home country. In so doing, the local currency is converted to their home-country currency and capital leaves the country. If the base of foreign-owned companies is large enough, this can lead to a serious capital drain. This is especially a concern if in times of crisis all foreign-owned companies repatriate retained earnings simultaneously. The effect of this can be similar to the effect of foreign lenders refusing to roll over short-term loans. The country can be starved of capital, and a bad economic situation can be made dramatically worse. This is sometimes cited as one of the primary risks of a country becoming too reliant on FDI (Rasmini, 2000; Mallampally & Sauvant, 1999:13)

# 4.5.2 Monopolistic power

Lankes and Venables (1996) clarify the fact that through their access to finance and advanced technical and management expertise, MNCs can possibly force all local competitors out of business, which can lead to market dominance by MNCs. Once such monopolistic power is obtained, MNCs can then raise prices and extract excessive profits, potentially eliminating any overall benefit of FDI. Lankes and Venables (1996) further warn that monopolistic power gained by MNCs is a risk associated with FDI that should be closely monitored by host countries.

## 4.5.3 Environmental degradation

New production facilities may lead to environmental degradation. A frequent argument is MNCs' attempt to locate polluting facilities where environment controls are the weakest. It is true that most developing countries have fewer environmental regulations and less ability to enforce regulations, which may result in terrible accidents and great environmental harm being caused by MNCs (eg. the 1984 Bhopal chemical disaster oil pollution in India). However, there is no good evidence of MNCs being more likely to pollute than domestic firms are. Evidence may actually point the other way because MNCs, due to their higher profile, are seen to be more sensitive to environmental issues than local firms are (Mallampally & Sauvant, 1999:16).

## 4.5.4 Exploitation of natural resources

Graham (1995: 95) submits that environment and natural resources costs may also involve careful consideration of the short-term advantages to be gained from FDI and the longer-term implications for the country's resource base and general state of the environment. The large-scale exploration and exploitation of natural resources is often associated with large-scale environmental damage. Graham (1995) further argues that sometimes, and even more importantly, politico-strategic interests could also be at stake when FDI comprises a large component of the total investment and involves a loss of control over strategic sectors of the economy, vital infrastructure and natural resources. Moreover, in some circumstances, the country's sovereignty may be at stake.

## 4.5.5 Strain on international relations

It is argued that FDI often creates conflicts between the host and the source country. This is because FDI in the host country diminishes the market share of the domestic firms in the source country, which in turn has adverse effects on the level of employment and profits in the source country. The host country does not lose out if there are no major domestic firms there and in fact, it encourages FDI in order to reduce the level of unemployment. However, foreign firms often import inputs from source countries and therefore the host country does not benefit fully from the FDI. In order to reap the full benefits of FDI, host countries tend to impose local content requirements of foreign firms. The source country, in reverse, also imposes content advantage of both the source and host countries (Grosse, 1989).

Similar to the above, Woodward (1997) states that FDI can generate unfair discrimination between source and host countries, and this raises serious political and economic implications, especially in middle-income countries. Some affected groups ask why foreigners should enjoy better treatment than domestic investors do (Woodward, 1997).

# 4.5.6 Dissipation of potential gains

Special treatment for some projects or sector may also reduce the net benefits from FDI. In attempting to foster particular sectors or specific investment projects, authorities may negotiate special conditions for foreign investors on a case-by-case basis. This is risky. In a competitive world, if many countries bid against each other to attract the same foreign investment, they may end up dissipating all the potential gains from such investment (World Investment Report, 1999).

## 4.5.7 Information bias between host and investor countries

FDI may not necessarily benefit the host country, as demonstrated by Lahiri and Ono (2005). Through FDI, foreign investors gain crucial inside information about the productivity of the firms under their control. This gives them an information advantage over uninformed domestic investors whose buying of shares in domestic firms does not entail control. Taking advantage of this superior information, foreign direct investors will tend to retain high-productivity firms under their ownership and control, and sell low-productivity firms to the uninformed investors. As with other adverse selection problems of this kind, this process may lead to over-investment by foreign direct investors.

## 4.5.8 Excessive borrowing in the domestic credit market

Excessive leverage can also limit the benefits of FDI. The domestic investment undertaken by FDI establishments may be heavily leveraged owing to finance that may be obtained from the domestic credit market. As a result, the fraction of domestic investment actually financed by foreign savings through FDI flows may not be as large as it seems (because foreign investors can repatriate funds borrowed in the domestic market), and the size of the gains from FDI may be reduced by the domestic borrowing done by the foreign-owned firms.

## 4.5.9 Damaging competition

Sigh and Jun (1996) and Mallampally and Sauvant (1999) indicate that because MNCs often have skills, technology and capital that local firms cannot match, FDI may create damaging competition to local firms, and that this is often cited as a primary negative spill-over from FDI. This is a significant and complex risk to evaluate. Lehman and Mody (2002) note that it is certainly true that local firms can be damaged or even put

out of business and that unemployment can result. However, it is also true that in many instances competition from more efficient foreign-owned producers can be seen as a benefit to the economy as a whole, improving overall productivity and forcing local firms to modernise and improve efficiency.

## 4.5.10 Social disorder

When MNCs are seen as exerting too much power, especially monopolistic power, something considered a public good, e.g. water, electricity and telephone services, then public resentment and protest can occur. This can lead to a hostile business environment, social disorder and in the worst cases, political instability. This happened dramatically in Cochabamba, Bolivia in 2000, when the local water service was taken over by a multinational conglomerate led by Bechtel, which immediately doubled prices, precipitating a general strike and transportation shutdown. In this case, the Bolivian government reversed the privatisation and Bechtel was forced to exit the country (World Bank Report, 2003).

# 4.5.11 Undue influence on the shaping of policy

In a similar way to the above, Mills (1995) explains that large-scale flows of FDI will tend to create reliance on them, so that policy is constrained by the need to avoid any moves that discourage continued FDI. Foreign investors in general and multinationals in particular may come to have undue influence on the shaping of policy. The danger of abuse of market power will be particularly strong when the entry of large MNCs raises concentration levels within an economy. Then, if the bargaining and regulatory capabilities of the host country are also weak, democracy, indigenous development and the welfare of population may all be undermined (Asafo-Adjei, 2007).

# 4.6 FOREIGN DIRECT INVESTMENT AS AN INDICATION OF WEAKNESS IN AN ECONOMY

Hausmann and Fernandez (2000, p. 7) point to the reason a high share of total capital inflows may be a sign of a host country's weakness rather than its strength. One striking feature of FDI flows is that their share in total inflows is higher in riskier countries, with risk measured either by countries' credit rating for sovereign (government) debt or by other indicators of country risk. There is also some evidence that their share is higher in countries where the quality of institution is lower. FDI is

more likely than other forms of capital flows to take place in countries with missing or inefficient markets (Asafo-Adjei, 2007). In such settings, foreign investors prefer to operate directly instead of relying on local financial markets, suppliers or legal arrangements. The policy implications of this view, according to Albuquerque (2000), are that countries trying to improve their access to international capital markets should concentrate on developing credible enforcement mechanisms instead of trying to obtain more FDI.

In a similar vein, Hausmann and Fernandez (2000) suggest that countries should concentrate on improving the environment for investment and functioning of markets. This way, they are likely to be rewarded with increasingly efficient overall investment as well as with more capital inflows. Although FDI may be higher where domestic policies and institutions are weak, this should not be regarded as a criticism of FDI per se since without it the host countries could well be much poorer.

Moreover, based on empirical evidence, the presence of multinational corporations (MNCs) in developing countries does not bring the expected positive spill-over effects to domestic firms in the same industry (Asafo-Adjei, 2007). In fact, their effects are often negative because domestic firm productivity decreases as MNCs move into the market; the fall in domestic productivity is attributed to domestic firms having to compete with more efficient MNCs. Going by such evidence it might seem that FDI is unimportant and even an obstacle for economic growth. Further studies have argued that while there might not be evidence for positive intra-industry spill-over for domestic firms operating in the same industry as MNCs, there is evidence of positive inter-industry spill-over, that is, that which accrues to domestic firms in different industries. Such inter-industry spill-over is often attributed to the cross fertilisation of ideas through knowledge sharing (Asafo-Adjei, 2007). Kugler (2001) suggests that FDI has the potential to boost the economies of host countries through knowledge sharing and technology transfer between industries.

## 4.7 AN OVERVIEW OF FOREIGN DIRECT INVESTMENT THROUGH A SOUTH AFRICAN LENSE

Foreign direct investment has a long and complex history in South Africa. Foreign corporations have been present since Britain established a colony early in the 19<sup>th</sup> century (Gelb and Black, 2004). Until the 1870s, the economy was focused on agricultural exports to Europe, but branches of London-based banks dominated the

financial system. Industrial development was initiated by the discovery of major mineral deposits from the 1860s, first diamonds and later gold (Gelb and Black, 2004). Effective exploitation of the resources required large capital-intensive operations and was made possible by both direct and portfolio investment flows from Europe, particularly London. This contributed to the early development of a domestic stock exchange in Johannesburg. Domestic economic growth and the re-investment of mining profits stimulated manufacturing development from the turn of the 20<sup>th</sup> century. Direct investment from the United Kingdom (UK), United States (US) and Europe was important in the establishment and growth of new industrial sectors during the five decades from the 1920s.

Domestic manufacturing development was accelerated by exchange rate deprecation after the Gold standard collapsed in 1933, by demand growth and import difficulties during World War II, and by import substitution policies commonly found in developing countries during the 1950s and 1960s. Although some FDI continued to flow into mining, during this period it went mainly to manufacturing and services. By the early 1970s, 40 percent of the FDI stock was in manufacturing and 25 percent in financial and business services, with only 15 percent in mining (Gelb and Black, 2004).

From the early 1970s onwards, new FDI flows into South Africa slowed significantly (Gelb and Black, 2004). There was a shift in the composition of international capital flows from direct to portfolio investment, but more importantly, foreign investors in South Africa were increasingly subject to political pressure in their home countries. This was due to the growing international campaign against apartheid. During the 1980s, this campaign intensified substantially as political instability in South Africa increased, and economic conditions also weakened. Foreign direct investors began to exit South Africa, with about 225 US corporations and about 20 percent UK firms departing between 1984 and 1988 (Gelb and Black, 2004). Nonetheless, there were still more than 450 foreign firms with direct investment in South Africa at the start of the 1990s amounted to US\$7.94 billion (at current exchange rate), of which 85 percent was from Europe and 13 percent from North America (Gelb and Black, 2004). From 1985, portfolio inflows also ceased, as foreign bank creditors imposed a debt repayment schedule on the South African government and public sector borrowers.

The resulting capital outflows and further economic contraction were significant in shifting white political sentiment, especially within business, against apartheid. Political changes, the unbanning of prohibited organisations and the initiation of constitutional negotiations in 1990, leading to a democratic election in 1994, ended the disinvestment pressures and direct portfolio investment inflows resumed. South Africa had a 'new dawn' of foreign investment during the 1990s (Gelb and Black, 2004).

Commencing prior 1994, government had a commitment to lowering the fiscal deficit and price inflation, reducing tariffs, and liberalising the capital account and the foreign direct investment (Government of South Africa, 1996). Through the 1990s, the policy regime became far more liberal and outward-oriented, with the explicit aim of attracting new foreign investment. Many policymakers have in particular identified direct investment as 'the' key to improved growth, as illustrated by the single most important economic policy statement since 1994, namely the Growth, Employment and Redistribution (GEAR) policy announced in June 1996 (Government of South Africa, 1996). Amongst other things, low domestic savings were identified as the binding constraint on growth, to be alleviated by net capital inflows. Since GEAR was formulated partly in response to a capital account shock, FDI was seen as far preferable to volatile portfolio flows as a route to address savings shortage (Government of SA, 1996). The next section discusses FDI in South Africa and the major preoccupation is; Why has it been so low?

#### 4.7.1 Foreign direct investment in South Africa

According to Nowak and Ricci (2006), although foreign direct investment still remained relatively low in South Africa compared with other emerging countries, has played a considerable role in the development of South Africa's economy,. Despite an improvement in overall macroeconomic conditions and South Africa's advantages in terms of natural resources and market size, foreign investors have shown limited interest in acquiring, creating, or expanding domestic enterprises. It is generally held that foreign investment could act as a catalyst for investment and economic development in South Africa's low saving rates, foreign investment could help address the saving deficiency and promote economic growth.

South Africa has been struggling with slow economic growth, particularly since the global dip in oil and commodity prices in 2014 (Jeffrey, 2016). The country's business environment has to fight with a range of disgraces and incidents of extensive corruption, while simultaneously navigating global issues of digital and regulatory disruption. The weak economic environment and power supply issues contributed to the decline in FDI in South Africa (Jeffrey, 2016).

## 4.8 SUMMARY

The chapter discussed the critical overview of foreign direct investment in general. In addition, the chapter did an overview of foreign direct investment through a South African lens.

This chapter has alluded that foreign direct investment has an important impact on the economic growth of the developing countries. In addition, the different types of foreign direct investment were discussed in this chapter.

Foreign direct investment is the most contributing factor in the employment creation of the host country. A study by Asafo-Adjei (2007) states that foreign direct investment may contribute to economic growth directly by creating employment opportunities or indirectly through the creation of employment opportunities in other organisations.

Moreover, the foreign direct investment has benefits and drawbacks which were discussed in this chapter. In addition, the foreign direct investment as an indication of weakness in an economy was discussed in this chapter.

Finally, the chapter also discussed an overview of foreign direct investment through a South African lens. The next chapter discusses the foreign direct investment policies in BRICS countries.

#### CHAPTER FIVE

#### FOREIGN DIRECT INVESTMENT POLICIES IN BRICS COUNTRIES

## 5.1 INTRODUCTION

Governments around the world are increasingly devising strategies to attract foreign direct investment by creating a more efficient, predictable and investment-friendly business climate. These improvements make it easier for investors to establish operations, conduct their day-to-day business, and expand their investments (Reyes *et al.*, 2019).

According to Yuan (2000) policy is defined as a wide range that are commonly deployed by government and regulatory agencies to control, monitor and direct organisational behaviour. FDI policy stipulates requirements with which a foreign firm ought to comply. In an attempt to attract more FDI, most countries have reformed their policies and institutions. In fact, FDIs act as the bridge to fill in the lacuna between saving and investment of resources and, therefore, play a pivotal role in boosting the economies of developed and developing countries (Yuan, 2000).

The rest of the chapter discusses the foreign investment policies of Brazil, Russia, India, China and South Africa. The discussion starts off with Brazil.

## 5.2 BRAZIL FOREIGN INVESTMENT POLICY

According to the International Comparative Legal Guide (ICLG) (2019), there is no Brazilian equivalent to the Committee on Foreign Investment in the United States or similar control body for reviewing foreign investments on national security grounds. The Brazilian constitution of 1988 generally forbids any form of discrimination between national and foreign investors, with a few exceptions expressly provided by law. In fact, the Brazilian government has been gradually removing such restrictions as the Brazilian economy is heavily dependent on foreign investment to fuel its growth and infrastructure opportunities, and currently several strategies sectors (such as energy, telecom and oil and gas) have significant levels of foreign investment.

The few sectors that remain restricted are:

- Nuclear energy, aerospace and the post office: no foreign investment allowed
- Journalism and broadcasting (open TV): foreign participation is limited to 30 percent of the voting and equity capital of the operating entity

 Ownership of rural properties and operations in border properties (particularly mining): foreign investors cannot have corporate control of the operating entity (ICLG, 2019).

Foreign investment (in both equity and debt instruments) generally need to be registered with the Brazilian Central Bank's electronic system, which is simply a declaratory registry. There are no restrictions for repatriation, and foreign companies are currently subject to capital gain taxes at a lower rate than Brazilian companies (15-22.5 percent for foreign companies, as opposed to 34 percent for foreign companies). Dividends are paid on a tax-free basis (ICLG, 2019).

As stipulated above, Brazil does not have a foreign investment review on national security grounds (ICLG, 2019). However, it is important to comment that the Brazilian government holds a golden share in every few companies that were privatised in the past and, in accordance with the right of such golden shares, the Brazilian government may hold a veto right on the relevant company's change of control. This was exactly the case with Embrae, the Iconic Brazilian airplane manufacturer. In late 2015, the Boeing company manifested its interest in acquiring control of Embraer. The Brazilian government did not agree with such transaction and eventually approved the carveout of the commercial aviation business unit from the defence and private jet business units. The Boeing company will hold 80 percent of the new company that will own and operate the commercial aviation business unit, while Embraer will own the remaining 20 percent. The veto right is justified on national security grounds, as Embraer is an important supplier and partner of the Brazilian Air force (ICLG, 2019).

The Brazilian government has been gradually removing the remaining restrictions on foreign investments, including on cable television, healthcare, fintechs and aviation. In 2019, the requirements of a presidential decree for increasing foreign investment in financial institutions was also removed, although foreign investment in financial institutions still require approval from the Brazilian Central Bank (ICLG, 2019).

The incumbent government has a positive approach towards foreign investments. There are going proposals under discussion in the Brazil Congress, which could result in a softening of the restrictions on foreign ownership of rural properties by nonsovereign and non-NGO investors (ICLG, 2019). The next section discusses the Russia foreign investment policies.

## 5.3 RUSSIAN FOREIGN INVESTMENT POLICY

The primary target of Russia's investment policy is the establishment of a stable institutional and legal framework, which is followed by such main targets as forming the necessary environment for the development of sectors with high competitive power and capital renovation (Zelenskaya & Preobrajenskiy, 2012). A number of important factors have been shaping the investment landscape of Russia in recent years. These include:

## Maturity legal system

Russia has been making progress towards building a modern legal system. In 2018, Russia was ranked 31<sup>st</sup> (of 190 countries) in the World Bank's annual Doing Business Ranking, which reflects the overall ease of doing business in a country. The categories of the ranking include, among others, the ease of starting a business, registering property and enforcing contracts (Herbet Smith Freehills (HSF), 2019).

## Impact of International sanctions

The ongoing sanctions have had a negative impact on EU/US investments in Russia. For Russian businesses affected by the sanctions, obtaining EU/US equity and debt financing remains a challenge. Tailored exit mechanism in the context of Russian joint ventures are required, given the ongoing risk of new sanctions.

However, since the introduction of the sanctions in 2014, investments in Russia by Chinese and other Asian investors have been on the rise. Eastbound investment by Russian majors have also increased.

## Foreign Investment review

A new allowing for greater scrutiny of inbound investments was adopted in 2017. Under the new law, any acquisition of control over any Russian company (or its assets over a certain specified threshold) by a foreign investor may be subject to review on national security grounds. It is important to understand though that this reflects a global trend towards greater scrutiny of foreign investment (HSF, 2019).

## 5.3.1 Application of foreign law and position of foreigners under Russian law

Subject to a few exceptions, parties are generally free to choose the governing law for their contracts if there is a meaningful foreign element (eg, one of the parties is a

foreign investor). The choice of law cannot exclude the application of mandatory rules of Russian law (HSF, 2019).

Foreign individuals and companies generally enjoy the same rights as Russian citizens and companies. That said, foreign investors require additional government approvals in certain circumstances, such as when investing in strategic business sectors or where foreign sovereign investors are involved. Furthermore, foreign investments in certain business sectors (such as mass media, insurance and banking) are subject to foreign ownership limitations.

As a general rule, foreign individuals and companies have the right to sue in Russian courts and protect their interests. A foreign individual or company can also be sued in Russia in some instances, even if they do not have residency or a presence in Russia. Which court has jurisdiction over a particular dispute involving a foreign party depends on the nature of the dispute (HSF, 2019).

# 5.3.2 Bilateral Investment treaties and multilateral convention

Russia has an extensive network of bilateral investment treaties (BITs) with other countries and is a signatory to a number of conventions. In September 2016, Russia adopted new guidelines on BITs. The new guidelines stipulate the key principles of any new BIT that may be concluded by Russia in future. BITs are concluded for a minimum of 10 years. Upon the expiry of the initial term, the BIT is renewed or terminated by notice to the other party. In the case of the latter, the provisions of the treaty will continue to apply to the investments made during the initial term of the treaty, for a subsequent period of 10 years. International treaties that are binding on Russia form part of Russian law and take precedence over domestic law (HSF, 2019).

## 5.3.3 Foreign investment restrictions

As in many jurisdictions, significant foreign investments into local businesses require government approval. Russian regulators have broad powers and have the right to block foreign acquisitions on national security grounds. Russian law also imposes foreign ownership limitations in certain sectors. These restrictions should be carefully evaluated as part of the investor's risk management and exit strategy in Russia.

#### 5.3.3.1 Restrictions on investments in strategic business sectors

#### 5.3.3.1.1 General

The Federal Law No. 57-FZ on Carrying out Foreign Investments into Commercial Entities of Strategic Importance (Strategic Investments Law) provides that the acquisition of "control" by foreign investors of Russian companies operating in strategic business sectors (Strategic Companies) requires government consent. The regulator has the authority to impose certain undertakings on a foreign investor as a condition to granting consent to the acquisition. Transactions completed in violation of the Strategic Investments Law are void. In such cases, the law requires that the parties involved be restored, as far as possible, to their original positions. Furthermore, in such cases the regulators are entitled to seek either or both the annulment of any voting rights held by the relevant foreign investor in respect of shareholders' or participants' meetings, and the annulment of any resolutions or transactions of a Strategic Company adopted or entered into after control was obtained (in violation of the rules) by a foreign investor. Amendments to the Strategic Investments Law came into force in December 2014, and they extend the requirement for government consent to transactions involving the acquisition of rights of ownership (eg, sale agreements), possession or use (eg, lease agreements) of fixed production assets of Strategic Companies, which constitute 25 percent or more of the balance sheet value of the assets of the relevant Strategic Company (HSF, 2019). The Federal Antimonopoly Service (FAS) is responsible for giving consent on investment in Strategic Companies. The ultimate decision-making responsibility is with a special governmental commission presided by the Prime Minister (HSF, 2019).

#### 5.3.3.1.2 Strategic sectors

The Strategic Investments Law designates the business sectors that are "strategic" to the Russian economy. A company incorporated in Russia will be presumed to be a Strategic Company and to fall within the scope of the Strategic Investments Law if it is engaged in at least one strategic sector. See below for some examples of sectors considered "strategic":

- Development of subsoil fields of federal significance (Strategic Fields)
- Nuclear industry

- Natural monopolies (eg, oil and gas pipeline transportation, rail roads, transportation terminals and airports)
- Certain marine port operations
- Aviation industry and space activities
- Military industry
- Major telecommunications and print media

The Strategic Investments Law was amended in July 2017 to provide that any acquisition of control of any Russian company (whether or not it is engaged in a strategic sector) or its assets (subject to certain thresholds) may be subject to review on national security grounds under the Strategic Investments Law. As at the date of this Guide, there has been no official guidance as to what types of acquisitions will attract this review and we are not aware of any deals that were blocked by the regulator based on the new law (HSF, 2019).

#### 5.3.3.1.3 The concept of foreign investor

Any entity incorporated in a jurisdiction outside of Russia constitutes a foreign investor. Therefore, the restrictions of the Strategic Investments Law may apply not only to injections of foreign capital, but also to investments made by the foreign vehicles of Russian companies and to joint venture vehicles incorporated outside of Russia. According to HSF (2019) Russia-incorporated companies which are controlled by foreign investors are themselves deemed foreign investors for the purposes of the Strategic Investments Law. With effect from 12 June 2018, foreign nationals and Russian nationals who have citizenship of another state are deemed foreign investors under the Strategic Investments Law.

The restrictions on acquisitions of Strategic Companies by foreign states, international organisations and entities controlled by them are stricter than those applicable to other foreign investors. Amendments to the Strategic Investments Law came into force on 30 July 2017, which extended the restrictions applicable to the foreign states and international organisations to foreign investors incorporated in certain offshore jurisdictions (offshore companies). With effect from 12 June 2018, (i) the concept of "offshore companies" was repealed, and (ii) the restrictions that previously applied to the offshore companies were extended to any foreign investors which do not disclose

information on their controlling shareholders and beneficiaries to the relevant regulators in Russia (Non-Disclosing Investors) (HSF, 2019).

# 5.3.3.1.4 The concept of control

The Strategic Investments Law provides a broad definition of the concept of "control" of one company (or individual) over another, that is, the ability to influence, directly or indirectly, the decisions made by a Strategic Company, through:

- voting at general shareholders' (participants') meetings (GSM) of the Strategic Company;
- participating in management bodies of the Strategic Company; or
- acting as the external management company of the Strategic Company.

The Strategic Investments Law sets out examples of circumstances when the general test of control will be deemed met (as illustrated below).

A person will be deemed to satisfy the general test of control of a Strategic Company (special control test that applies to Strategic Subsoil Companies is described below) where such person:

- controls, directly or indirectly, +50 percent of the voting shares (in a joint stock company) or participatory interests (in a limited liability company);
- has power to appoint + 50 percent of the members of the supervisory board/other management body;
- controls less than 50 percent of the voting shares or participatory interests but the stakes of other shareholders or participants are such that he/it can still determine decisions of the company;
- is entitled to appoint the General Director (i.e, Chief Executive Officer) of the company;
- has the power to make decisions relating to the business activities of the company due to an agreement or otherwise; or
- acts as the management company of the company

The test of control will also be deemed met in respect of a Strategic Company (except for a Strategic Subsoil Company (see below)) where non-connected foreign investors controlled by foreign states, international organisations (subject to certain exemptions) or Non-Disclosing Investors collectively control (HSF, 2019):

- more than 50 percent of the voting shares or participatory interests in the Strategic Company; or
- less than 50 percent of the voting shares or participatory interests in the Strategic Company but where the stakes of other shareholders or participants are such that the foreign investors are able to determine the decisions of that company. For Strategic Companies developing Strategic Fields (known as Strategic Subsoil Companies – see Chapter 15 (Subsoil natural resources) for details), there is a special test for "control". Control in relation to these companies is deemed to exist where a foreign investor:
- controls, directly or indirectly, 25 percent or more of the voting shares or participatory interests of the company;
- is able, or has the power, to appoint 25 percent or more of the supervisory board (or other management body) of the company;
  is entitled to appoint the chief executive officer of the company;
- has the power to make decisions relating to the business activities of the company on the basis of an agreement or otherwise; or
- acts as the management company of the company (HSF, 2019).

The Strategic Investments Law makes it clear that the examples set out above are not exhaustive, and the presence or absence of control will be determined on a case-bycase basis. In order to determine conclusively whether or not a person or entity has control for these purposes, it is necessary to analyse the shareholder arrangements and any other agreements and arrangements in place (HSF, 2019).

# 5.3.3.1.5 Restrictions on foreign sovereign investors, international organisations and non-disclosing investors

International organisations, Non-Disclosing Investors or entities controlled by them are prohibited. Acquisition of rights of ownership, possession or use of fixed production assets of Strategic Companies which constitute 25 percent or more of the balance sheet value of the assets of the relevant Strategic Company by these investors is also prohibited. Foreign states, international organisations, Non-Disclosing Investors and entities controlled by them are required to obtain prior consent for the acquisition of the right to control, directly or indirectly, more than 25 percent of the voting shares or participatory interests (or the right to block management decisions) of a Strategic Company, or more than 5 percent of the voting shares or participatory interests in a

Strategic Subsoil Company, in each case, subject to the foreign ownership restrictions described above. Under the Strategic Investments Law, holdings of all foreign sovereign investors, international organisations and Non-Disclosing Investors (regardless of whether such investors are connected) in a Strategic Company are generally consolidated for the purposes of the test of control. With effect from 12 June 2018, holdings of Non-Disclosing Investors may be excluded from the calculation, provided certain conditions are met (HSF, 2019).

#### 5.3.3.1.6 Exemptions

In 2011, the Strategic Investments Law was amended to exempt from the consent requirement (but not from the prohibition to acquire control) international financial organisations created in accordance with an international treaty to which Russia is a party and international financial organisations that have entered into an agreement with Russia. A list of such organisations has been approved by the Russian government and includes, inter alia, the New Development Bank, Asian Infrastructure Investment Bank, EBRD and IFC (HSF, 2019).

The Strategic Investments Law does not apply to transactions where the acquirer is an entity controlled by the Russian Federation, its constituent entity or a Russian national who is a Russian tax resident and at the same time does not have any other citizenship. Certain minority investments in a Strategic Subsoil Company by foreign investors (except for the acquisitions by foreign states, international organisations and Non-Disclosing Investors of more than 5 percent in the target Strategic Subsoil Company) are exempted from the consent requirement so long as the Russian Federation controls, directly or indirectly, more than 50 percent of the voting shares or participatory interests in the Strategic Subsoil Company before and after completion of the relevant acquisition (HSF, 2019).

A further exemption applies to cases where, at the time of the proposed investment, the relevant foreign investor already controls more than 50 percent of the capital of the target Strategic Company or is under control of the person controlling the target Strategic Company. This exemption does not, however, apply to Strategic Subsoil Companies. For Strategic Subsoil Companies, if a foreign investor already controls from 25 percent to 75 percent and intends to increase its share, any subsequent acquisitions will also require consent. If the foreign investor already controls more than

75 percent in a Strategic Subsoil Company, no consent is required for any subsequent acquisition.

The Strategic Investments Law does not apply to transactions by a foreign investor who already holds shares in a Strategic Subsoil Company where the transaction does not increase the foreign investor's overall stake in that company, if such transaction is made pursuant to increase of the charter capital of the company or by persons controlled by such foreign investor. Finally, the Strategic Investments Law does not apply in respect of foreign investments regulated by other federal laws or international treaties ratified by Russia (HSF, 2019).

# 5.3.3.1.7 Timing

Maximum times for reviewing applications under the Strategic Investments Law are prescribed by law. The actual periods may vary depending on the target asset, identity of the potential investor and certain other factors, all of which should be factored into a transaction timeline (HSF, 2019).

# 5.3.3.1.8 Notification requirements

Foreign investors are required to notify FAS on any acquisition (direct or indirect) of 5 percent or more of the shares or participatory interests in a Strategic Company. Failure to satisfy this requirement may result in the annulment of the investor's rights in respect of that Strategic Company (HSF, 2019). The next section discusses the Indian foreign direct investment policy.

# 5.4 INDIA FOREIGN INVESTMENT POLICY

The policy on foreign direct investment provides a mechanism of investment in an enterprise in one nation by another enterprise in another nation (Abhishek, 2015). The main aim of the Indian FDI policy is to ensure more ease of doing business in India and provide a friendly atmosphere to the foreign investors in order to pull more FDI into the country (Mansi, 2018). India has one of the most liberal and transparent policies on FDI among the emerging economies. FDI up to 100 percent is allowed under the automatic route in all activities/sectors except the following, which require prior approval of the government (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005):

- I. Activities/items that require an Industrial Licence;
- II. Proposals in which the foreign collaborator has an existing financial / technical collaboration in India in the 'same' field,
- III. Proposals for acquisition of shares in an existing Indian company in:
  - a. Financial services sector and
  - b. Where the Securities & Exchange Board of India (Substantial Acquisition of Shares and Takeovers ) Regulations, 1997 is attracted, and
- IV. All proposals falling outside notified sectoral policy/caps or under sectors in which FDI is not permitted.

## 5.4.1 Procedure under automatic route

FDI in sectors/activities to the extent permitted under automatic route does not require any prior approval by either the government or the Reserve Bank of India (RBI). The investors are only required to notify the regional office concerned of RBI within 30 days of receipt of inward remittances and file the required documents with that office within 30 days of issue of shares to foreign investors (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

## 5.4.2 Procedure under government approval

FDI in activities not covered under the automatic route, requires prior government approval and are considered by the Foreign Investment Promotion Board (FIPB). Approvals of composite proposals involving foreign investment/foreign technical collaboration is also granted on the recommendations of the FIPB. Application for all FDI cases, except Non-Resident Indian (NRI) investments and 100 percent Export Oriented Units (EOUs), should be submitted to the FIPB Unit, Department of Economic Affairs (DEA), Ministry of Finance. Application for NRI and 100 percent EOU cases should be presented to SIA in the Department of Industrial Policy & Promotion. Applications can also be submitted with Indian Missions abroad who forward them to the Department of Economic Affairs for further processing.

## 5.4.3 Prohibited sectors

The extant policy does not permit FDI in the following cases:

i. Gambling and betting;

- ii. Lottery Business,
- iii. Atomic Energy
- iv. Retail Trading
- Agricultural or plantation activities (excluding Floriculture, Horticulture, Development of Seeds, Animal Husbandry, Pisiculture and Cultivation of Vegetables, Mushrooms among other activities under controlled conditions and services related to agro and allied sectors) and Plantations (other than Tea plantations)

# 5.4.4 General permission of RBI under FEMA

Indian companies having foreign investment approval through FIPB route do not require any further clearance from RBI for receiving inward remittance and issue of shares to foreign investors. The companies are required to notify the concerned regional office of the RBI of receipt of inward remittances within 30 days of such receipt and within 30 days of issue of shares to the foreign investors or NRIs (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.5 Procedure for approval

# 5.4.5.1 Electronic hardware technology park (EHTP) units

Proposals for FDI/NRI investment in EHTP Units are eligible for approval under the automatic route. For proposals not covered under automatic route, the applicant should seek separate approval of the government through the FIPB (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.5.2 Software technology park (STP) units

Proposals for FDI/NRI investment in STP Units are eligible for approval under automatic route. For proposals not covered under automatic route, the applicant should seek separate approval of the government through the FIPB (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.5.3 Capitalisation of import payables

FDI inflows are required to be under the following mode:

- i. By inward remittances through normal banking channels or
- ii. By debit to the NRE/FCNR account, of person concerned, maintained with an authorised dealer/authorised bank. Issue of equity to non-residents against other modes of FDI inflows or in kind is not permissible, except issue of equity shares against lump-sum fee and royalty payable for technology collaborations and external commercial borrowings (ECBs) in convertible foreign currency which are permitted under the automatic route subject to meeting all applicable tax liabilities and sector specific guidelines (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.6 Foreign technology agreements

## 5.4.6.1 General policy

For promoting technological capability and competitiveness of the Indian industry, acquisition of foreign technology is encouraged through foreign technology collaboration agreements. Induction of know-how through such collaborations is permitted either through automatic route or with prior government approval.

## 5.4.6.2 Scope of technology collaboration

The terms of payment under foreign technology collaboration, which are eligible for approval through the automatic route and by the government approval route, included technical know-how fees, payment for design and drawing, payment for engineering service and royalty. Payments for hiring of foreign technicians, deputation of Indian technicians abroad, and testing of indigenous raw material, products, indigenously developed technology in foreign countries are governed by separate RBI procedures and rules pertaining to current account transactions and are not covered by the foreign technology collaboration approval. For details please refer to the website of the RBI.

# 5.4.6.3 Automatic route

Payment for foreign technology collaboration by Indian companies is allowed under the automatic route subject to the following limits:

- (i) the lump sum payments not exceeding US\$2 million;
- iii. royalty payable being limited to 5 percent for domestic sales and 8 per cent for exports, without any restriction on the duration of the royalty payments. The royalty limits are net of taxes and are calculated according to standard conditions. The royalty will be calculated on the basis of the net ex-factory sale price of the product, exclusive of excise duties, minus the cost of the standard bought-out components and the landed cost of imported components, irrespective of the source of procurement, including ocean freight, insurance and custom duties among other procurement sources (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.6.4 Use of trademarks and brand name

Payment of royalty up to 2 percent for exports and 1 percent for domestic sales is allowed under automatic route for use of trademarks and brand name of the foreign collaborator without technology transfer. Royalty on brand name/trade mark shall be paid as a percentage of net sales, that is, gross sales less agents'/dealers' commission, transport cost, including ocean freight, insurance, duties, taxes and other charges, and cost of raw materials, parts and components imported from the foreign licensor or its subsidiary/affiliated company. In case of technology transfer, payment of royalty includes the payment of royalty for use of trademark and brand name of the foreign collaborator (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

## 5.4.6.5 Procedure for automatic route

Authorised Dealers (ADs) appointed by the RBI allow remittances for royalty, payment of lump-sum fee and remittance for use of Franchise in India within the limits prescribed under the automatic route. RBI's prior approval is required for remittance towards purchase of trade mark/franchise (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005).

# 5.4.6.6 Procedure for government approval

Proposals for foreign technology collaboration not covered under the automatic route are considered by the Project Approval Board (PAB) in the Department of Industrial Policy and Promotion. Application in such cases should be submitted in Form FC-IL to the Secretariat for Industrial Assistance. For proposals where both financial and technical collaboration are proposed, the application is to be submitted to FIPB. No fee is payable (Department of Industrial Policy and Promotion Ministry of Commerce & Industry Government of India, 2005). The next section discusses the Chinese foreign investment policy.

#### 5.5 CHINA FOREIGN INVESTMENT POLICY

According to Yuan and Tsai (2000) for the last 25 years, China has aggressively shaped a relatively complete range and regulations governing foreign investment. They include the law of the People's Republic of China upon foreign wholly owned enterprises, law of the People's Republic of China on Sino-foreign joint ventures, law of the People's Republic of China on Sino-foreign cooperative enterprises, and the guiding directory on industries open to foreign investment. China's laws and regulations on FDI also include related preferential policies and stipulate special economic zones in the country (Yuan & Tsai, 2000). An FDI policy stipulates requirements with which foreign firms ought to comply. Scholars have approached FDI policies from various perspectives. In order to track longitudinal changes in FDI policy contents, crucial dimensions have been identified from previous studies (Yuan & Tsai, 2000).

## 5.5.1 Important dimensions of FDI policies from previous studies

#### 5.5.1.1 Ownership

In China there was no change in the aspect of ownership limitation. The minimum proportion of foreign investment capital in equity joint ventures (EJV) is 25 percent of total equity. China's wholly owned subsidiaries (WOS) policy requires foreign companies to meet any of the two conditions: (a) Introduction to advanced, updated or high technology or (b) export of over a half of output made in the WOS (Yuan & Tsai, 2000). Up to 1999, China's FDI policy on the control of foreign ownership had

little change; however, foreign investors were permitted to exercise various formats of ownership, such as mergers and acquisitions. In fact, since the late 1980s, foreign wholly owned subsidiaries became the favourite default of FDI and started eclipsing the growth of EJVs and CJVs (Yuan & Tsai, 2000).

# 5.5.1.2 Taxes and fiscal issues

To attract FDI, Chinese FDI policies have emphasised incentives in taxation and fiscal issues. A foreign invested firm would enjoy three years of tax holiday, plus subsequent two years of half tax. After that, foreign invested firms would pay 30 percent of income tax, which, during the early period, was much lower than taxes paid by indigenous enterprises, particularly state-owned enterprises. When introducing updated technology, foreign firms will have the exemption of import duties on capital equipment compared to local firms; foreign firms have other financial burdens and obligations to society or local communities. These favourable conditions of the foreign invested firms have gradually been eliminated. A fiscal reforms programme was introduced in 1993 for the purpose of standardising taxation in every firm. The National People's Congress (NPC) approved new taxation policies governing value added, consumption, and business taxes. Now there is little difference in taxation between foreign and local firms, excepting incentives to initial and subsequent investment and FDI in designated regions that enjoy the autonomy of enactment of local FDI polices. In 1994, China once cancelled the exemption of import duties on capital equipment (Yuan & Tsai, 2000). This sudden change hampered the confidence of foreign investors. Later in 1997, the Chinese government decided to reinstate import duty exemption for high technology FDI (Yuan & Tsai, 2000).

## 5.5.1.3 Convertibility

While FDI was permitted to remit earnings to foreign investors, a foreign invested firm during the early period was forced to export a large proportion of products in order to balance foreign currency. For a long time, there co-existed an official foreign currency exchange rate and a swamp exchange rate. In 1993, the Chinese government decided to unite the two systems. In 1996, the State Council authorised the State Foreign Currency Administration Bureau (SFCAB) to allow foreign firms to conduct foreign currency exchange for their operation. In general, convertibility became open but official approval was still required (Yuan and Tsai, 2000).
# 5.5.1.4 Price control

Legally, foreign firms were granted full autonomy in deciding pricing, except for products that were on the short-list of planning quotas. With the decrease of state planning, price control placed upon the foreign firms was almost removed (Yuan and Tsai, 2000).

# 5.5.1.5 Performance requirements

China's demands on foreign firms to introduce high technology, balance foreign currency, substitute imports and encourage exports have never been relaxed. These demands have not been fully disclosed in legal documents but when conducted interviews with foreign firms in China indicated that respective government agencies set conditions when approving FDI projects (Yuan *et al.*, 2000). For instance, when investing in an EJV, a foreign firm would face tough negotiation with the local partner on export issues because of the need to maintain foreign currency balance. A pace of relaxation is limited in this aspect (Yuan *et al.*, 2000).

## 5.5.2 Concerns of foreign investors over restrictive government policies

Foreign investors are expressing increasing concern over perceptions that Chinese government policies are discriminating against foreign invested enterprises. In 2011, the percentage of European investors surveyed who thought policies to be discriminatory in this way over the previous two years increased from 6 percent to 8 percent since a similar survey was conducted in 2010. Similar perceptions regarding the outlook for the next two years also increased from 33 percent to 43 percent at the same time (Davies, 2013). This shows the way the Chinese government continued to treat foreign investors unfairly.

The European Chamber of Commerce survey showed that the five most significant regulatory obstacles were, in order of the percentage of respondents, discretionary enforcement of broadly drafted laws and regulations (42%); lack of co-ordination of different regulators (40%); lack of harmonisation with global standards (39%); registration procedures for companies or for products (38%), and local implementation of Chinese standards (35%) (Davies, 2013).

Furthermore, specific concerns were voiced in the 2010 European Chamber survey that China was not living up to its 2001 world trade organisation (WTO) accessions.

Only one-fifth of respondents thought that the Chinese government was implementing changes in the spirit of the WTO agreement (Davies, 2013). The results from the survey further showed that the respondents in the 2010 European Chamber survey expressed dissatisfaction with the protection of intellectual property right (IPR) in China (Davies, 2013). The 2011 Japanese white paper also reiterates demands for stronger IPR enforcement and points at that the risk of "leaking technology and knowhow from a business partner" may inhibit Japanese companies from promoting research and development (R&D) activities or transferring technologies of China.

While Chinese FDI inflows are continuing to increase, it appears that the aforementioned perceptions are beginning to have a discouraging effect, initially at the margin but potentially much larger (Davies, 2013). In the European Chamber survey two percent of respondents reported that government policies towards foreign invested enterprises had already led them to suspend new investments (Davies, 2013).

## 5.5.3 The FDI policy framework has improved, but remains restrictive

According to Davies (2013), a number of improvements have been made to the regulatory framework for foreign investment since the publication of the 2008 Chinese FDI Policy Review. Nevertheless, as attested to by consistent complaints from foreign investors themselves, this framework remains less than wholly transparent and open.

The 2010 OECD FDI Regulatory Restrictiveness Index score for China shows a marked improvement over that for 1997, declining from just over 0.6 to below 0.5 (a score of 1 is wholly closed, 0 is wholly open) (Thomsen, 2011). This is the second best improvement in performance after Korea among the countries examined over the same period. Nevertheless, China's 2010 score is the second highest (after Iceland), so China remains far from an economy fully open to foreign investment. Moreover, the 2010 score is slightly higher than that recorded in 2006, suggesting that the liberalisation process has slowed. This is largely a reflection of continuing restrictions on foreign ownership such as those in the Catalogue for Guiding Investment Industries and industrial policy regulations (Davies, 2013). Easing these restrictions could produce a lower score in future FDI Restrictiveness Index assessments.

# 5.5.4 Developments in china's outward FDI policies

The development of China's policy to encourage outward investment from 1979 to the official announcement of the "go global" strategy in 2000 and the implementation of various measures to support this strategy in the mid-2000s was outlined in the OECD's third Investment Policy Review of China published in 2008 (OECD, 2008). Since then the "go global" policy has been strengthened and further elaborated.

# 5.5.4.1 China's outward FDI policy called "go global policy"

The "go global" policy was stressed in both the 10<sup>th</sup> Five Year Plan (2001-2005) and the 11<sup>th</sup> Five Year Plan (2006-2010) of China. China's 12<sup>th</sup> Five Year Plan (2011-2015) maintains as an objective of China's policy towards international investment (OECD, 2008). Chinese Premier Wen Jiabao, in presenting the outline of the plan after its approval by the Central Committee of the Communist Party of China in October 2010, said; "We must accelerate the implementation of the "go global" policy, in accordance with market orientation and the principle of independent decision-making and guide enterprises with different kinds of ownership to invest overseas and co-operate in an

orderly manner." The Premier further said, "protection of China's overseas rights" (Davies, 2013).

Premier Wen Jiabao's presentation of this policy in the annual report on the work of the government to the National People's Congress (NPC) on 15 March 2011, Premier Wen reiterated this stance in slightly more specific terms, though again without numerical targets. Premier Wen Jiabao made a statement that the Chinese government would accelerate the implementation of the "go global" policy, improve the relevant support policies, simplify examination and approval procedures, provide assistance for qualified enterprises and individuals to invest overseas. In addition, the premier further said the government would encourage enterprises to operate internationally in an active yet orderly manner and strengthen macro guidance over overseas investments, improve the mechanisms for stimulating and protecting them, and guard against investment risks (Davies, 2013).

# 5.5.4.2 The Chinese government's continued cut of red tape for outward investment project approval

The government is continuing to reduce the number of stages that enterprises have to go through for examination and approval of outward investment projects. While some enterprises have moved enough capital overseas to invest there without this encumbrance, the large corporations, mostly state-owned enterprises, that provide the bulk of China's outward FDI cannot do so and must go through all the official procedures. In promoting the "go global" policy, the government is therefore trying to lighten the administrative burden (Davies, 2013). The Chinese government points out that its regulation of overseas investment is not intended to control the scope and direction of this investment, but to strengthen macroeconomic guidance (Davies, 2013). There is need because Chinese enterprises have only been taking part in international competition for a short time and lack experience. As a result, there is a certain amount of blindness and disorderliness in the overseas investment process. The Chinese government therefore has to strengthen oversight and planning and perfect relevant policies and laws, and ensure that overseas investment projects comply with laws, regulations and policies (Davies, 2013).

In March 2011, the threshold for examination and approval of large overseas investment projects in the natural resources category was raised from USD 30 million to USD 300 million, while the threshold for examination and approval of other categories of large overseas investment projects was raised from USD 10 million to USD 100 million approval (Davies, 2013). Key state-owned enterprises can now just file their overseas investments without having to submit them for examination and approval (Davies, 2013).

The majority of China's outward foreign direct investment (OFDI) is from state-owned enterprises (SOEs). Since a main focus of the "go global" strategy is to build national champions and these are mainly SOEs, SOE dominance is likely to continue. Currently, various top policy-makers in the Communist Party of China tend to have come through, and/or have strong links to, the largest SOEs (Li, 2011). However, Chinese leaders are also concerned to promote OFDI by private enterprises and individuals, both to increase the outflow of Chinese capital from private sources (since the government cannot use its reserves for direct investment abroad) and also to reduce uncontrolled outflows through alternative financial institutions (Davies, 2013).

Moreover, one indication of a currently evolving policy of promoting such OFDI is a short-lived pilot project in Wenzhou, the relatively prosperous town on China's southeast coast which has been a disproportionately large source of emigrants for many years. In January 2011, Wenzhou Municipality announced that it was allowing individuals to conduct direct investment abroad on an experimental basis (Davies, 2013). This arrangement allowed individual investors to establish enterprises in the form of greenfield projects, M&As or equity participation up to a limit of USD 200 million, though this investment was not allowed to be in the stock or property markets (Davies, 2013). This pilot scheme appears to have been put in abeyance in February 2011 because it was alleged by the local foreign affairs bureau that it had not completed the proper procedures (Davies, 2013).

# 5.5.4.3 Risk forecasting and avoidance an important feature of China's outward investment

The emphasis in OFDI policies is increasingly on risk reduction rather than merely on various forms of encouragement and targeting, while avoiding excessive interventionism; the key policy slogan is "government guidance, enterprise decision-making". New rules for risk avoidance appear to have been hurriedly devised during the "Arab spring" in the first half of 2011, when Chinese enterprises and workers in Libya and other countries had to make a rapid exit at a time of heightened uncertainty and actual or potential civil conflict. The government studies the risk situation in each host country and communicates early warnings to enterprises and then work out how to guard against risks once they have been discovered. It is also establishing and perfecting an emergency response mechanism (Davies, 2013).

China's "go global" policy is administered by the Department of Outward Investment and Economic Co-operation (formerly the Department of Foreign Trade and Economic Cooperation) of MOFCOM, whose remit includes outward investment, overseas processing trade and R&D, overseas resources co-operation, foreign engineering contracting, and labour service co-operation, including the employment of Chinese citizens overseas (Davies, 2013). Treaties covering China's outward FDI are negotiated by the ministry of commerce's Department of Treaty and Law. It also approves, monitors and manages enterprises engaged in outward investment, excluding financial services. It formulates and implements standards on the qualification of domestic enterprises engaged in outward investment. The Department

monitors China's outward FDI in terms of both quantity and quality; it is responsible for establishing and implementing a statistical system on outward FDI and for formulating and implementing performance evaluations and annual inspections of outward investments (Davies, 2013).

As discussed above and in the 2008 Investment Policy Review, the approval process is being gradually streamlined to reduce obstacles to "going global". MOFCOM has played a major role, along with other ministries (such as the Ministry of Foreign Affairs) in developing "guidance catalogues" indicating promising sectors for investment by Chinese companies in various world regions (OECD, 2008).

The Department of Outward Investment and Economic Co-operation is also charged with guiding, organising and coordinating the construction of overseas economic co-operation areas<sup>i</sup>. As explained below, China's provincial governments appear to be taking the initiative in setting up zones of this kind in other countries where their enterprises can benefit from positive externalities such as infrastructure construction, joint publicity and so on, but such activities presumably also need to be agreed on at state-to-state level. The distribution of responsibilities between China's central and local governments in this area is yet to be determined (Davies, 2013).

## 5.5.4.3.1 National Development and Reform Commission (NDRC)

The National Development and Reform Commission (NDRC), which has evolved from the all-powerful State Planning Commission, is the other major government body responsible for implementing China's "go global" policy. The NDRC is a super-ministry which is, like the ministries, a member of the State Council, China's cabinet. It is responsible for international capital flows, foreign capital utilisation and outward investment, as well as for strategic planning to bring about an overall balance between foreign capital utilisation and overseas investment. The NDRC has approval powers for major projects on behalf of the State Council. While it is clear that investors apply in the first instance to MOFCOM for project approvals, it is yet to be determined if (and if so, how far) the responsibilities of the NDRC and MOFCOM overlap (Davies, 2013).

## 5.5.4.4 Divergent local policies towards outward FDI becoming apparent

Local authorities such as provinces and municipalities have for three decades had an incentive to publicise their policies towards inward FDI. Since these largely consisted

of improvements in the investment environment, fiscal incentives and other sweeteners such as free or cheap land provision, such publicity was a relatively lowcost and easy form of investment promotion. Brochures outlining these local policies were printed out and handed to visiting potential investors and later put on provincial investment promotion agency (IPA) websites (Davies, 2013).

By contrast, local policies towards outward FDI have been, if not exactly secret, largely confidential. There is no investment promotion benefit from publishing such policies, and provinces might not be particularly keen for their neighbouring competitor provinces to be aware of what they are doing to encourage enterprises under their administration to "go global" policy. Public opinion may also misinterpret outward FDI as a form of hollowing out. The Chinese government states that local administrations carry out the central government policies on outward investment in a unified way, while at the same time making appropriate arrangements in accordance with local conditions, and that these policies are open and transparent. Nevertheless, some provinces and municipalities seem to be more open than others are in providing information about their overseas investment policies (Davies, 2013).

Therefore, while the Ministry of Commerce has in recent years published reports on China's national outward FDI performance and policies, these, and the Ministry's FDI website, have been largely silent on the nature of and differences between local government policies towards outward FDI. This situation improved in 2010 with the publication of an annual report (which is of high quality, though so far published only in Chinese) which includes information on the outward FDI situation in 11 provinces and major cities<sup>ii</sup>. It is normal practice in such yearbooks to include reports on all 31 provincial-level units. The fact that this report only covers just over one-third of these units suggests that the central government itself has not found it easy to gather data and policy statements from local governments in this area of their work. The format of the reports suggests that they may have been responses to a questionnaire (Davies, 2013).

The picture that emerges from this incomplete information is one of divergence between localities in both "go global" policy and outward FDI performance and increasing co-ordination between outward-investing enterprises at provincial level. The next section discusses the South African foreign investment policy.

## 5.6 SOUTH AFRICAN FOREIGN INVESTMENT POLICY

South Africa boasts the most advanced, broad-based economy on the African continent (U.S Department of State, 2019). The investment climate is fortified by stable institutions, an independent judiciary and a vibrant legal sector committed to upholding the rule of law, a free press and investigative reporting, a mature financial and services sector, good infrastructure, and a broad selection of experienced local partners. South Africa encourages investment that develops manufacturing of goods for export (U.S Department of State, 2019).

In dealing with the legacy of apartheid, South African laws, policies and reforms seek to produce economic transformation to increase the participation of and opportunities for historically disadvantaged South Africans. The government views its role as the primary driver of development and aims to promote greater industrialisation. Government initiatives to accelerate transformation have included tightening labour laws to achieve proportional racial, gender and disability representation in workplaces, and ascriptive requirements for government procurement such as equity stakes for historically disadvantaged South Africans and localisation requirements. Following the adoption of a resolution calling for land expropriation without compensation at the December 2017 conference of the African National Congress, investors are watching closely how the government will implement land reform initiatives and what Parliament will decide from its review of the constitution on this issue (U.S Department of State, 2019).

Despite these uncertainties and some important structural economic challenges, South Africa is a destination conducive to U.S. investment; the dynamic business community is highly market-oriented and the driver of economic growth (U.S Department of State, 2019). President Ramaphosa aims to attract USD 100 billion in investment over the next five years. South Africa offers ample opportunities and continues to attract investors seeking a comparatively low-risk location in Africa from which to access the continent with the fastest growing consumer market in the world (U.S Department of State, 2019).

# 5.6.1 South African government openness and restrictions towards foreign Investment

#### 5.6.1.1 Policies towards foreign direct investment

The government of South Africa is generally open to foreign investment as a means to drive economic growth, improve international competitiveness and access foreign markets. Merger and acquisition activity is more sensitive and requires advance work to answer potential stakeholder concerns. The 2018 Competition Amendment Bill, which was signed into law on February 13, 2019, introduced a mechanism for South Africa to review foreign direct investments and mergers and acquisitions by a foreign acquiring firm based on protecting national security interests. Virtually all business sectors are open to foreign investment. Certain sectors require government approval for foreign participation, including energy, mining, banking, insurance and defense (U.S Department of State, 2019).

The Department of Trade and Industry's Trade and Investment South Africa (TISA) division provides assistance to foreign investors. In the past year (i.e. 2018), they opened provincial One-Stop Shops that provide investment support for foreign direct investment (FDI), with offices in Johannesburg, Cape Town and Durban, and a national One Stop Shop located at the Department of Trade and Industry (DTI) in Pretoria. An additional one-stop shop was opened at Dube Trade Port, which is a special economic zone aerotropolis linked to the King Shaka International Airport in Durban. The DTI actively courts manufacturing industries in which research indicates the foreign country has a comparative advantage. It also favours manufacturing that it hopes will be labour intensive and where suppliers can be developed from local industries, despite a strong service-oriented economy in South Africa. TISA offers information on sectors and industries, consultation on the regulatory environment, facilitation for investment missions, links to joint venture partners, information on incentive packages, assistance with work permits, and logistical support for relocation (U.S Department of State, 2019).

While the government of South Africa supports investment in principle and takes active steps to attract FDI, investors and market analysts are concerned that its commitment to assist foreign investors is insufficient in practice. Some felt that the national-level government lacked a sense of urgency to support investment deals. Several investors

reported trouble accessing senior decision makers. South Africa scrutinises merger- and acquisition-related foreign direct investment for its impact on jobs, local industry and retaining South African ownership of key sectors. Private sector representatives and other interested parties were concerned about the politicisation of South Africa's posture towards this type of investment. Despite South Africa's general openness to investment, actions by some South African government ministries, populist statements by some politicians, and rhetoric in certain political circles show a lack of appreciation for the importance of FDI to South Africa's growth and prosperity and a lack of concern about the negative impact domestic policies may have on the investment climate. Ministries often do not consult adequately with stakeholders before implementing laws and regulations or fail to incorporate stakeholder concerns if consultations occur. On the positive side, the president, assisted by his appointment of four investment envoys, and his new cabinet are working to restore a positive investment climate and appear to be making progress as they engage in senior level overseas roadshows to attract investment (U.S Department of State, 2019).

#### 5.6.1.2 Limits on foreign control and right to private ownership and establishment

Currently there is no limitation on foreign private ownership. South Africa's transformation efforts – the re-integration of historically disadvantaged South Africans into the economy – has led to policies that could disadvantage foreign and some locally owned companies. In 2017, the Broad-Based Black Socio-Economic Empowerment Charter proposed for the South African mining and minerals industry required an increase to 30 percent ownership by black South Africans, but was mired in the courts as industry challenged it. The Charter was retracted for revision and a new version was proposed in 2018. The Broad-Based Black Economic Empowerment Act of 2013 (B-BBEE), and associated codes of good practice, requires levels of company ownership and participation by Black South Africans to get bidding preferences on government tenders and contracts. The DTI created an alternative equity equivalence (EE) program for multinational or foreign owned companies to allow them to score on the ownership requirements under the law, but many view the terms as onerous and restrictive. Currently, eight multinationals, most in the technology sector, participate in this program, most in the technology sector (U.S Department of State, 2019).

## 5.6.1.3 Outward foreign direct investment restrictions

South Africa does not incentivise outward investments. Its stock foreign direct investments in the United States in 2017 totalled USD 4.1 billion an almost 40 percent increase from 2016 (U.S Department of State, 2019). The largest outward direct investment of a South African company is a gas liquefaction plant in the State of Louisiana by Johannesburg Stock Exchange (JSE) and NASDAQ dual-listed petrochemical company SASOL. There are some restrictions on outward investment, such as a R1 billion (USD 83 million) limit per year on outward flows per company. The South African Reserve Bank must approve larger investments and at least 10 percent of the foreign target entities voting rights must be obtained through the investment (U.S Department of State, 2019).

## 5.6.2 Bilateral investment agreement and taxation treaties

Of South Africa's 49 signed bilateral investment treaties (BITs), 35 never entered into force or were terminated. According to UNCTAD, fourteen agreements are still in force including with Russia, China, Cuba and Iran. The 2015 "Protection of Investment Act" replaces lapsed BITs and stipulates that;

Existing investments that were made under such treaties will continue to be protected for the period and terms stipulated in the treaties. Any investments made after the termination of a treaty, but before promulgation of this Act, will be governed by the general South African law (U.S Department of State, 2019).

It also provides that "the government may consent to international arbitration in respect of investments covered by the Act, subject to the exhaustion of domestic remedies". Such "arbitration will be conducted between the Republic and the home state of the applicable investor." South Africa is not engaged in new BIT negotiations (U.S Department of State, 2019).

South Africa is a member of the Southern Africa Customs Union (SACU), which has a common external tariff and tariff-free trade between its five members (South Africa, Botswana, Lesotho, Namibia and Eswatini, formerly known as Swaziland). South Africa is generally restricted from negotiating trade agreements by itself because SACU is the competent authority. Nevertheless, South Africa has free trade agreements with members

of the Southern African Development Community (SADC); the Trade, Development and Cooperation Agreement (TDCA) between South Africa and the European Union (EU); EFTA-SACU Free Trade Agreement between SACU and the European Free Trade Association (EFTA) – Iceland, Liechtenstein, Norway, and Switzerland; the Economic Partnership Agreement (EPA) between the SADC EPA States (South Africa, Botswana, Namibia, Eswatini, Lesotho, and Mozambique) and the EU and its Member States. These agreements mainly cover trade in goods and provide preferential market access, though article 52 of the 1999 EU-TDCA covers investment promotion and protection. South Africa, through SACU, is currently negotiating a "rollover" EPA with the United Kingdom (UK) similar to its EPA with the EU in an effort to curb any trade disruptions when the UK exits the EU. Progress in reaching an agreement is mired in negotiations over rules of origin, cumulation, and sanitary and phytosanitary matters (U.S Department of State, 2019).

South Africa is a signatory to the SADC-EAC-COMESA Tripartite FTA, which includes 26 countries with a combined GDP of USD 860 billion and a combined population of approximately 590 million people. This agreement primarily covers trade in goods. South Africa ratified the African Continental Free Trade Agreement in 2018. It joins 21 other African countries, reaching the threshold needed to bring the agreement into force once these countries submit their ratification instruments to the African Union. Implementation of the agreement still requires signatories to present offers on tariff lines and services, and agree to rules of origin among other outstanding issues (U.S Department of State, 2019).

The United States and South Africa signed a Trade and Investment Framework Agreement (TIFA) in 1999. The last TIFA discussions were held in 2015. The United States and SACU negotiated a Trade, Investment and Development Cooperation Agreement (TIDCA) in 2008.

The first US-South Africa bilateral tax treaty eliminated double taxation and entered into force in 1998. In 2014, a new bilateral tax treaty was signed to implement the U.S. Foreign Asset Tax Compliance Act (FATCA) (U.S Department of State, 2016).

As part of a broad set of tax increases, in 2018 the government raised, for the first time since 1993, the value added tax (VAT) by one percentage point to 15 percent. Other fiscal measures intended to raise government revenues, such as no upward adjustments to

personal income tax brackets to account for inflation, higher alcohol and tobacco excise duties, and an extra 29 cents per litre for gasoline and 30 cents per litre for diesel in fuel levies – are meant to generate an additional R15 billion (USD 1.1 billion) for the national coffers (U.S Department of State, 2019). The tax increases come alongside government expenditure cuts primarily in government payroll compensation. Taken together, these interventions aim to stabilise public finances by 2023. According to Finance Minister Tito Mboweni, "It will not be easy. There are no quick fixes. But our nation is ready for renewal. We are ready to plant the seeds of our future" (U.S Department of State, 2019).

The South African Revenue Service (SARS) began collecting the health promotion levy – previously known as the sugar-sweetened beverages tax – in April 2018, almost one year after it was initially due to come into effect. In February 2019, the Minister of Finance announced a five percent increase to this tax from 2.1 cents to 2.21 cents (USD 0.0015 to USD 0.0016) per gram of sugar content that exceeds 4 grams per 100 ml (U.S Department of State, 2019). The tax, which applies to both domestic and international products, is meant to encourage the reduction in the consumption of sugar-sweetened beverages to deal with obesity and the epidemic of non-communicable diseases such as diabetes, which is cited as the second leading cause of death, after tuberculosis, among South Africans. The Treasury has argued that taxes on foods high in sugar can be an important element in a strategy to address diet-related diseases (U.S Department of State, 2019).

## 5.6.3 Industrial Policies in South Africa

## 5.6.3.1 Investment Incentives

South Africa offers various investment incentives targeted at specific sectors or types of business activities. The DTI has a number of incentive programs ranging from tax allowances to support in the automotive sector and helping innovation and technology companies to film and television production (DTI, 2019).

- Tax Allowance: is designed to support new industrial projects that utilise only new and unused manufacturing assets and expansions or upgrades of existing industrial projects. The incentive offers support for both capital investment and training (DTI, 2019).
- Agro-Processing Support Scheme (APSS): aims to stimulate investment by South African agro-processing/beneficiation (agri-business) enterprises (DTI, 2019).

- Aquaculture Development and Enhancement Programme (ADEP): is available to South African registered entities engaged in primary, secondary and ancillary aquaculture activities in both marine and freshwater classified under SIC 132 (fish hatcheries and fish farms) and SIC 301 and 3012 (production, processing and preserving of aquaculture fish).
- Automotive Investment Scheme (AIS): designed to grow and develop the automotive sector through investment in new and/ or replacement models and components that will increase plant production volumes, sustain employment and/ or strengthen the automotive value chain (DTI, 2019).
- Medium and Heavy Commercial Vehicles Automotive Investment Scheme (MHCV-AIS): is designed to grow and develop the automotive sector through investment in new and/or replacement models and components that will increase plant production volumes, sustain employment and/or strengthen the automotive value chain (DTI, 2019).
- People-carrier Automotive Investment Scheme (P-AIS): provides a non-taxable cash grant of between 20 percent and 35 percent of the value of qualifying investment in productive assets approved by the DTI (DTI, 2019).
- Business Process Services (BPS): aims to attract investment and create employment opportunities in South Africa through offshoring activities (DTI, 2019).
- Capital Projects Feasibility Programme (CPFP): is a cost-sharing grant that contributes to the cost of feasibility studies likely to lead to projects that will increase local exports and stimulate the market for South African capital goods and services (DTI, 2019).
- Cluster Development Programme (CDP): aims to promote industrialisation, sustainable economic growth and job creation needs of South Africa through cluster development and industrial parks (DTI, 2019).
- Critical Infrastructure Programme (CIP): aims to leverage investment by supporting infrastructure that is deemed critical, thus lowering the cost of doing business (DTI, 2019).
- Clothing and Textile Competitiveness Improvement Programme (CTCIP): aims to build capacity among manufacturers and in other areas of the apparel value chain in South Africa, to enable them to effectively supply their customers and compete on a global scale (DTI, 2019).

- Export Marketing and Investment Assistance (EMIA): develops export markets for South African products and services and attracts new foreign direct investment into the country. The purpose of the scheme is to compensate partially exporters for costs incurred with respect to activities aimed at developing an export market for South African product and services and to recruit new foreign direct investment into South Africa (DTI, 2019).
- Foreign Film and Television Production and Post-Production Incentive: to attract foreign-based film productions to shoot on location in South Africa and conduct post-production activities (DTI, 2019).
- Innovation and Technology Funding instruments: click on the link to see a graphic of the various funding instruments the government has made available (DTI, 2019).
- Manufacturing Competitiveness Enhancement Programme (MCEP): aims to encourage manufacturers to upgrade their production facilities in a manner that sustains employment and maximises value-addition in the short to medium term. Participants can also apply for incentives for energy efficiency and green economy incentives (DTI, 2019).
- Production Incentive (PI): forms part of the Clothing and Textile Competitiveness Program, and forms part of the customised sector program for the clothing, textiles, footwear, leather and leather goods industries (DTI, 2019).
- Sector-Specific Assistance Scheme (SSAS): is a reimbursable cost-sharing incentive scheme which grants financial support to organisations that support the development of industry sectors and those that contribute to the growth of South African exports (DTI, 2019).
- Support Programme for Industrial Innovation (SPII): is designed to promote technology development in South Africa's industry, through the provision of financial assistance for the development of innovative products and/or processes.
   SPII is focused on the development phase, which begins when basic research concludes and ends at the point when a pre-production prototype has been produced (DTI, 2019).
- Strategic Partnership Programme (SPP): aims to develop and enhance the capacity of small and medium-sized enterprises to provide manufacturing and service support to large private sector enterprises (DTI, 2019).

 Workplace Challenge Programme (WPC): managed by Productivity South Africa, WPC aims to encourage and support negotiated workplace change towards enhancing productivity and world-class competitiveness, best operating practices, continuous improvement, lean manufacturing, while resulting in job creation (DTI, 2019).

## 5.6.3.2 South African trade facilitation

South Africa designated its first Industrial Development Zone (IDZ) in 2001. IDZs offer duty-free import of production-related materials and zero VAT on materials sourced from South Africa, along with the right to sell in South Africa upon payment of normal import duties on finished goods. Expedited services and other logistical arrangements may be provided for small to medium-sized enterprises or for new foreign direct investment. Co-funding for infrastructure development is available from the DTI. There are no exemptions from other laws or regulations, such as environmental and labour laws. The Manufacturing Development Board licenses IDZ enterprises in collaboration with the South African Revenue Service (SARS), which handles IDZ customs matters. IDZ operators may be public, private, or a combination of both. There are currently five IDZs in South Africa: Coega IDZ, Richards Bay IDZ, Dube Trade Port, East London IDZ and the Saldanha Bay IDZ (DTI, 2019).

In February 2014, the DTI introduced a new Special Economic Zones (SEZs) Bill focused on industrial development. The SEZs encompass the IDZs but also provide scope for economic activity beyond export-driven industry to include innovation centres and regional development. There are five SEZs in South Africa: Atlantis SEZ, Nkomazi SEZ, Maliti-A-Phofung SEZ, Musina/Makhado SEZ and OR Tambo SEZ. The broader SEZ incentives strategy allows for 15 percent Corporate Tax as opposed to the current 28 percent, Building Tax Allowance, Employment Tax Incentive, Customs Controlled Area (VAT exemption and duty free) and Accelerated 12i Tax Allowance (DTI, 2019).

## 5.6.3.3 Performance and data localisation requirements

## 5.6.3.3.1 Employment and Investor Requirements

Foreign investors who establish a business or who invest in existing businesses in South Africa must show within twelve months of establishing the business that at least 60 percent of the total permanent staff are South African citizens or permanent residents (DTI, 2019). The Broad-Based Black Economic Empowerment (B-BBEE) program measures employment equity, management control, and ownership by historically disadvantaged South Africans for companies which do business with the government or bid on government tenders. Companies may consider the B-BBEE scores of their subcontractors and suppliers, as their scores can sometimes contribute to or detract from the contracting company's B-BBEE score (DTI, 2019).

A business visa is required for foreign investors who will establish a business or who will invest in an existing business in South Africa. They are required to invest a prescribed financial capital contribution equivalent to R2.5million (USD 178 thousand) and have at least R5 million (USD 356 thousand) in cash and capital available. These capital requirements may be reduced or waived if the investment qualifies under one of the following types of industries/businesses: information and communication technology; clothing and textile manufacturing; chemicals and bio-technology; agro-processing; metals and minerals refinement; automotive manufacturing; tourism, and crafts (DTI, 2019).

The documentation required for obtaining a business visa is onerous and includes, among other requirements, a letter of recommendation from the Department of Trade and Industry regarding the feasibility of the business and its contribution to the national interest, and various certificates issued by a chartered or professional South African accountant (DTI, 2019).

## 5.6.3.3.2 Goods, Technology and Data Treatment

The government does not require the use of domestic content in goods or technology. The transfer of personal information about a subject to a third party who is in a foreign country is prohibited unless certain conditions are met. These conditions are outlined in the Protection of Personal Information (PoPI) Act, which the government enacted in 2013 to regulate how personal information may be processed. The conditions relate to accountability, processing limitations, purpose specification, information quality, openness, security safeguards and data subject participation. PoPI also created an Information Regulator (IR) to draft regulations and enforce them. The five-member body that comprises the IR was established in 2018. The IR released regulations on personal information processing in December 2018, but government was not clear if the one-year

grace period to begin implementation started from the date the regulations were published or from the date the IR became fully operational (DTI, 2019).

# 5.7 SUMMARY

This chapter discussed foreign direct investment in BRICS countries. The most common thing the BRICS countries strive for is the attraction of the foreign direct investment. In order to do that, the countries embarked on cutting the red tape or foreign direct investment policy restrictions.

The government of Brazil has been gradually removing the remaining restrictions on its foreign investment policies. The Brazilian constitution of 1988 generally forbids any forms of discrimination between national and foreign investors, with a few exceptions expressly provided by law.

The investment policy of Russia has a number of policies to boost attraction of foreign direct investment in order to increase economic growth. Russia has an extensive network of bilateral investment treatise with other countries and is a signatory to a number of conventions. In addition, the Russian law imposed foreign ownership limitations in certain sectors in order to protect the Russian citizens.

The Indian foreign direct investment policy is extensive; however, the main aim was to ensure more ease of doing business in India and provide a friendly atmosphere to foreign investors in order to pull more FDI into the country. The FDI policy restrictions were also discussed in this section.

China's foreign direct investment has a range of issues relating to foreign direct investment policies. China has aggressively shaped a relatively complete range and regulations that governing foreign investment. These include the law of People's Republic of China on foreign wholly owned enterprises, the law of the People's Republic of China on sino-foreign joint ventures and other laws.

Finally, the South African foreign direct investment policy also strives to boost foreign direct investment through cutting red tape and creating a conducive environment for investors. This chapter discussed many issues relating to the South African FDI policies. The government of South Africa is generally open to foreign investment as a means to drive economic growth, improve international competitiveness, and access foreign markets. The next chapter discusses the research methodology of the study.

#### **CHAPTER SIX**

### **RESEARCH METHODOLOGY**

#### 6.1 INTRODUCTION

This chapter presents the methodology of this study. The research methodology discusses the process, tools and steps used in the research. This chapter presents model specification tools used to estimate the cointegration and granger causality between economic and foreign direct investment inflows. In addition, other dependent variables such as employment, economic complexity, unemployment are presented to show the impact of foreign direct investment inflows on them.

The rest of the chapter is structured as follows: First, the model specification represents the theoretical model. Next, the chapter discusses data sources and variable description. The chapter also discusses data collection method, unit root tests, the cointegration tests and granger causality the chapter ends with a summary.

## 6.2 MODEL SPECIFICATION

This research used a theoretical framework with the endogenous growth theory to explain the effect of foreign direct investment on economic growth. The research followed the Berthelemy and Demurger (2000) endogenous growth model framework. Their model mentions technology transfer as a main contributor to economic growth and foreign capital inflows could be attracted by economic growth (Berthelemy *et al.*, 2000). Their framework incorporated foreign direct investment in the growth model. The production function takes the following form:

$$Q = K_0^{\alpha} L^{\beta} F a, 6.1$$

Where *Q* is a production output,  $K_Y$  is human capital, *L* is unskilled labour, *F* is a set of semi-finished (inputs) products *a* and the elasticities for human and labour are  $\beta < 1$  and  $\alpha < 1$ 

In the production function all the inputs products are included. In the case where equal technology, inputs and price system is used the production function takes the following form:

$$Q = K_0^{\alpha} L^{\beta} F a$$

The semi-finished product sector has two companies which produces a variety of products *z*. In this sector a company comprises of low technology and high technology, also describes as follows ( $F = f + f^*$ ). One company has two different activities, namely a research activity which pioneers a new range of inputs products, and a production activity, which uses the new technology. The research activity utilises human capital and knowledge, whereas the production activity uses the design pioneered in the research activity process. Therefore, this results in low technology and high technology function, where knowledge production is assumed to be constant returns (Berthelemy *et al.*, 2000). The low technology knowledge accumulation function and human capital are presented as follows:

$$\dot{f} = \varphi K_R f^{\epsilon} f^{*(1-\epsilon)}, 0 < \epsilon \le 1,$$
6.2

Where  $K_R$  is human capital employed in the low technology research activity and  $\varphi$  is a productivity parameter.

In addition, the high technology knowledge accumulation function takes the following form:

$$\dot{f}^* = \varphi^* K_R^* f^{*\epsilon^*} f^{(1-\epsilon^*)}, 1/2 < \epsilon^* \le 1,$$
 6.3

Where  $K_R^*$  is human capital employed in high technology research activity and  $\varphi^*$  is a productivity parameter.

At total level, the human capital is used where  $K_V$ ,  $K_V^*$  and  $K_Q$  are related by the following constant:

$$K_V + K_V^* + K_Y = K$$
 6.4

A profit maximisation function includes labour, human capital and semi-finished products as inputs to maximise profits under technology constraints. The function looks as follows:

$$\max_{K_Q,L,a(z)} Q - i_{K_Q} K_Q - i_L L - \int_0^F p(z) a(z) dz$$
  
$$Y = K_Q^{\alpha} L^{\beta} \int_0^F a(z)^{1-\alpha-\beta} dz.$$
 6.5

Where  $i_{K_Q}$  is the wage rate of human capital,  $i_L$  is the wage rate of unskilled labour and p(z) is the price of semi-finalised products a(z).

Afterwards, the marginal product function, is written as follows:

$$p(z) = \theta Q / \theta a(z) = (1 - \alpha - \beta) K_0^{\alpha} L^{\beta} (a(z))^{-\alpha - \beta}$$
6.6

$$i_{K_Q} = \theta Q / \theta K_Q = \alpha Q / K_Q, \tag{6.7}$$

$$i_L = \theta Q / \theta L = \beta Q / L. \tag{6.8}$$

In the final sector, human capital is paid at its marginal productivity, at a wage rate of  $i_K$  which denotes a unit of final output in a low technology research activity (Berthelemy *et al.*, 2000).

$$i_K = S_f(\theta \dot{f}/\theta K_v) = S_f \varphi f^{\epsilon} f^{*(1-\epsilon)}$$

$$6.9$$

On the other hand, in a high technology research activity, a human capital is paid at a wage rate of  $i_K^*$ .

$$i_{K}^{*} = S_{f}^{*}(\theta \dot{f}^{*}/\theta K_{v}^{*}) = S_{f}^{*} \varphi^{*} f^{*\epsilon^{*}} f^{(1-\epsilon^{*})}$$
6.10

Moreover, the net present value of the firms can be represented as follows:

$$\forall_{tot} = -S_f + \int_t^\infty [p(z)a(z) - \sigma a(z)]\varepsilon^{-(\vartheta - t)k}d\vartheta.$$
6.11

The decision whether to produce a new variety of products is subject to the comparison between the net present value of revenue and the opportunity cost of the design  $S_f$ . As a result, the no-entry condition can be written as follows:

$$S_f = \int_t^\infty [p(z)a(z) - \sigma a(z)] \, \varepsilon^{-(\vartheta - t)k} d\vartheta \, (\Leftrightarrow \forall_{tot}(t) = 0).$$
6.12

The level of production for the input z is established through the profit-maximisation conditioned by the demand curve for this input is represented as follows:

$$\max_{a(z)} \forall_{tot} = -S_f + \int_t^\infty [p(z)a(z) - \sigma x(z)] \varepsilon^{-(\vartheta - t)k} d\vartheta$$
6.13

As the result, the equilibrium level to produce semi-finished products is given as follows:

$$a(z) = \bar{a} = \left[ (1 - \alpha - \beta)^{2/\alpha + \beta} K_Q^{\alpha/\alpha + \beta} L^{\beta/\alpha + \beta} \right] / \sigma^{1/\alpha + \beta}.$$
6.14

Substituting equation (6.14) in the opposite demand function (6.6), gives the monopoly prize for input:

$$p(z) = \bar{p} = \sigma/(1 - \alpha - \beta). \tag{6.15}$$

Given equation (6.14) and (6.15) for the quantity and the price of semi-finished products, it is possible to pioneer the expression of the equilibrium market value as follows:

$$S_{f} = \bar{p}\bar{a}(\alpha + \beta)/K$$
$$= (\alpha + \beta)[(1 - \alpha - \beta)K_{Q}^{\alpha}L^{\beta}\bar{a}^{1 - \alpha - \beta}]/K$$
$$= [(\alpha + \beta)(1 - \alpha - \beta)/K]Q/F.$$
 6.16

Then the analysis of high technology company does not differ greatly from that of low technology companies. The production technology is similar to the technology  $\sigma$  of low technology companies. A constant intertemporal elasticity of satisfaction function is presented as follows (Berthelemy *et al.*, 2000):

$$\omega = \int_0^\infty \left[ (U^{1-\emptyset} - 1)/(1-\emptyset) \right] \varepsilon^{-\gamma t} dt, \ \gamma \propto [0,\infty], \emptyset \propto [0,\infty],$$
 6.17

Where *U* measures total consumption,  $\gamma$  is the rate of time preference, and  $\phi$  is the reciprocal of the intertemporal elasticity of substitution.

Berthelemy *et al.* (2000) state that the intertemporal optimisation program of consumers results in the Keynes-Ramsey condition, which provides the equilibrium relationship between economic growth ( $GDP = K^{-}/K$ ) and interest rate:

$$GDP = \dot{U}/U = (t - \gamma)/\emptyset.$$
 6.18

Moreover, the condition that establishes the allocation of human capital between sectors expresses the quality of wages in each sector. For the research activity, suggests that:  $i_K = i_K^*$ , that is, from equation (6.9) and (6.10):

$$S_f \varphi f^{\epsilon} f^{*(1-\epsilon)} = S_f^* \varphi^* f^{*\epsilon^*} f^{(1-\epsilon^*)}.$$
6.19

The prices of the semi-finished products in the low and high technology companies should be equal  $S_f = S_f^*$ ; the illustration is as follows:

$$\varphi/\varphi^* = (f^*/f)^{\epsilon + \epsilon^* - 1},$$
6.20

It shows the similarities in the rate of knowledge accumulation in low and high technology knowledge, that is:

$$\dot{f}/f = \dot{f}^*/f^*.$$
 6.21

Utilising equation (6.2) and (6.3) gives:

$$\varphi K_V(f^*/f)^{(1-\epsilon)} = \varphi^* K_V^*(f/f^*)^{(1-\epsilon^*)}.$$
6.22

Amalgamating (6.22) with (6.4) results in the following form for  $H_V$  and  $H_V^*$ :

$$K_{V} = (K - K) / [1 + (\varphi / \varphi^{*})^{1/(\epsilon + \epsilon^{*} - 1)}],$$
  

$$K_{V}^{*} = [(K - K_{Q})(\varphi / \varphi^{*})^{1/(\epsilon + \epsilon^{*} - 1)}] / [1 + (\varphi / \varphi^{*})^{1/(\epsilon + \epsilon^{*} - 1)}] .$$
6.23

Berthelemy *et al.* (2000) mention that to match the wages reimbursed to human capital in all sectors, the quantity of people (i.e. human capital) utilised in the final sector  $(K_Q = K - K_V - K_V^*)$  have to be selected in order:

$$i_{K_Q} = i_K = i_K^*$$

$$\Leftrightarrow$$

$$S_f \varphi f^{\mu} f^{*(1-\mu)} = S_f^* \varphi^* f^{*\mu^*} f^{(1-\mu^*)} = \alpha F K_Q^{\alpha-1} L^{\beta} \bar{a}^{1-\alpha-\beta}$$
6.24

When we substitute  $S_f$  by its value acquired in equation (6.16), this is written as follows (Berthelemy *et al.*, 2000):

$$K_Q = [\alpha/\varphi(\alpha + \beta)(1 - \alpha - \beta)] \cdot (f/f^*)^{-\epsilon} \cdot (1 + f/f^*) \cdot t.$$
 6.25

The semi-finished products are equal in the equilibrium level of production as it shown in equation (6.14) as  $a(z) = \overline{a}$ . When labour *L*, human capital  $K_Q$  and semi-finished products  $\overline{a}$  are constant, this results in production growing at the same rate as *F*; as it shown in the following form (Berthelemy *et al.*, 2000):

$$F/F = (f + \dot{f}^*)/(f + f^*) = (f/F).(\dot{f}/f) + (f^*/F).(\dot{f}^*/f^*).$$
6.26

When the accumulation rated of low and high technology knowledge matches in equation (6.25), it look as follows:

$$\dot{F}/F = \dot{f}/f = \dot{f}^*/\dot{f}^*.$$
 6.27

As a result:

$$GDP = \dot{U}/U = \dot{Q}/Q = \dot{F}/F = \varphi K_V (f^*/f)^{(1-\epsilon)} = \varphi^* K_V^* (f/f^*)^{(1-\epsilon^*)}$$
6.28

That is, when Berthelemy *et al.* (2000) combine equations (6.20), (6.23) and (6.25) economic growth is represented as follows:

$$GDP = \varphi \left[ \frac{(\varphi/\varphi^*)^{(1-\epsilon)/(\epsilon+\epsilon^*-1)}}{1+(\varphi/\varphi^*)^{1/(\epsilon+\epsilon^*-1)}} \right] K - \tau t$$

$$6.29$$

With 
$$\tau = \alpha/(\alpha + \beta)(1 - \alpha - \beta)$$
.

When employing equation (6.18), the economic growth rate is represented as follows:

$$GDP = \left[ \left( \frac{(\varphi/\varphi^*)^{(1-\epsilon)/(\epsilon+\epsilon^*-1)}}{1+(\varphi/\varphi^*)^{1/(\epsilon+\epsilon^*-1)}} \right) K - \tau \gamma \right] / (1+\tau \emptyset).$$

$$6.30$$

Moreover, to examine how foreign direct investment may influence economic growth, the comparative static of equation (6.30) will be expanded (Berthelemy *et al.*, 2000). The partial derivative of *GDP* with respect to  $\varphi/\varphi^*$  gives the following expression:

$$\frac{\theta GDP}{\theta(\varphi/\varphi^*)} = \frac{\varphi K}{1+\tau \varphi} \left[ \frac{\left[ (\varphi/\varphi^*)^{(2-2\epsilon-\epsilon^*)/(\epsilon+\epsilon^*-1)}/(\epsilon+\epsilon^*-1) \right] \left[ 1-\epsilon-(\varphi-\varphi^*)^{1/(\epsilon+\epsilon^*-1)} \right]}{[1+(\varphi/\varphi^*)^{1/(\epsilon+\epsilon-1)}]^2} \right];$$
6.31

As a result,

$$\theta GDP/\theta(\varphi/\varphi^*) \geq 0 \Leftrightarrow (\varphi/\varphi^*) \leq [(1-\epsilon)/\epsilon]^{(\epsilon+\epsilon^*-1)}$$

Berthemely *et al.* (2000) mention that since low and high technology companies (i.e.  $f^*/f$ ) are related to foreign direct investment as stated in equation (6.20), that means up to a threshold level given by  $[(1 - \epsilon)/\epsilon]^{(\epsilon + \epsilon^* - 1)}$ , the impact of foreign direct investment on economic growth is maximised. For instance, when  $\theta/\theta^* < 1$  and  $f^*/f$  there are high chances that are less than 1 in equilibrium, equation (6.20) suggests that  $+\epsilon^* > 1$ . When  $\epsilon$  is less than  $\frac{1}{2}$ , the threshold level vanishes meanwhile $(1 - \epsilon)/\epsilon > 1$ , that means the impact of foreign direct investment is always increasing (Berthelemy *et al.*, 2000). However, when  $\epsilon$  is more than  $\frac{1}{2}$ , the threshold level become active, however, it is a diminishing function of  $\epsilon$ . In other words, the greater  $\epsilon$  impact the foreign direct investment inversely (Berthelemy *et al.*, 2000). When  $\epsilon$  is no much foreign companies' effect on domestic companies (Berthelemy *et al.*, 2000).

Berthelemy *et al.* (2000) allude that the better the relationship between domestic and foreign companies, the better is economic growth.

Moreover, the Berthemely *et al.* (2000) model gives a good illustration of the causal relationship from economic growth to foreign direct investment and factors explaining high technology companies are regarded as determinants of foreign direct investment. Hence, the systems pioneered in equations (6.10), (6.15) and (6.24) give the following expression for  $f^*$ ;

$$f^* = [(\alpha/(\alpha + \beta)(1 - \alpha - \beta)). (F/\varphi^* K_Q)]^{1/\epsilon^*} . f^{(\epsilon^* - 1)/\epsilon^*} . t^{1/\epsilon^*}.$$
6.32

Equation (6.32) shows a positive relation between  $f^*$  and t, which suggests that, in the long run, foreign direct investment is positively influenced by the economic growth rate of the economy (through equation (6.18)) (Berthelemy *et al.*, 2000).

This research regression model is consistent with Berthelemy *et al.* (2000). There are four regression model the research runs. The model is expressed as follows:

$$LGDP_{it-1} = \beta_0 + \beta_1 LFDI_{it-1} + \beta_2 HC_{it-1} + \beta_3 PC_{it-1} + \beta_4 HC_{it-1} + \beta_5 GE_{it-1} + \beta_6 EX_{it-1} + \beta_7 AL_{it-1} + \varepsilon_{it}$$
6.33

$$EM_{it-1} = \beta_0 + \beta_1 LFDI_{it-1} + \beta_2 HC_{it-1} + \beta_3 PC_{it-1} + \beta_4 HC_{it-1} + \beta_5 GE_{it-1} + \beta_6 E_{it-1} + \beta_7 AL_{it-1} + \varepsilon_{it}$$
6.34

$$EC_{it-1} = \beta_0 + \beta_1 LFDI_{it-1} + \beta_2 HC_{it-1} + \beta_3 PC_{it-1} + \beta_4 HC_{it-1} + \beta_5 GE_{it-1} + \beta_6 EX_{it-1} + \beta_7 AL_{it-1} + \varepsilon_{it}$$
6.35

$$UN_{it-1} = \beta_0 + \beta_1 LFDI_{it-1} + \beta_2 HC_{it-1} + \beta_3 PC_{it-1} + \beta_4 HC_{it-1} + \beta_5 GE_{it-1} + \beta_6 E_{it-1} + \beta_7 AL_{it-1} + \varepsilon_{it}$$
6.36

Where  $GDP_{it-1}$ ,  $EM_{it-1}$ ,  $EC_{it-1}$  and  $UN_{it-1}$  are dependent variables, represent the logarithms of gross domestic product (using constant price of 2010), employment, economic complexity and unemployment respectively.  $LFDI_{it-1}$ ,  $HC_{it-1}$ ,  $PC_{it-1}$ ,  $HC_{it-1}$ ,  $GE_{it-1}$ ,  $EX_{it-1}$ ,  $AL_{it-1}$  are explanatory variables, represents the logarithms of foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports and arable land respectively.  $\varepsilon_{it}$  represents the random term that captures unobserved variables. The following section discusses the data sources and variable description.

### 6.3 DATA SOURCES AND VARIABLE DESCRIPTION

The data for South African GDP and foreign direct investment (FDI) are sourced from the South African Reserve Bank (SARB), whereas exports, unemployment, economic complexity, employment, human capital, physical capital, household consumption and government expenditure are all sourced from Penn World Table. Arable land is sourced from World Bank database. The empirical study is based on yearly data covering the period from 1997 to 2014. The choice of the start and end of periods was due to lack BRIC FDI inflows data.

The choice of variables used in the study serves many purposes. First was the important role they play in an emerging country like South Africa. The other was the differences in the results obtained by the earlier studies that used similar variables and methodologies. Then, the researcher considered that the effect of foreign direct investment inflows (from BRIC countries) on South African economy had never not been investigated before. Finally, South Africa received very limited foreign direct investment from BRIC countries and there were no intra-BRICS FDI flows (UNCTAD, 2013).

The choice of BRICS foreign direct investment for this current study was motivated by the fact that many previous South African studies have never looked between BRICS FDI and South African economic growth. Moreover, foreign direct investment has a positive relationship with economic growth (Berthelemy et al., 2000; Sunde, 2017 and Masipa, 2018).

In South Africa, the exports sector is frequently accorded a special role in encouraging faster economic growth. Moreover, export promotion is widely regarded as a key potential driver of economic growth in South Africa as part of policy frameworks such as the new growth path (NGP), the national development plan (NDP) and industrial policy documents including the 2014 industrial policy action plan (Cipamba, 2013; DTI, 2014; Feddersen et al., 2017). The research included the exports as an additional explanatory variable.

One of the most pressing problems facing the South African economy is unemployment, which has been erratic over the past years (Banda et al., 2016). Therefore, the unemployment problem in South Africa is not a recent phenomenon (Altman, 2001a, 2001b; Bhorat et al., 1999; Edwards, 2000; Kaplinsky, 1995; Klasen et al., 2000; Meth, 2001; Dol, 1998). This research introduces unemployment as an additional regressand variable.

An additional regressand variable used in this research is employment. Net employment has been stagnant or falling since the early 1980s. The structural characteristics of falling employment have been caused by a number of factors related to the apartheid government's policies aimed at promoting separate development (Altman, 2004). Many studies have revealed a positive relationship between employment and economic growth (Masipa, 2014; Leshoro, 2013).

The foundation of economic complexity is that countries with higher economic complexity must be in possession of greater endowments of productive knowledge (Hausmann *et al.*, 2014). In 2016, South Africa was ranked as the most complex economy on the African continent (Allen *et al.*, 2019). The research also uses economic complexity as an additional dependent variable.

Governments across the globe, including in South Africa, improve the human capital by investing in education and health (Makaula, 2014). The relation between human capital and growth is established as far back as in Lucas (1998) and Berthelemy *et al.* (2000). These state that human capital improves economic growth. Makaula (2014) found that human capital has a positive impact on South African economic growth. This research incorporated human capital as the additional explanatory variable.

Another additional explanatory variable is physical capital. Many studies found that physical capital positively affects economic growth. For instance, the study by Garzarelli and Liman (2019) found that physical capital has a positive impact on economic growth in Sub-Saharan Africa. In addition, household consumption is the single largest contributor to economic activity in South Africa (IDC, 2019). It is also an additional explanatory variable in the research.

Furthermore, the research incorporated government expenditure as the additional explanatory variable. The study by Odhiambo (2015) found that there is a positive relation between government expenditure and economic growth in South Africa. Finally, arable land is incorporated as explanatory in this research. Land plays an important role in the economies of developing countries, and many connect land inequality with different dimensions of economic development (Azadi and Vanhaute,

2019). The study by Mlambo (2019) found that the agricultural sector has a positive impact on economic growth in South Africa.

| Variables | Description                           | Sources               |
|-----------|---------------------------------------|-----------------------|
| GDP       | Aggregate real gross domestic product | South African Reserve |
|           |                                       | Bank (SARB)           |
| FDI       | Private and Bank foreign direct       | SARB                  |
|           | investment                            |                       |
| Ex        | Exports                               | Penn World Table      |
| UN        | Unemployment                          | Penn World Table      |
| EM        | Employment                            | Penn World Table      |
| EC        | Economic complexity                   | Penn World Table      |
| HC        | Human capital                         | Penn World Table      |
| PC        | Physical capital                      | Penn World Table      |
| HC        | Household consumption                 | Penn World Table      |
| GE        | Government expenditure                | Penn World Table      |
| AL        | Arable Land used to grow crops        | World Bank database   |

Table 6.1: Variable description

Source: Author's compilation

# 6.4 UNIT ROOT

This research follows the panel unit root tests by Levin, Lin and Chu (LLC) and Im, Pesaran, Shin (IPS). Below is a detailed discussion of the panel unit root tests.

# 6.4.1 Levin, Lin and Chu (LLC) panel test

Levin, Lin and Chu (2002) observe the stochastic process  $\{Y_{it}\}$  for a panel of individuals i = 1, ..., T time series observations. Levin *et al.* (2002) sought to determine whether  $\{Y_{it}\}$  is integrated for each individual in the panel. As in the case of a single time series, the individual regression may include an intercept and time trend. They assume that all individuals in the panel have identical first-order partial autocorrelation but all other parameters in the error process are permitted to vary freely across individuals.

Levin *et al.* (2002) further assume that  $\{Y_{it}\}$  is generated by one of the following three models:

$$\Delta Y_{it} = \delta Y_{it-1} + \mu_{it.} \tag{6.37}$$

$$\Delta Y_{it} = \alpha_{0i} + \delta Y_{it-1} + \mu_{it}.$$
6.38

$$\Delta Y_{it} = \alpha_{0i} + \alpha_{1i^t} + \delta Y_{it-1} + \mu_{it}.$$
6.39

Where 
$$-2 < \delta \leq 0$$
 for  $i = 1, \ldots, N$ .

The error  $\mu_{it}$  is distributed independently across individual models follows a stationary invertible ARMA process for each individual;

$$\mu_{it} = \sum_{j=1}^{\infty} \theta_{ij} \,\mu_{it-j} + \varepsilon_{it}. \tag{6.40}$$

For all 
$$i = 1, ..., N$$
 and  $t = 1, ..., T$ ,

$$E(\mu_{it}^4) < \infty$$
;  $E(\varepsilon_{it}^2) \ge \beta_{\varepsilon} > 0$ ; and  $E(\mu_{it}^2) + 2\sum_{j=1}^{\infty} E(\mu_{it}\mu_{it-j}) < \beta_{\mu} < \infty$ .

In model 1 (equation 6.37), the panel unit root test procedure evaluates the null hypothesis  $H_0: \delta = 0$  against the alternative  $H_1: \delta < 0$ . The series  $\{Y_{it}\}$  has an individual specific mean in model 2 (equation 6.38), but does not contain a time trend. In this case, the panel test procedure evaluates the null hypothesis that  $H_0: \delta = 0$  and  $\alpha_{0i} = 0$ , for all, against  $H_1: \delta < 0$  and  $\alpha_{0i} \in R$ . Finally, under model 3 (equation 6.39), the series  $\{Y_{it}\}$  has an individual specific mean and time trend. In this case, the panel procedure evaluates the null hypothesis that  $H_0: \delta = 0$  and  $\alpha_{1i} \in R$ .

#### 6.4.2 Im, Pesaran and Shin (IPS) panel test

The LLC test assumes that all panels have a common autoregressive parameter, whereas the IPS (2003) developed an alternative unit root test that assumes that there is heterogeneity for each unit in a dynamic panel and thus corrects for any serial correlation. Therefore, the test is flexible and can be used in the presence of residual serial correlation across-sectional units (Baltagi, 2005). Let  $Y_{it}$  be the observation on the *i*<sup>th</sup> cross-section unit at time *t* and suppose that it is generated according to the simple dynamic linear heterogeneous panel data model;

$$y_{it} = (1 - \phi_i)\mu_i + \phi_i Y_{i,t-1} + u_{it}, i = 1, \dots, N; \ t = 1, \dots, T,$$
6.41

Where initial value  $y_{i0}$ , has a given density function with a finite mean and variance, and the error term  $u_{it}$ , has the single-factor structure

$$u_{it} = \gamma_i \tau_t + \varepsilon_{it}, \tag{6.42}$$

in which  $\tau_t$  is the unobserved common effect, and  $\varepsilon_{it}$  is the individual-specific (Idiosyncratic) error. It is convenient to write 6.41 and 6.42 as follows:

$$\Delta y_{it} = \alpha_i + \beta_i y_{i,t-1} + y_i \tau_t + \varepsilon_{it}$$

$$6.43$$

Where  $\alpha_i = (1 - \phi_i)\mu_i$ ;  $\beta_i = -(1 - \phi_i)$  and  $\Delta y_{it} = y_{it} - y_{i,t-1}$ . The unit root hypothesis of interest,  $\phi_i = 1$ , can now expressed as follows;

$$H_0: \beta_i = 0 \text{ for } i \tag{6.44}$$

Against the possibly heterogenous alternative,

$$H_1: \beta_i < 0, i = 1, 2, \dots, N_1, \beta_i = 0, i = N_1 + 1, N_1 + 2, \dots, N.$$
6.45

They assumed that  $N_1/N$ , the fraction of the individual processes that are statitionary, is non-zero and tends to the fixed value  $\delta$  such that  $0 < \delta \le 1$  as  $N \to \infty$ . As noted in Im, Pesaran and Shin (2003), this condition is necessary for consistency of the panel unit root tests. This leads to the next section, which discusses the cointegration tests.

#### 6.5 COINTEGRATION

Cointegration tests are undertaken to investigate the existence of a long run relationship among variables (Bresson, 2002). This research employed a residual based cointegration test, namely the Kao (1999) test. In addition, linear and nonlinear cointegration tests through fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) were employed.

The residual-based tests are constructed based on Engle-Granger (1987) for timeseries and they use residuals of the panel static regression to construct the test statistics and tabulate the distributions. It is obvious that in this case good estimates of the residuals are essential for obtaining a good Kao test. Moreover, the asymptotic of the estimators, in the case of a null hypothesis of no cointegration, the test falls in with the so called "spurious regression" problem and, in order to test the null hypothesis, an efficient estimation of the cointegrated relationship is required (Barbieri, 2008).

## 6.5.1 Kao test

Kao (1999) presents Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) (Dickey-Fuller, 1981) type tests for the null hypothesis of no cointegration in panel data in the special case where cointegration vectors are homogeneous between individuals (different intercepts, common slopes). Furthermore, the long-run covariane matrix is assumed to be the same across individuals. These tests do not allow for heterogeneity under alternative hypothesis and they cannot be applied to a bivariate system (where only one regressor is present in the cointegration relation) (Barbieri, 2008). With respect to the estimation method for panel cointegrated relationships, Kao observes that, in the large panel case, the residual based test is equivalent to testing for a unit root in the least square dummy variable (LSDV) estimated residuals. The LSDV estimator is consistent for the true value of the parameter but the t-statistic diverges. However, in this case Kao test shows that it is possible to ascertain an appropriate normalisation of the estimated parameter such that the asymptotic null distribution of the DF and ADF test statistics converges to a standard normal one (Barbieri, 2008). The starting point of the Kao test is the following model:

$$\gamma_{it} = \alpha_i + \beta x_{it} + e_{it}, i = 1, \dots, N, t = 1, \dots, T \dots \dots$$
 6.46

$$\gamma_{it} = \gamma_{it-1} + u_{it} \tag{6.47}$$

$$x_{it} = x_{it-1} + \varepsilon_{it} \tag{6.48}$$

Where  $\alpha_i$  are the fixed effects varying across the cross-section observations,  $\beta$  is the slope parameter common across *i*, and  $u_{it}$  are constant terms. Since both  $\gamma_{it}$  and  $x_{it}$  are random walks, under the null hypothesis of no cointegration, the residual series  $e_{it}$  should be non-stationary.

The long run covariance matrix of  $w_{it} = (u_{it}, \varepsilon_{it})^{\prime 10}$  as:

$$\Omega = \lim_{T \to \infty} \frac{1}{T} E\left(\sum_{t=1}^{T} w_{it}\right) \left(\sum_{t=1}^{T} w_{it}\right)' = \sum_{t=1}^{T} + \Gamma + \Gamma' = \begin{bmatrix} \sigma_{0u}^2 & \sigma_{0u\varepsilon} \\ \sigma_{0u\varepsilon} & \sigma_{0\varepsilon}^2 \end{bmatrix},$$

Where:

$$\Gamma = \lim_{T \to \infty} \frac{1}{T} \sum_{K=1}^{T-1} \sum_{t=K+1}^{T} E\left(w_{it} \, w'_{it-K}\right) = \begin{pmatrix} \gamma_u & \gamma_{u\varepsilon} \\ \gamma_{u\varepsilon} & \gamma_{\varepsilon} \end{pmatrix}$$

And

$$\sum = \lim_{T \to \infty} \frac{1}{T} \sum_{K=1}^{T} E\left(w_{it} w_{it}'\right) = \begin{bmatrix} \sigma_u^2 & \sigma_{u\varepsilon} \\ \sigma_{u\varepsilon} & \sigma_{\varepsilon}^2 \end{bmatrix}$$

In this situation,  $\Gamma$  can be thought of as the correction across time and  $\sum as$  the contemporaneous correlation. Kao (1999) assumes that  $(1/\sqrt{T})\sum_{t=1}^{Tr} w_{it} \Rightarrow \beta_i(\Omega)$  for all *i* as  $T \to \infty$  where  $\beta_i(\Omega)$  is both tests proposed by Kao can be computed from the estimated residuals of equation 6.9 specified as follows:

$$\hat{e}_{it} = \rho \hat{e}_{it-1} + \sum_{j=1}^{\rho} \theta_j \,\Delta \hat{e}_{it-j} + \nu_{it\rho}$$
6.49

Where the lags are added in the specification to take care of possible autocorrelation, and the number lags  $\rho$  is chosen such that the residuals  $v_{it\rho}$  are serially uncorrelated with past errors (Barbeiri, 2008).

To test the null hypothesis of no cointegration, the null hypothesis is written as  $H_0: \rho = 1$  against the alternative  $H_A: \rho < 1$ . The ordinary least squares (OLS) estimate of  $\rho$  is as follows:

$$\hat{\rho} = \frac{\sum_{i=1}^{N} \sum_{t=2}^{T} \hat{e}_{it} \hat{e}_{it-1}}{\sum_{i=1}^{N} \sum_{t=2}^{T} \hat{e}_{it-1}^{2}}$$

$$6.50$$

Let  $\gamma_{it}^* = \gamma_{it} - \sigma_{0u\varepsilon}\sigma_{0\varepsilon}^{-2}x_{it}^* = \sigma_{0\varepsilon}^{-1}x_{it}$  and  $\hat{e}_{it}^* = \gamma_{it}^* - \hat{\alpha}_i^* - \hat{\beta}^*x_{itj}^*$ ; in the case of the DF test, the t-statistic for the null hypothesis is:

$$t_{\rho} = (\hat{\rho} - 1) \frac{\sqrt{\sum_{i=1}^{N} \sum_{i=2}^{T} \hat{e}_{it-1}^{*2}}}{s_{e}}$$
6.51

Where  $s_e^2 = (1/N) \sum_{i=1}^N \sum_{t=2}^T (\hat{e}_{it}^* - \hat{\rho} \hat{e}_{it-1}^*)^2$ .

The test for the null hypothesis of no cointegration is based on the following t-statistic:

$$t_{ADF} = (\hat{\rho} - 1) \frac{\left|\sum_{i=1}^{N} (e_i' Q_i e_i)\right|^{1/2}}{s_v}$$
6.52

Kao (1999) shows that asymptotically:

$$t_{ADF} - \frac{\sqrt{N}\mu 5T}{s_v \sqrt{\mu 6T}} \sim N\left(0, \frac{\sigma_{0v}^2}{2\sigma_v^2} + \frac{3\sigma_v^2}{10\sigma_{0v}^2}\right)$$
6.53

Where  $\mu_{5T} = E\left[\frac{1}{T}e_i^{*'}Q_i^*v_i\right], \mu_{6T} = E\left[\frac{1}{T^2}e_i^{*'}Q_i^*e_i^*\right], e_i^*$  and  $v_i$  are the vectors of observations of  $e_{it-1}^*$  and respectively and  $Q_i^* = I - X_{i\rho}^* \left(X_{i\rho}^{*'}X_{i\rho}^*\right)^{-1}X_{i\rho}^{*'}$ .

The limited distributions in (6.52 and 6.53) are normal distributions with zero mean and contain nuisance parameters ( $\mu_{5T}$ ,  $\mu_{6T}$ ,  $\sigma_V^2$  and  $\sigma_{0v}^2$ ) that present possible long-run weak exogeneity and serial correlation in the errors. As in the time-series literature, consistent estimates of these long-run parameters are required and they would be based on  $\Omega$  (Barbieri, 2008).

About the empirical size of the test, Kao (1999) concludes that all tests have a large size distortion when *T* is small; the distortion decreases when T = 25. The size of the ADF test is greater than 0.09 for each sample size. The sizes of  $ADF_{\rho}^{*}$  and  $DF_{t}^{*}$  are close to 0.05 when *T* and *N* are both large.  $DF_{\rho}^{*}$  and  $DF_{t}^{*}$  outperform the rest in terms of size distortion. On the hand, regarding the unadjusted power of the tests, Kao (1999) shows that all tests have little power for large;  $DF_{\rho}^{*}$  also has little power for large *N*. When T = 25, the  $DF_{t}^{*}$  test dominates  $DF_{t}^{*}$  and ADF test. In general,  $DF_{\rho}^{*}$  and  $DF_{t}^{*}$  tests outperform the other tests in terms of size and power properties. Nevertheless,  $DF_{\rho}$  and  $DF_{t}$  are substantially robust despite the model misspecification due to their independence from the estimation of long-run parameter. On the contrary, *ADF* does not perform very well and its empirical distribution can be far from the theoretical standard normal distribution (Barbieri, 2008).

#### 6.5.2 FMOLS and DOLS tests

This section discusses the Panel dynamic ordinary least squares (DOLS) and fully modified ordinary least squares (FMOLS) models. Under the existence of cointegration relationship, the use of standard pooled least squares method may lead to biased estimations due to problems of serial correlation and endogeneity. On one hand, Panel DOLS and FMOLS method are efficient techniques to eliminate these problems (Akpolat, 2014). Panel DOLS is a parametric method that is used to obtain long run coefficients by taking into account the lead and lagged values of variables. On the other hand, panel FMOLS is a method eliminating serial correction effect by applying a nonparametric transformation to residuals which are obtained from

cointegration regression. Both DOLS and FMOLS techniques facilitate establishing a regression without the need to take difference of the cointegrated variables. Thus, it becomes possible to analyse without loss of any information about dependent and explanatory variables (Akpolat, 2014). Below is the discussion of the individual techniques.

The FMOLS method produces reliable estimates for small sample size and provides a check for robustness of the results. The FMOLS method was originally introduced and developed by Philips and Hansen (1990) for estimating a single cointegrating relationship that has a combination of I(1). The FMOLS method has an advantage over the Engle-Granger (EG) techniques in introducing appropriate correction to overcome the inference problem in EG method and, hence the t-statistic for long run estimates is valid (Himansu, 2007). The FMOLS method utilises Kernal estimators of the nuisance parameters that affect the asymptotic distribution of the ordinary least squares (OLS) estimator. In order to achieve asymptotic efficiency, this technique modifies least squares to account for serial correlation effects and test for the endogeneity in the regressors that result from the existence of cointegration relationship (Rukhsana & Shahbaz, 2008). The panel FMOLS estimator for  $\beta$  estimator can be expressed as follows:

$$\beta_{NT}^{*} = N^{-1} \sum_{t=1}^{N} (\sum_{t=1}^{T} (X_{it} - \bar{X}_{i})^{2})^{-1}$$

$$X(\sum_{t=1}^{T} (X_{it} - \bar{X}_{i})^{2} Y_{it}^{*} - T\hat{\tau}_{i})$$

$$F_{it}^{*} = (Y_{it} - \bar{Y}_{i}) - \frac{\hat{L}_{21i}}{\hat{L}_{22i}} \Delta X_{it'}$$

$$6.54$$

Where

$$\hat{\tau}_{i} = \hat{\Gamma}_{21i} + \Omega_{21i}^{0} - \frac{\hat{L}_{21i}}{\hat{L}_{22i}} \left( \hat{\Gamma}_{22i} - \Omega_{22i}^{0} \right)$$

$$6.55$$

Where,  $\Omega_i = \Omega_i^0 + \Gamma_i + \Gamma_i'$  shows long run covariance matrix where  $\Omega_i^0$  is the contemporaneous covariance and  $\Gamma_i$  is a weighted sum of covariances.  $L_i$  is the lower triangular in the decomposition of  $\Omega_i$ . Below is a discussion of the panel DOLS technique.

Pedroni (2001) constructed a between-dimension group-mean panel DOLS estimator by augmenting the cointegrating regression with lead and lagged differences of the regressor to control for the endogenous feedback effect. Panel DOLS estimator is constructed as follows:

$$Y_{it} = \alpha_i + \beta_i X_{it} + \sum_{K=-Pi}^{\rho_i} \gamma_{ik} \Delta X_{it-K} + \varepsilon_{it}$$

$$6.56$$

Where  $P_i$  and  $-P_i$  are lagged and lead values. According to this model, there is no dependence relationship between cross-sections (Akpolat, 2014).  $\beta_i$  is DOLS estimator obtained from *i*th unit in panel and can be expressed as follows:

$$\beta_i^* = N^{-1} \sum_{i=1}^N (\sum_{t=1}^T Z_{it} Z_{it}')^{-1} (\sum_{t=1}^T Z_{it} Y_{it}^*)$$
6.57

Where  $Z_{it} = (X_{it} - X_i, \Delta X_{it-P,\dots}, \Delta X_{it+P})$  is the vector of regressors in 2(p+1)X1 dimension. The group-mean panel DOLS estimator is estimated by obtaining arithmetic mean of cointegration coefficients and is shown as:

$$\hat{\beta} = N^{-1} \sum_{i=1}^{N} \hat{\beta}_i$$
6.58

Where  $\hat{\beta}_i$  is the estimated coefficient obtained from DOLS for each cross-section. Group-mean panel DOLS t-statistics is estimated as follows:

$$t_{\hat{\beta}} = N^{-1/2} \sum_{i=1}^{N} \hat{\beta}_i$$
 6.59

Where  $t_{\hat{\beta}_t}$  is t-statistic of each coefficient obtained from DOLS for each cross section (Pedroni, 2001; Nazlioglu, 2010).

This study adopted the fully modified ordinary least squares and dynamic ordinary least squares techniques to test for cointegration following from the studies conducted by Akpolat (2014), Kurtovic *et al.* (2015) and Mitic *et al.* (2017). The models exploited are indicated as follows:

$$LGDP_{it} = \alpha_{1i} + LFDI_{it} + \alpha_{2i}HC_{it} + \alpha_{3i}PC_{it} + \alpha_{4i}HC_{it} + \alpha_{5i}GE_{it} + \alpha_{6i}E_{it} + \alpha_{7i}AL_{it}$$
6.60

$$EC_{it} = \alpha_{1i} + LFDI_{it} + \alpha_{2i}HC_{it} + \alpha_{3i}PC_{it} + \alpha_{4i}HC_{it} + \alpha_{5i}GE_{it} + \alpha_{6i}E_{it} + \alpha_{7i}AL_{it}$$
6.61

$$UN_{it} = \alpha_{1i} + LFDI_{it} + \alpha_{2i}HC_{it} + \alpha_{3i}PC_{it} + \alpha_{4i}HC_{it} + \alpha_{5i}GE_{it} + \alpha_{6i}E_{it} + \alpha_{7i}AL_{it}$$
6.62

$$EM_{it} = \alpha_{1i} + LFDI_{it} + \alpha_{2i}HC_{it} + \alpha_{3i}PC_{it} + \alpha_{4i}HC_{it} + \alpha_{5i}GE_{it} + \alpha_{6i}E_{it} + \alpha_{7i}AL_{it}$$
6.63

$$(i = 1, 2, 3, \dots, N); (t = 1, 2, 3, \dots, T).$$

Where  $LGDP_{it}$  is the natural logarithms of gross domestic product,  $LFDI_{it}$  is the natural logarithms of foreign direct investment,  $HC_{it}$  is the human capital,  $PC_{it}$  is the physical capital,  $HC_{it}$  is the household consumption,  $GE_{it}$  is the government expenditure,  $E_{it}$  is the exports,  $AL_{it}$  is the arable land,  $EC_{it}$  is the economic complexity,  $UN_{it}$  is the unemployment and  $EM_{it}$  is the employment.

To investigate whether there is a long run relationship between the variables. The study can reject the null hypothesis of no cointegration in the case of panel ADF statistic, and panel PP-statistic, alternatively on the group PP-statistic, and group ADF-statistic cannot reject the null hypothesis of no cointegration. Based on the significance of panel statistics and group statistics at the level of 5 percent, the study rejects the null hypothesis of no cointegration and alternatively greater than 5 percent, and it cannot reject the null hypothesis of no cointegration (Kurtovic *et al.*, 2015). The next section discusses the granger causality test.

#### 6.6 GRANGER CAUSALITY

In the pair wise granger causality test, two variables are usually tested together with an expectation of either these results: unidirectional causality, bidirectional causality and no causality. Granger causality is computed by running bivariate regressions, in a panel data that takes the form:

$$Y_{it} = \alpha_{0t} + \alpha_{1t}Y_{it-1} + \dots + \alpha_{kt}Y_{it-k} + \beta_{jt}X_{it-1} + \dots + \beta_{kt}X_{it-k} + v_{it}$$
  
$$X_{it} = \alpha_{0t} + \alpha_{1t}X_{it-1} + \dots + \alpha_{kt}X_{it-k} + \beta_{it}Y_{it-1} + \dots + \beta_{kt}Y_{it-k} + v_{it}$$
  
6.64

Where t denotes the time period dimension of the panel, and i denotes the crosssectional dimension. The different forms of panel causality test differ on the assumptions made about the homogeneity of the coefficients across section (Revalthy and Paramasivam, 2018).

This research follows the studies by Maigida (2015) and Revalthy and Paramasivam (2018) and Cervantes, Lopez and Rambaud (2019) to employ the granger causality
approaches. The research employs Stacked test and Dumitrescu-Hurlin causality test. Below is the discussion of both tests.

Stacked (common coefficients) causality test by Granger (1969) treats the panel data set as one large stacked set of data without taking a lagged value of one cross section to the next cross section. This approach assumes that all coefficients are same across all cross sections (common coefficients). The model is represented as follows:

$$\alpha 0_i = \alpha 0_j, \alpha 1_i = \alpha 1_j, \alpha 2_i = \alpha 2_j \dots \alpha m_i = \alpha m_j \quad \forall_{i,j}$$

$$\beta_{0i} = \beta_{0j}, \beta_{1i} = \beta_{1j}, \beta_{2i} = \beta_{2j}, \dots, \beta_{mi} = \beta_{mj}, \forall_{i,j}$$
6.65

Where  $\alpha$  and  $\beta$  represents the common coefficients of the variables. The Stacked common coefficient causality test does not reject the null hypothesis of no causality when the probability value is > 0.05 percent level of significance. Alternatively, it rejects the null hypothesis of no granger causality when the probability value is < 0.05 percent level of significance.

Dumitrescu-Hurlin (Heterogeneous or unequal coefficients) panel causality test was developed by Dumitrescu and Hurlin (2012). It allows all coefficients to be different or heterogenous across sections. This approach takes into account two different statistics. The first statistic Wbar-statistic takes average of the test statistics, while the Zbar-statistic shows a standard (asymptotic) normal distribution. These two statistics provide the standardised version of the statistics and is easier to compute. The Dumitrescu-Hurlin test is represented as follows:

 $\alpha_{0i} \neq \alpha_{0j}, \alpha_{1i} \neq \alpha_{1j}, \dots, \alpha_{mi} \neq \alpha_{mj}, \forall_{i,j}$ 

$$\beta_{0i} \neq \beta_{0j}, \beta_{1i} \neq \beta_{1j}, \beta_{2i} \neq \beta_{2j}, \dots \dots, \beta_{mi} \neq \beta_{mj}, \forall_{i,j}$$

$$6.66$$

Where  $\alpha$  and  $\beta$  represents the heterogeneous or unequal coefficients of the variables. The null hypothesis of no granger causality cannot be rejected when the p-value is greater than 5 percent level of significance. Alternatively, it can be rejected when the p-value is less than 5 percent level of significance.

This research employs both Stacked and Dumitrescu-Hurlin causality tests to examine the granger causality in the variables under review. The models are represented as follows:

$$LGDP_{it} = \alpha_{10} + \alpha_{11}LFDI_{it-1} + \alpha_{12}HC_{it-1} + \alpha_{13}PC_{it-1} + \alpha_{14}HC_{it-1} + \alpha_{15}EX_{it-1} + \alpha_{16}AL_{it-1} + \alpha_{17}GE_{it-1} + \nu_{1it}$$

$$6.67$$

$$EM_{it} = \alpha_{20} + \alpha_{21}LFDI_{it-1} + \alpha_{22}HC_{it-1} + \alpha_{23}PC_{it-1} + \alpha_{24}HC_{it-1} + \alpha_{25}EX_{it-1} + \alpha_{26}AL_{it-1} + \alpha_{27}GE_{it-1} + \nu_{2it}$$

$$6.68$$

$$UN_{it} = \alpha_{30} + \alpha_{31}LFDI_{it-1} + \alpha_{32}HC_{it-1} + \alpha_{33}PC_{it-1} + \alpha_{34}HC_{it-1} + \alpha_{35}EX_{it-1} + \alpha_{36}AL_{it-1} + \alpha_{37}GE_{it-1} + v_{3it}$$

$$6.69$$

$$EC_{it} = \alpha_{40} + \alpha_{41}LFDI_{it-1} + \alpha_{42}HC_{it-1} + \alpha_{43}PC_{it-1} + \alpha_{44}HC_{it-1} + \alpha_{45}EX_{it-1} + \alpha_{46}AL_{it-1} + \alpha_{47}GE_{it-1} + v_{4it}$$
6.70

Where  $LGDP_{it}$ ,  $EM_{it}$ ,  $UN_{it}$  and  $EC_{it}$  are dependent variables and represent logarithms of gross domestic product, employment, unemployment and economic complexity respectively.  $LFDI_{it}$ ,  $HC_{it}$ ,  $PC_{it}$ ,  $HC_{it}$ ,  $EX_{it}$ ,  $AL_{it}$ ,  $GE_{it}$  are explanatory variables and they represent logarithms of foreign direct investment, human capital, physical capital, household consumption, exports, arable land and government expenditure respectively.  $v_{it}$  represent error term. This research does not look for causality among other explanatory variables. Therefore, the causality is only tested between foreign direct investment and all dependent variables.

#### 6.7 SUMMARY

The chapter discussed the methodology used by this research. The model specification, data source and variable description, unit root, cointegration and granger causality were all discussed in this research.

The study examines the relationship between foreign direct investment and economic growth for the period of 1997 to 2016 in South Africa. This research is based on the endogenous growth model. In addition, the research follows the study by Probhakar *et al.* (2015), Agrawal (2015) and Haydaroglu (2016). The data used in this research were collected from different sources. For instance, the gross domestic product (GDP) and foreign direct investment (FDI) were retrieved from the South African Reserve Bank (SARB) database and exports, unemployment, employment, economic complexity, human capital, physical capital, household consumption and government expenditure were sourced from Penn World Table. Only Arable land was sourced from World Bank database.

The study employed panel unit root tests Levin, Lin and Chin (LLC). This is more powerful than performing individual unit root tests for each cross section. In addition, the Im, Pesaran and Shin (IPS) panel test was used. This test assumes that there is heterogeneity for each unit in a dynamic panel and thus corrects any serial correlation.

In addition, the research employed the cointegration tests. First, the study employed Kao residual based cointegration test. Kao (1999) represents DF and ADF type tests for the null hypothesis of no cointegration in panel data in the special case where cointegration vectors are homogeneous between individuals (different intercept, common slopes). In addition, the study employed the FMOLS and DOLS cointegration tests.

Lastly, the research employed pair wise granger causality tests. Stacked (common coefficient) and Dumitrescu-Hurlin (heterogeneous or unequal coefficients) panel causality tests. This research followed the study by Maigida (2015), Revalthy *et al.* (2018) and Lopez *et al.* (2019). Chapter Seven focuses on the analysis and interpretation of the results and it presents the empirical findings of this research.

### **CHAPTER 7**

### **ESTIMATION AND DISCUSSION OF RESULTS**

## 7.1 INTRODUCTION

The chapter presents the estimation results between economic growth, employment, economic complexity and unemployment, and foreign direct investment inflows in private, bank and total sectors. The main objective of the study was to determine the behaviour of South Africa's economic growth towards inflows of foreign direct investment from Brazil, Russia, India and China (BRIC) countries. (See chapter one.) The study period is from 1997 to 2016. However, the choice of the period of data is because of the limited data available in the South African Reserve Bank (SARB database on FDI inflows for BRICs economies.

This chapter starts the descriptive statistics, which is a summary statistic that quantitatively describes or summarises features from a collection of the data. The main variables, namely foreign direct investment and economic growth have been converted into logarithmic form. Logarithmic transformations are convenient means of transforming a highly skewed variable into one that is approximately normal and of reducing the heteroscedasticity. This is followed by the discussion of the correlation matrix, which shows the correlation coefficients between the sets of variables used in the study. In addition, the study employs panel data unit root tests through Levin, Lin, Chu (LLC) and Im, Pesaran, Shin (IPS) to detect if all the variables are stationary or free from unit roots.

Furthermore, the study employs panel cointegration tests through the kao test, fully modified least squares (FMOLS) and Dynamic ordinary least squares (DOLS) tests, to determine if there is an existence of cointegration between the variables under review. Lastly, the study also employs granger causality tests through Stacked and Dumistrescu Hurlin tests to examine if there is an existence of causality between the logarithm economic growth, employment, economic complexity and unemployment, and foreign direct investment inflows.

## 7.2 DESCRIPTIVE STATISTICS

The study results show that the private foreign direct investment inflow is significant. The country's private FDI inflows are relatively low. The results prove that there is a limited intra-BRICS FDI flows (UNCTAD, 2013). India and China dominate in the BRICS group. For instance, major Indian investors in South Africa include TATA (automobile, hospitality, and ferrochrome plant), UB group (breweries, hospitality), Mahindra (automobile) and several pharmaceutical companies, including Ranboxy and CIPLA as well as IT companies and some investments in the mining sector (HCI, 2017).

China had 140-medium sized or large Chinese companies in South Africa with a combined investment of US\$ 13 billion, employing around 30 000 South Africans during the 2014/15 financial year. The Chinese investment seems to be insufficient because the descriptive results show relatively low levels of foreign direct investment. Chinese firms in South Africa include Hisense, Phalabora mining company and Hebei Jidong Development Group Cement Plant (Yansong, 2016). The additional companies are FAW, Beijing Automobile International Corporation (BAIC) (Manda, 2018). Moreover, private foreign direct investment shows greater average compared to bank foreign direct investment in the country. The poor performance of the banking sector, inter alia, could be due to restriction to receive banking licence to operate, which is identified as the cause of failure to provide banking services to the masses and adversely affect the bank foreign direct investment inflows (Ngalawa, 2014). Economic growth shows relative low mean during the period under review. The result for this could originate, inter alia, from 2008/09 global financial crisis, which left many countries under difficult financial stress. In addition, the ruling African National Congress' corruption has had adverse effects on employment for South Africans. As the result, average value for employment shows relatively low value.

Exports performance is also relatively low. Hausamann and Klinger (2006) ascribe South Africa's poor export performance to the country's lagging structural transformation that has resulted in an overreliance on commodities to achieve export growth. The arable land shows relative mean value. Arable land (% of land area) in South Africa was reported to be at 10.3 percent in 2016 (World Bank, 2020). Government expenditure shows a very low average during the period under study, which is good for the economy. By contrast, household consumption shows relatively low average value. This could be due to decline in household income. Human capital shows greater average value than physical capital in the country. These show that South Africa is more human capital intensive than physical capital intensive.

Unemployment shows a relatively high average value, which some research shows is a result of the deliberate exclusion of black people from the education system and from skilled occupations under apartheid (GCIS, 2020).

As indicated in Table 7.1 below, results further show a mean of unemployment that is above 24, reflecting historically high levels of unemployment experienced in South Africa. The reason for the results, among other things, is that the majority in the South African population have lower skill levels. Duplesis and Smith (2007) explain that employment in South Africa has fallen due to the relative increase in demand for skilled labour, which implies a decrease in the demand for unskilled labour with the drive to improve its international competitive position. Lastly, economic complexity shows an average of 0.36. Therefore, South Africa is ranked second among BRICS countries. Brazil has recorded economic complexity of 0.24, Russia 0.24, India 0.32 and China 1.30 (Routley, 2019).

| Variables  | Mean    | Max     | Min     | Std. Dev. | Jarque- | Probability |  |
|--|---------|---------|---------|-----------|---------|-------------|--|
|  |         |         |         |           | Bera    | _           |  |
| LFDI_Private   | 5.9628  | 9.9032  | 1.0986  | 2.1066    | 2.6080  | 0.2714      |  |
| LFDI_Bank  | 3.4182  | 5.4815  | 2.0554  | 1.1578    | 5.4508  | 0.0655*     |  |
| LLFDI_Total  | 6.7109  | 11.2606 | 1.7917  | 2.1744    | 1.5112  | 0.4697      |  |
| LGDP   | 13.1495 | 13.3989 | 12.8240 | 0.2041    | 8.1621  | 0.0168**    |  |
| Exports  | 0.1575  | 0.2370  | 0.1013  | 0.036     | 3.2106  | 0.2008      |  |
| Employment   | 14.8248 | 17.6003 | 12.9334 | 1.4341    | 6.0774  | 0.0478**    |  |
| Arable Land  | 10.7229 | 11.3858 | 9.9192  | 0.4741    | 8.2180  | 0.0164**    |  |
| Government   | 0.1644  | 0.2084  | 0.1343  | 0.0274    | 7.6261  | 0.0220**    |  |
| expenditure  |         |         |         |           |         |             |  |
| Household  | 0.6382  | 0.6840  | 0.5976  | 0.0306    | 7.3798  | 0.0249**    |  |
| consumption  |         |         |         |           |         |             |  |
| Human capital  | 2.3638  | 2.7629  | 2.0308  | 0.2358    | 5.9501  | 0.0510*     |  |
| Physical capital   | 0.0285  | 0.0418  | 0.0192  | 0.0093    | 11.3653 | 0.0034***   |  |
| Unemployment   | 24.5445 | 27.1800 | 22.3300 | 1.3993    | 1.6796  | 0.4317      |  |
| Economic   | 0.36664 | 1.1710  | -0.1512 | 0.2988    | 4.7530  | 0.0928*     |  |
| complexity   |         |         |         |           |         |             |  |
| "***" "**" " *" represents significance at 1% 5% and 10% levels respectively |         |         |         |           |         |             |  |

## Table 7.1: Descriptive statistics

', "\*\*", " \*" represents significance at 1%, 5% and 10% levels respectively

Source: Author's own computation

## 7.3 CORRELATION MATRIX

The correction matrix in Table 7.2 below shows the expected signs in the actual regression estimates. Economic growth shows a positive sign with foreign direct

investment and there is no multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity benchmark. Employment also shows a positive sign with foreign direct investment and no multicollinearity found between the variables because their coefficients are below the 0.85 multicollinearity benchmark. Economic complexity also shows positive sign with foreign direct investment and there is no multicollinearity evidence between the variables since their coefficients are below the 0.85 multicollinearity benchmark. Finally, unemployment shows a positive sign with foreign direct investment and there is no multicollinearity benchmark. Finally, unemployment shows a positive sign with foreign direct investment and there is no multicollinearity benchmark. Finally, unemployment shows a positive sign with foreign direct investment and there is no multicollinearity benchmark. Finally, unemployment shows a positive sign with foreign direct investment and there is no multicollinearity benchmark. Finally, unemployment shows a positive sign with foreign direct investment and there is no multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity between the variables since their coefficients are below the 0.85 multicollinearity benchmark.

## Table 7.2: Correlation matrix

|     | GDP     | EM     | EC      | UN      | F-P     | F-B     | F-T    | HC      | PC      | Н       | GE     | EX      | AL      |
|-----|---------|--------|---------|---------|---------|---------|--------|---------|---------|---------|--------|---------|---------|
| GDP | 1.0000  | 0.9195 | -0.1547 | -0.0752 | 0.3721  | 0.3457  | 0.3707 | 0.9708  | 0.8531  | -0.9519 | -      | 0.8483  | -0.9512 |
|     |         |        |         |         |         |         |        |         |         |         | 0.9257 |         |         |
| EM  | 0.9195  | 1.0000 | -0.1812 | 0.0518  | 0.4137  | 0.3667  | 0.3975 | 0.9627  | 0.8822  | -0.8845 | 0.9325 | 0.7096  | -0.8325 |
| EC  | -0.1547 | -      | 1.0000  | -0.0682 | 0.4223  | 0.6820  | 0.6612 | -0.1867 | -0.2105 | 0.1812  | 0.3090 | -0.1366 | 0.1403  |
|     |         | 0.1812 |         |         |         |         |        |         |         |         |        |         |         |
| UN  | -0.0752 | 0.0518 | -0.0682 | 1.0000  | 0.1089  | 0.0634  | 0.0771 | 0.0748  | 0.1154  | -0.0823 | 0.1103 | -0.1363 | 0.2067  |
| F-P | 0.3721  | 0.4137 | 0.4223  | 0.1089  | 1.0000  | 0.6968  | 0.8034 | 0.4216  | 0.3969  | -0.3740 | 0.8902 | 0.2746  | -0.3195 |
| F-B | 0.3457  | 0.3667 | 0.6820  | 0.0634  | 0.6968  | 1.0000  | 0.9868 | 0.3814  | 0.3993  | -0.3739 | 0.7764 | 0.2954  | -0.3182 |
| F-T | 0.3707  | 0.3975 | 0.6612  | 0.0771  | 0.8034  | 0.9868  | 1.0000 | 0.4115  | 0.4208  | -0.3945 | 0.8510 | 0.3070  | -0.3360 |
| HC  | 0.9708  | 0.9627 | -0.1867 | 0.0748  | 0.4216  | 0.3814  | 0.4115 | 1.0000  | 0.9306  | -0.9623 | 0.9840 | 0.8115  | -0.9041 |
| PC  | 0.8531  | 0.8822 | -0.2105 | 0.1154  | 0.3969  | 0.3993  | 0.4208 | 0.9306  | 1.0000  | -0.9220 | 0.9587 | 0.8028  | -0.8306 |
| HO  | -0.9583 | -      | 0.1812  | -0.0823 | -0.3740 | -0.3739 | -      | -0.9623 | -0.9220 | 1.0000  | 0.9420 | -0.8336 | 0.9072  |
|     |         | 0.8845 |         |         |         |         | 0.3945 |         |         |         |        |         |         |
| GE  | 0.9257  | 0.9325 | 0.3090  | 0.1103  | 0.8902  | 0.7764  | 0.8510 | 0.9840  | 0.9587  | 0.9420  | 1.0000 | 0.7581  | -0.8428 |
| EX  | 0.8483  | 0.7096 | -0.1366 | -0.1363 | 0.2746  | 0.2954  | 0.3070 | 0.8115  | 0.8028  | -0.8336 | 0.7581 | 1.0000  | -0.8812 |
| AL  | -0.9512 | -      | 0.1403  | 0.2067  | -0.3195 | -0.3182 | -      | -0.9041 | -0.8306 | 0.9072  | -      | -0.8812 | 1.0000  |
|     |         | 0.8325 |         |         |         |         | 0.3360 |         |         |         | 0.8428 |         |         |

Source: Author's own computation

## 7.4 UNIT ROOT TESTS

This section presents the results of stationarity. It is important to check the variables for stationarity to avoid spurious results. In addition, the purpose of checking for stationarity is to make sure that none of the time series is I(2) or higher. This research performed the unit root tests with an intercept and intercept plus trend. Each unit root test shows the results of intercept and of intercept plus trend. The results are presented in tables 7.3 and 7.4 below.

Table 7.3 shows the results in levels. The economic growth, foreign direct investment, human capital, physical capital, government expenditure and exports null hypothesis of stationarity cannot be rejected. Yet, other variables have unit root.

| Variables        | LLC       |           |                   |            |  |  |
|------------------|-----------|-----------|-------------------|------------|--|--|
|                  | Inte      | rcept     | Interce           | ot + trend |  |  |
|                  | estimates | p-value   | estimates         | p-value    |  |  |
| LGDP             | -3.2476   | 0.0006*** | 2.5663            | 0.9949     |  |  |
| LFDI_private     | 1.1988    | 0.8847    | -0.1805           | 0.4284     |  |  |
| LFDI_Banks       | 4.0865    | 1.0000    | 1.6501            | 0.9505     |  |  |
| LFDI_total       | 0.8563    | 0.8041    | -2.0085           | 0.0223**   |  |  |
| FDI_private_SQ   | 0.1127    | 0.5449    | -2.0223           | 0.0216**   |  |  |
| FDI_Banks_SQ     | 2.7472    | 0.9970    | 0.4478            | 0.6729     |  |  |
| FDI_total_SQ     | -0.5763   | 0.2822    | -2.5275           | 0.0057***  |  |  |
| Employment       | 3.3222    | 0.9994    | 1.3905            | 0.9178     |  |  |
| Human capital    | 1.5840    | 0.9434    | -5.1715           | 0.0000***  |  |  |
| Physical capital | -2.4869   | 0.0064*** | -5.1033           | 0.0000***  |  |  |
| Household        | -1.4581   | 0.0724*   | 2.6996            | 0.9965     |  |  |
| consumption      |           |           |                   |            |  |  |
| Government       | 0.8385    | 0.7991    | -2.7486           | 0.0030***  |  |  |
| expenditure      |           |           |                   |            |  |  |
| Exports          | -2.6357   | 0.0042*** | -2.3934           | 0.0083***  |  |  |
| Arable land      | -0.6117   | 0.2703    | 2.2029            | 0.9862     |  |  |
| Unemployment     | -0.4444   | 0.3284    | 1.0929            | 0.8628     |  |  |
| Economic         | -0.3836   | 0.3506    | 0.8433            | 0.8005     |  |  |
| complexity       |           |           |                   |            |  |  |
| Variables        |           |           | PS                |            |  |  |
|                  | Inte      | rcept     | Intercept + trend |            |  |  |
|                  | estimate  | p-value   | estimate          | p-value    |  |  |
| LGDP             | -0.3946   | 0.3466    | 2.4512            | 0.9929     |  |  |
| LFDI_private     | 1.5804    | 0.9430    | -0.4686           | 0.3197     |  |  |
| LFDI_Banks       | 4.4237    | 1.0000    | 2.2369            | 0.9874     |  |  |
| LFDI_total       | 1.3236    | 0.9072    | -1.1451           | 0.1261     |  |  |
| FDI_private_SQ   | 1.0101    | 0.8438    | -0.8431           | 0.1996     |  |  |
| FDI_Banks_SQ     | 3.2978    | 0.9995    | 0.9610            | 0.8317     |  |  |

 Table 7.3: Unit root test results: In levels

| FDI_total_SQ  | 0.3382  | 0.6324  | -1.3862 | 0.0828*   |  |  |
|---|---------|---------|---------|-----------|--|--|
| Employment  | 4.5060  | 1.0000  | 1.1244  | 0.8696    |  |  |
| Human capital   | 4.0885  | 1.0000  | -5.2659 | 0.0000*** |  |  |
| Physical capital  | -0.5348 | 0.2964  | -3.8409 | 0.0001*** |  |  |
| Household   | -0.6543 | 0.7435  | 0.5619  | 0.7129    |  |  |
| consumption   |         |         |         |           |  |  |
| Government  | 3.0429  | 0.9988  | -1.4081 | 0.0795*   |  |  |
| expenditure   |         |         |         |           |  |  |
| Exports   | -0.7286 | 0.2331  | -0.5156 | 0.3030    |  |  |
| Arable land   | 1.0125  | 0.8444  | 1.3096  | 0.9048    |  |  |
| Unemployment  | -1.5223 | 0.0640* | 0.1968  | 0.5780    |  |  |
| Economic  | 1.0076  | 0.8432  | -0.0207 | 0.4917    |  |  |
| complexity  |         |         |         |           |  |  |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |         |         |         |           |  |  |

Table 7.4 below shows the results in first difference. All the variables null of stationarity cannot be rejected. That means the variables are good to be tested for cointegration, which is discussed next.

| Variables       | LLC       |           |                   |            |  |  |
|-----------------|-----------|-----------|-------------------|------------|--|--|
|                 | Inter     | cept      | Interce           | pt + trend |  |  |
|                 | estimates | p-value   | estimates         | p-value    |  |  |
| LGDP            | -3.2947   | 0.0005*** | -5.5204           | 0.0000***  |  |  |
| LFDI_private    | -2.4735   | 0.0067*** | -1.6323           | 0.0513*    |  |  |
| LFDI_Banks      | 1.0050    | 0.8426    | 0.6409            | 0.7392     |  |  |
| LFDI_total      | -3.0961   | 0.0010*** | -2.4234           | 0.0077***  |  |  |
| FDI_private_SQ  | -5.1139   | 0.0000*** | -4.7874           | 0.0000***  |  |  |
| FDI_Banks_SQ    | 0.2531    | 0.5999    | 1.6659            | 0.9521     |  |  |
| FDI_total_SQ    | -5.1574   | 0.0000*** | -4.2915           | 0.0000***  |  |  |
| Employment      | -3.1569   | 0.0008*** | -2.4207           | 0.0077***  |  |  |
| Human capital   | -4.1447   | 0.0000*** | -3.6795           | 0.0001***  |  |  |
| Physical capita | -2.3028   | 0.0106**  | -0.5398           | 0.2946     |  |  |
| Household       | -1.3811   | 0.0836*   | -0.7472           | 0.2275     |  |  |
| consumption     |           |           |                   |            |  |  |
| Government      | -6.9721   | 0.0000*** | -6.6660           | 0.0000***  |  |  |
| expenditure     |           |           |                   |            |  |  |
| Exports         | -5.8476   | 0.0000*** | -5.2967           | 0.0000***  |  |  |
| Arable land     | -4.4474   | 0.0000*** | -4.0710           | 0.0000***  |  |  |
| Unemployment    | -4.7606   | 0.0000*** | -5.3035           | 0.0000***  |  |  |
| Economic        | -1.5614   | 0.0592*   | -0.6860           | 0.2464     |  |  |
| complexity      |           |           |                   |            |  |  |
| Variables       | IPS       |           |                   |            |  |  |
|                 | Inter     | cept      | Intercept + trend |            |  |  |
|                 | estimate  | p-value   | estimate          | p-value    |  |  |
| LGDP            | -2.2866   | 0.0101**  | -2.5593           | 0.0052***  |  |  |

## Table 7.4: Unit root test results: In first Difference

| LFDI private  | -4.7056 | 0.0000*** | -4.1100 | 0.0000*** |  |  |  |
|---|---------|-----------|---------|-----------|--|--|--|
| LFDI_Banks  | -0.7708 | 0.2204*   | -1.0609 | 0.1444    |  |  |  |
| LFDI_total  | -4.9501 | 0.0000*** | -1.9795 | 0.0239**  |  |  |  |
| FDI_private_SQ  | -4.8003 | 0.0000*** | -4.4775 | 0.0000*** |  |  |  |
| FDI_Banks_SQ  | -1.1948 | 0.1161*   | -0.9772 | 0.1642    |  |  |  |
| FDI_total_SQ  | -4.6745 | 0.0000*** | -3.6113 | 0.0002*** |  |  |  |
| Employment  | -2.5969 | 0.0047*** | -0.3725 | 0.3547    |  |  |  |
| Human capital   | -2.9172 | 0.0018*** | -0.3725 | 0.3547    |  |  |  |
| Physical capital  | -1.7944 | 0.0364**  | -0.0275 | 0.4890    |  |  |  |
| Household   | -2.3073 | 0.0105**  | -1.0483 | 0.1472    |  |  |  |
| consumption   |         |           |         |           |  |  |  |
| Government  | -4.8500 | 0.0000*** | -4.2570 | 0.0000*** |  |  |  |
| expenditure   |         |           |         |           |  |  |  |
| Exports   | -4.8726 | 0.0000*** | -3.7084 | 0.0001*** |  |  |  |
| Arable land   | -3.0825 | 0.0010*** | -1.8140 | 0.0348**  |  |  |  |
| Unemployment  | -4.0686 | 0.0000*** | -2.7150 | 0.0033*** |  |  |  |
| Economic  | -2.8023 | 0.0025*** | -0.7889 | 0.2151    |  |  |  |
| complexity  |         |           |         |           |  |  |  |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |         |           |         |           |  |  |  |

## 7.5 COINTEGRATION TESTS

This section presents the Koa test results for cointegration and sensitivity analysis in tables 7.5 and 7.6 respectively. If the p-value is less or equal to 5 percent level of significance, the null hypothesis of cointegration cannot be rejected. This section shows the results of four regressions, namely economic growth and foreign direct investment; employment and foreign direct investment; economic complexity and foreign direct investment, and unemployment and foreign direct investment.

Results in Table 7.5 below show that there is cointegration between economic growth and foreign direct investment. In addition, cointegration is found between employment and foreign direct investment. Cointegration was aslo found between economic complexity and foreign direct investment. In addition, the results show cointegration between unemployment and foreign direct investment. These results are not the actual cointegration, but they show that the regressions are good to test for long run relationship between the dependent and independent variables.

# Table 7.5: Estimates private, bank, total FDI for cointegration

| TEST FOR   | DEPENDENT VARIABLE  |           |              |           |  |  |
|--|---------------------|-----------|--------------|-----------|--|--|
| PRIVATE FDI  | Log ((              | GDP)      | EMPLOYMENT   |           |  |  |
|  | estimate            | p-value   | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -3.1560             | 0.0008*** | -12.2107     | 0.0000*** |  |  |
| $R^2$  | 0.60                | 86        | 0.84         | 35        |  |  |
| Adjusted R <sup>2</sup>  | 0.58                | 802       | 0.35         | 521       |  |  |
| TEST FOR   | ECONOMIC C          | OMPLEXITY | UNEMPLO      | DYMENT    |  |  |
| PRIVATE FDI  | estimate p-value    |           | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -1.6014             | 0.0546**  | -3.7415      | 0.0001*** |  |  |
| R <sup>2</sup>   | 0.15                | 570       | 0.48         | 31        |  |  |
| Adjusted R <sup>2</sup>  | 0.15                | 570       | 0.46         | 72        |  |  |
| TEST FOR BANK  | Log (C              | GDP)      | EMPLO        | MENT      |  |  |
| FDI  | estimate            | p-value   | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -2.9130             | 0.0018*** | -13.8249     | 0.0000*** |  |  |
| R <sup>2</sup>   | 0.6150              |           | 0.8509       |           |  |  |
| Adjusted R <sup>2</sup>  | 0.5870              |           | 0.8400       |           |  |  |
| TEST FOR BANK  | ECONOMIC C          | OMPLEXITY | UNEMPLOYMENT |           |  |  |
| FDI  | estimate            | p-value   | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -2.5860             | 0.0049*** | -4.3653      | 0.0000*** |  |  |
| R <sup>2</sup>   | 0.22                | 201       | 0.4831       |           |  |  |
| Adjusted R <sup>2</sup>  | 0.22                | 201       | 0.4672       |           |  |  |
| TEST FOR   | Log (C              | GDP)      | EMPLO        | MENT      |  |  |
| TOTAL FDI  | estimate            | p-value   | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -3.1697             | 0.0008*** | -12.8122     | 0.0000*** |  |  |
| R <sup>2</sup>   | 0.61                | 38        | 0.8502       |           |  |  |
| Adjusted R <sup>2</sup>  | 0.58                | 57        | 0.8393       |           |  |  |
| TEST FOR   | ECONOMIC COMPLEXITY |           | UNEMPLO      | DYMENT    |  |  |
| TOTAL FDI  | estimate            | p-value   | estimate     | p-value   |  |  |
| Augmented<br>Dickey Fuller<br>(ADF)  | -2.4425             | 0.0073*** | -3.9439      | 0.0000*** |  |  |
|  | 0.21                | 04        | 0.4831       |           |  |  |
| Adjusted R <sup>2</sup>  | 0.21                | U4        | 0.46         | 0/2       |  |  |
| "***", "**", "*" represents significance at 1%, 5% and 10% levels respectively |                     |           |              |           |  |  |

Source: Author's own computation

Results in Table 7.6 below are different from the ones in Table 7.5 above. They show the sensitivity analysis, which examines nonlinearity in the investigated relationships. The results show that there is nonlinearity between economic growth and squared foreign direct investment. In addition, similar results are found between employment and squared foreign direct investment, economic complexity and squared foreign direct investment, between unemployment and squared foreign direct investment. Like before, these results are not the actual nonlinear cointegrations, but they show that the variables are good to be tested for nonlinear cointegration through estimation techniques.

| TEST FOR                |            | DEPENDE    |            |           |  |  |
|-------------------------|------------|------------|------------|-----------|--|--|
| PRIVATE_SQ              | Log (      | GDP)       | EMPLO      | YMENT     |  |  |
| FDI                     | estimate   | p-value    | estimate   | p-value   |  |  |
| Augmented               | -6.4222    | 0.0000***  | -6.3769    | 0.0000*** |  |  |
| Dickey Fuller           |            |            |            |           |  |  |
| (ADF)                   |            |            |            |           |  |  |
| R <sup>2</sup>          | 0.4        | 488        | 0.55       | 575       |  |  |
| Adjusted R <sup>2</sup> | 0.4        | 407        | 0.55       | 510       |  |  |
| TEST FOR                | ECONOMIC ( | COMPLEXITY | UNEMPL     | OYMENT    |  |  |
| PRIVATE_SQ<br>FDI       | estimate   | p-value    | estimate   | p-value   |  |  |
| Augmented               | -1.2126    | 0.1126     | -5.2144    | 0.0000*** |  |  |
| Dickey Fuller<br>(ADF)  |            |            |            |           |  |  |
| R <sup>2</sup>          | -0.2943    |            | 0.4758     |           |  |  |
| Adjusted R <sup>2</sup> | -0.0768    |            | 0.4681     |           |  |  |
| TEST FOR                | Log (      | GDP)       | EMPLOYMENT |           |  |  |
| BANK_SQ FDI             | estimate   | p-value    | estimate   | p-value   |  |  |
| Augmented               | -6.2098    | 0.0000***  | -6.2525    | 0.0000*** |  |  |
| Dickey Fuller           |            |            |            |           |  |  |
| (ADF)                   |            |            |            |           |  |  |
| R <sup>2</sup>          | 0.4        | 490        | 0.5403     |           |  |  |
| Adjusted R <sup>2</sup> | 0.4        | 412        | 0.53       | 337       |  |  |
| TEST FOR                | ECONOMIC ( |            | UNEMPL     | OYMENT    |  |  |
| BANK_SQ FDI             | estimate   | p-value    | estimate   | p-value   |  |  |
| Augmented               | -2.6442    | 0.0000***  | -6.2591    | 0.0000*** |  |  |
| Dickey Fuller           |            |            |            |           |  |  |
| (ADF)                   |            |            |            |           |  |  |
| R <sup>2</sup>          | 0.2        | 702        | 0.47       | 739       |  |  |
| Adjusted R <sup>2</sup> | 0.2        | 598        | 0.4664     |           |  |  |
|                         | Log (      | GDP)       | EMPLOYMENT |           |  |  |

| TEST FOR   | estimate            | p-value   | estimate     | p-value   |  |
|--|---------------------|-----------|--------------|-----------|--|
| TOTAL_SQ   |                     |           |              |           |  |
| FDI  |                     |           |              |           |  |
| Augmented  | -6.2948             | 0.0000*** | -6.5425      | 0.0000*** |  |
| Dickey Fuller  |                     |           |              |           |  |
| (ADF)  |                     |           |              |           |  |
| R <sup>2</sup>   | 0.4                 | 466       | 0.5570       |           |  |
| Adjusted R <sup>2</sup>  | 0.4                 | 385       | 0.5504       |           |  |
| TEST FOR   | ECONOMIC COMPLEXITY |           | UNEMPLOYMENT |           |  |
| TOTAL_SQ   | estimate            | p-value   | estimate     | p-value   |  |
| FDI  |                     |           |              |           |  |
| Augmented  | -3.1061             | 0.0009*** | -5.8607      | 0.0000*** |  |
| Dickey Fuller  |                     |           |              |           |  |
| (ADF)  |                     |           |              |           |  |
| R <sup>2</sup>   | 0.3021              |           | 0.4733       |           |  |
| Adjusted R <sup>2</sup>  | 0.2                 | 918       | 0.4656       |           |  |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels |                     |           |              |           |  |
| respectively   |                     |           |              |           |  |

## 7.6 COINTEGRATION ESTIMATES

This research employs two cointegration tests, namely the fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS) to determine the existence of long run relationships among the variables. The research employs four regressions, namely economic growth and foreign direct investment (i.e. private sector, banking sector and both sectors) and human capital, physical capital, household consumption, government expenditure, exports, and arable land; employment and foreign direct investment, human capital, physical capital, household consumption, government, human capital, physical capital, household consumption, government, human capital, physical capital, household consumption, government, human capital, physical capital, household consumption, government expenditure, exports, and arable land; economic complexity and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; and unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; and unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; and unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land; and unemployment and foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land. The cointegration test results are presented in tables 7.7; 7.8 and 7.9 below.

Table 7.7 below presents the cointegration results for private FDI and economic growth, employment, economic complexity, and unemployment. The results show that only economic complexity has a significant effect on foreign direct investment. However, this effect is smaller compared to other growth determinants that are included in the regressions. These growth determinants show a positive effect of

human capital on economic growth, which is expected. However, results further show physical capital and household consumption have a negative effect on economic growth. The empirical results between physical capital and economic growth date back to the first growth model (Solow 1956) which tested contribution of physical capital on growth. Early growth accounting results show that physical capital accumulation explains only a small part of total output growth and that the bulk of growth is attributable to TFP (everything else that affects growth other than physical capital) (Garzarelli, 2019). This result was later found to be robust to alternative functional forms for production and different ways of measuring inputs and output (Caseli, 2005). In South Africa, among other things, companies might be in transition to 4<sup>th</sup> industrial revolution, the use of technology intensive than physical capital and that results in negative effect between physical capital and growth.

Furthermore, household spending is one of the fundamental components of gross national product (GNP) and growth and is generally considered to be a major variable in determining a country's growth (Muzindutsi & Mjeso, 2018). However, this research's results found a negative effect, which could be the result of the after effect of the 2008/09 global financial crisis that left many people without jobs. Many South Africans have lost Jobs and that has affected household spending because of loss of income (Muzindutsi & Mjeso, 2018).

Further results on exports show a significant effect on economic growth but negative effect on employment, and insignificant results with economic complexity and unemployment. In addition, results show that government expenditure has a negative influence on employment, yet, it is insignificant for economic growth and economic complexity. The reason for this could be emanating from the corruption of the government of African National Congress (ANC). For instance, the ANC government adopted the growth, employment, redistribution (GEAR) strategy, which was opposed and resented by left-wing parts of the ANC alliance (Muller, 2019). That strategy was largely concerned with reducing the levels of debt the new democratic government inherited from its apartheid predecessors. Furthermore, the left-wing commentators have argued for expansionary fiscal policy. This means increasing government expenditure in the manner proposed is, at best, a very high-risk strategy. With the country's public finances already under strain, an increase in expenditure that does not deliver

significant increases in economic growth and tax collection would lead to a dramatic deterioration in public finances that could cause harm for generations to come (Muller, 2019). The high R-squared mainly for economic growth and employment regressions shows the regression results to have robust explanatory power and, thus, can be considered reliable.

| PANEL A:                | DEPENDENT VARIABLE |           |              |           |  |  |
|-------------------------|--------------------|-----------|--------------|-----------|--|--|
| FMOLS                   | LG                 | OP        | EMPLOYMENT   |           |  |  |
|                         | estimate           | p-value   | estimate     | p-value   |  |  |
| LFDI_private            | 0.0016             | 0.3858    | -0.0015      | 0.3654    |  |  |
| Human capital           | 0.6964             | 0.0000*** | 13.3718      | 0.0000*** |  |  |
| Physical capital        | -9.9473            | 0.0000*** | 42.3274      | 0.0000*** |  |  |
| Household               | -1.3181            | 0.0000*** | 24.4180      | 0.0000*** |  |  |
| consumption             |                    |           |              |           |  |  |
| Government              | 0.4520             | 0.2789    | -42.6452     | 0.0000*** |  |  |
| expenditure             |                    |           |              |           |  |  |
| Exports                 | 0.5373             | 0.0000*** | -5.0957      | 0.0000*** |  |  |
| Arable land             | -0.1227            | 0.0000*** | 0.02357      | 0.0692    |  |  |
| R <sup>2</sup>          | 0.99               | 09        | 0.96         | 632       |  |  |
| Adjusted R <sup>2</sup> | 0.98               | 95        | 0.9575       |           |  |  |
| PANEL A:                | ECONOMIC C         | OMPLEXITY | UNEMPLOYMENT |           |  |  |
| FMOLS                   | estimate           | p-value   | estimate     | p-value   |  |  |
| LFDI_private            | 0.2474             | 0.0429**  | 0.0002       | 0.9526    |  |  |
| Human capital           | -0.2292            | 0.8439    | 7.0682       | 0.0104**  |  |  |
| Physical capital        | -8.2885            | 0.5527    | 66.1347      | 0.0434**  |  |  |
| Household               | -1.8186            | 0.6823    | -41.5212     | 0.0001*** |  |  |
| consumption             |                    |           |              |           |  |  |
| Government              | -4.9530            | 0.6048    | -40.2911     | 0.0718*   |  |  |
| expenditure             |                    |           |              |           |  |  |
| Exports                 | 0.7629             | 0.7037    | 1.2810       | 0.7822    |  |  |
| Arable land             | -0.1196            | 0.5980    | 5.5468       | 0.0000*** |  |  |
| R <sup>2</sup>          | 0.61               | 41        | 0.49         | 950       |  |  |
| Adjusted R <sup>2</sup> | 0.55               | 48        | 0.41         | 173       |  |  |
| PANEL B:                | LGE                | OP        | EMPLO        | YMENT     |  |  |
| DOLS                    | estimate           | p-value   | estimate     | p-value   |  |  |
| LFDI_private            | 0.0006             | 0.7462    | 0.0013       | 0.6039    |  |  |
| Human capital           | 0.6098             | 0.0000*** | 16.0806      | 0.0000*** |  |  |
| Physical capital        | -11.5279           | 0.0000*** | -10.6050     | 0.1568    |  |  |
| Household               | -0.5130            | 0.0033*** | 11.8294      | 0.0005*** |  |  |
| consumption             |                    |           |              |           |  |  |
| Government              | 1.9686             | 0.0000*** | -52.1554     | 0.0000*** |  |  |
| expenditure             |                    |           |              |           |  |  |
| Exports                 | 0.7398             | 0.0000*** | 0.3306       | 0.8016    |  |  |
| Arable land             | -0.1387            | 0.0000*** | 0.4806       | 0.0077*** |  |  |

| Table : | 7.7: | Estimates | for | private | FDI |
|---------|------|-----------|-----|---------|-----|
| iasio   |      |           |     | piirato |     |

| R <sup>2</sup>          | 0.99       | 95        | 0.9941   |           |
|-------------------------|------------|-----------|----------|-----------|
| Adjusted R <sup>2</sup> | 0.99       | 89        | 0.9880   |           |
| PANEL B:                | ECONOMIC C | OMPLEXITY | UNEMPL   | OYMENT    |
| DOLS                    | estimate   | p-value   | estimate | p-value   |
| LFDI_private            | 0.9813     | 0.0475    | 0.0019   | 0.6715    |
| Human capital           | -0.7358    | 0.7083    | -18.3394 | 0.0000*** |
| Physical capital        | -15.3774   | 0.4637    | 347.9535 | 0.0000*** |
| Household               | -6.6087    | 0.4537    | -42.6493 | 0.0018*** |
| consumption             |            |           |          |           |
| Government              | -4.3514    | 0.7397    | 16.1236  | 0.3988    |
| expenditure             |            |           |          |           |
| Exports                 | -0.4004    | 0.9143    | -71.7354 | 0.0000*** |
| Arable land             | -0.3178    | 0.5145    | -1.8142  | 0.0138**  |
| R <sup>2</sup>          | 0.8466     |           | 0.9386   |           |
| Adjusted R <sup>2</sup> | 0.68       | 92        | 0.87     | /55       |

"\*\*\*", "\*\*", "\*" represents significance at 1%, 5% and 10% levels respectively Source: Author's own computation

Table 7.8 below presents the cointegration results for bank FDI. These results show more similarities with private FDI results and few differences. Only economic complexity shows a significant effect on economic growth and not on the other variables. However, this effect is smaller compared to other growth determinants included in the regressions. These growth determinants, however, show a positive effect of human capital and household consumption on economic growth, which is expected. Other interesting results are of exports being positively related with economic growth and unemployment but negatively with employment and insignificantly with economic growth and employment and positively influences unemployment. However, it is insignificant for economic complexity. The high R-squared mainly for economic growth, employment and economic complexity regressions shows that the regressions have strong explanatory power and can be considered reliable.

| PANEL A:                | DEPENDENT VARIABLE |                          |           |           |
|-------------------------|--------------------|--------------------------|-----------|-----------|
| FMOLS                   | LGDP               |                          | EMPL      | OYMENT    |
|                         | estimate           | p-value                  | estimate  | p-value   |
| LFDI_bank               | 0.0035             | 0.5150                   | 0.0025    | 0.6039    |
| Human capital           | 2.8318             | 0.0000***                | 10.9358   | 0.0000*** |
| Physical capital        | -4.7747            | 0.1715                   | 52.0735   | 0.0096*** |
| Household               | 7.4230             | 0.0000***                | 3.6553    | 0.4365    |
| Government              | -7.8620            | 0.0009***                | -45.1282  | 0.0004*** |
| Exports                 | 3 6072             | 0.0000***                | -14 8751  | 0.0000*** |
| Arable land             | 0 2403             | 0.0000***                | -0 4430   | 0 1109    |
| R <sup>2</sup>          | 0.75               | 10                       | 0         | .9372     |
| Adjusted R <sup>2</sup> | 0.70               | 29                       | 0         | .9250     |
| PANEL A:                | ECONOMIC C         |                          | UNEMF     | PLOYMENT  |
| FMOLS                   | estimate           | p-value                  | estimate  | p-value   |
| LFDI bank               | 0.8350             | 0.0001***                | -0.0087   | 0.4204    |
| Human capital           | 0.6205             | 0.6364                   | -4.8918   | 0.1747    |
| Physical capital        | -23.2904           | 0.3186                   | -63.7954  | 0.3135    |
| Household               | -0.9041            | 0.8740                   | -52.8751  | 0.0016*** |
| consumption             |                    |                          |           |           |
| Government              | -4.9512            | 0.7325                   | 71.5764   | 0.0754*   |
| expenditure             |                    |                          |           |           |
| Exports                 | 2.3527             | 0.4407                   | 16.6967   | 0.0494**  |
| Arable land             | 0.0361             | 0.9078                   | 5.3413    | 0.0000*** |
| R <sup>2</sup>          | 0.85               | 546                      | 0         | .3694     |
| Adjusted R <sup>2</sup> | 0.82               | 64                       | 0         | .2473     |
| PÁNEL B:                | LGDP               |                          | EMPL      | OYMENT    |
| DOLS                    | estimate           | p-value                  | estimate  | p-value   |
| LFDI_bank               | -0.0026            | 0.3379                   | 0.0013    | 0.6349    |
| Human capital           | 2.4067             | 0.0000***                | 12.6500   | 0.0000*** |
| Physical capital        | -1.0559            | 3.9652                   | -30.3945  | 0.0096*** |
| Household               | 7.3914             | 0.0000***                | -3.4409   | 0.3214    |
| Government              | -5.3432            | 0.0445**                 | -38.7591  | 0.0000*** |
| Experialitate           | 3 4756             | 0.0000***                | -1 3000   | 0.01/1**  |
| Arable land             | 0.2824             | 0.0000                   | -4.3003   | 0.0141    |
| R <sup>2</sup>          | 0.2024             | 0.000 <del>4</del><br>07 | -0.3074   | 9927      |
| Adjusted R <sup>2</sup> | 0.97               | 58                       | 0.9927    |           |
|                         |                    |                          |           |           |
| DOI S                   |                    |                          | estimate  |           |
| I FDI hank              |                    | 0 0035***                | -7 05F-05 | Ω 0020    |
| Human capital           | 0.0022             | 0.6303                   | -4 2045   | 0.3320    |
| Physical capital        | -20.0232           | 0.1935                   | 436,1946  | 0.0000*** |

## Table 7.8: Estimates for bank FDI

| Household   | -1.0237 | 0.8330 | 21.0136  | 0.2968    |
|---|---------|--------|----------|-----------|
| consumption   |         |        |          |           |
| Government  | -2.7487 | 0.7684 | -39.1418 | 0.3113    |
| expenditure   |         |        |          |           |
| Exports   | 2.3684  | 0.3039 | -50.6046 | 0.0000*** |
| Arable land   | 0.0349  | 0.8857 | 1.4856   | 0.1476    |
| R <sup>2</sup>  | 0.96    | 35     | 0        | .9095     |
| Adjusted R <sup>2</sup>   | 0.92    | 05     | 0        | .8030     |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |         |        |          |           |

Table 7.9 below shows total FDI results and other variables. These results are also similar to private and bank FDI results discussed above. Economic complexity shows a significant effect on foreign direct investment, yet other variables are insignificant. Results further show human capital to be positively related with economic growth, which is expected. However, physical capital and household consumption negatively affect growth. In addition, exports show a positive influence on economic growth but are negatively related with employment. They are insignificant related with economic complexity and unemployment. Other results show that government spending has a negative influence on employment but is insignificant on economic growth, economic complexity and unemployment. The high R-squared for mainly economic growth, employment and economic complexity regressions show that the regressions have strong explanatory power and can be reliable.

| PANEL A:                |            | DEPENDEN  | NT VARIABLE  |           |
|-------------------------|------------|-----------|--------------|-----------|
| FMOLS                   | LG         | OP        | EMPLOYMENT   |           |
|                         | estimate   | p-value   | estimate     | p-value   |
| LFDI_total              | 0.0015     | 0.3721    | -0.0005      | 0.7081    |
| Human capital           | 0.6943     | 0.0000*** | 13.3677      | 0.0000*** |
| Physical capital        | -9.9652    | 0.0000*** | 42.5388      | 0.0000*** |
| Household               | -1.3270    | 0.0000*** | 24.3517      | 0.0000*** |
| consumption             |            |           |              |           |
| Government              | 0.4470     | 0.2783    | -42.8857     | 0.0000*** |
| expenditure             |            |           |              |           |
| Exports                 | 0.5403     | 0.0000*** | -5.0867      | 0.0000*** |
| Arable land             | -0.1230    | 0.0000*** | 0.2341       | 0.0000*** |
| R <sup>2</sup>          | 0.99       | 08        | 0.9631       |           |
| Adjusted R <sup>2</sup> | 0.98       | 94        | 0.9575       |           |
| PANEL A:                | ECONOMIC C | OMPLEXITY | UNEMPLOYMENT |           |
| FMOLS                   | estimate   | p-value   | estimate     | p-value   |
| FDI_total               | 0.4286     | 0.0000*** | -0.0013      | 0.6747    |
| Human capital           | -0.0894    | 0.8919    | 7.0908       | 0.0102**  |

Table 7.9: Estimates for total FDI

| Physical capital  | -14.7354            | 0.0658*   | 64.9989  | 0.0475**  |
|---|---------------------|-----------|----------|-----------|
| Household   | -0.2335             | 0.9256    | -41.3183 | 0.0001*** |
| consumption   |                     |           |          |           |
| Government  | -3.9449             | 0.4640    | -39.8518 | 0.0732    |
| expenditure   |                     |           |          |           |
| Exports   | 0.8391              | 0.4601    | 1.2448   | 0.7882    |
| Arable land   | -0.1206             | 0.3482    | 5.5461   | 0.0000*** |
| R <sup>2</sup>  | 0.84                | 82        | 0        | .4944     |
| Adjusted R <sup>2</sup>   | 0.82                | 49        | 0        | .4167     |
| PANEL B:  | LGI                 | )P        | EMPL     | OYMENT    |
| DOLS  | estimate            | p-value   | estimate | p-value   |
| LFDI_total  | -1.53E-05           | 0.9891    | 0.0006   | 0.6364    |
| Human capital   | 0.6210              | 0.0000*** | 15.8694  | 0.0000*** |
| Physical capital  | -11.4809            | 0.0000*** | -11.6070 | 0.1246    |
| Household   | -0.5343             | 0.0064*** | -11.3036 | 0.0010*** |
| consumption   |                     |           |          |           |
| Government  | 1.8505              | 0.0000*** | -50.8019 | 0.0000*** |
| expenditure   |                     |           |          |           |
| Exports   | 0.7619              | 0.0000*** | 0.1236   | 0.9248    |
| Arable land   | -0.1359             | 0.0000*** | 0.4493   | 0.0124**  |
| R <sup>2</sup>  | 0.99                | 93        | 0        | .9941     |
| Adjusted R <sup>2</sup>   | 0.99                | 87        | 0        | .9881     |
| PANEL B:  | ECONOMIC COMPLEXITY |           | UNEMF    | PLOYMENT  |
| DOLS  | estimate            | p-value   | estimate | p-value   |
| FDI_total   | 0.6530              | 0.0006*** | 0.0001   | 0.9384    |
| Human capital   | 0.0976              | 0.9363    | -19.0030 | 0.0000*** |
| Physical capital  | -17.7100            | 0.1624    | 344.3575 | 0.0000*** |
| Household   | -1.7097             | 0.7505    | -44.6667 | 0.0015*** |
| consumption   |                     |           |          |           |
| Government  | -5.8701             | 0.4617    | 20.9393  | 0.2825    |
| expenditure   |                     |           |          |           |
| Exports   | 0.2677              | 0.9033    | -75.1505 | 0.0000*** |
| Arable land   | -0.2078             | 0.4745    | -1.8719  | 0.0111**  |
| R <sup>2</sup>  | 0.94                | .19       | 0        | .9634     |
| Adjusted R <sup>2</sup>   | 0.88                | 23        | 0        | .9177     |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |                     |           |          |           |

## 7.7 SENSITIVITY ANALYSIS

This section presents results of nonlinearity between economic growth, employment, economic complexity, unemployment and squared foreign direct investment, human capital, physical capital, household consumption, government expenditure, exports, and arable land. Tables 7.10, 7.11 and 7.12 below present these results.

Below, Table 7.10 shows that employment and economic complexity are nonlinear with foreign direct investment and that there is no nonlinearity between unemployment, economic growth and foreign direct investment. For employment, results show that low levels of foreign direct investment (LFDI\_private) adversely affect employment, but at higher levels (FDI private SQ) it is insignificant. For economic complexity, results indicate that low levels of foreign direct investment are insignificant for economic complexity, but at higher levels, there is a positive effect of squared foreign direct investment on economic complexity. Results further show that economic growth and employment are nonlinear with human capital, physical capital, household consumption and exports. Physical capital and household consumption adversely affect economic growth, yet they positively affect employment. Human capital positively affects economic growth, employment and unemployment. Exports positively affect economic growth, but negatively affect employment. Results further show nonlinearity between employment and government expenditure. Government expenditure adversely affects employment. In addition, economic growth and unemployment show nonlinearity with arable land. Arable land adversely affects economic growth but positively affects unemployment.

| PANEL A:                |            | DEPENDE   | NT VARIABLE  |           |
|-------------------------|------------|-----------|--------------|-----------|
| FMOLS                   | LGI        | OP        | EMPLOYMENT   |           |
|                         | estimate   | p-value   | estimate     | p-value   |
| LFDI_private            | 0.0046     | 0.1706    | -0.0057      | 0.0482**  |
| FDI_private.SQ          | -0.0001    | 0.2587    | 0.0001       | 0.1848    |
| Human capital           | 0.6985     | 0.0000*** | 12.8209      | 0.0000*** |
| Physical capital        | -10.0413   | 0.0000*** | 39.0725      | 0.0001*** |
| Household               | -1.3313    | 0.0000*** | 22.7176      | 0.0000*** |
| consumption             |            |           |              |           |
| Government              | 0.4741     | 0.2998    | -37.9528     | 0.0000*** |
| expenditure             |            |           |              |           |
| Exports                 | 0.5412     | 0.0000*** | -4.8679      | 0.0002*** |
| Arable land             | -0.1217    | 0.0000*** | 0.1831       | 0.1963    |
| R <sup>2</sup>          | 0.99       | 02        | 0.9632       |           |
| Adjusted R <sup>2</sup> | 0.98       | 84        | 0            | .9567     |
| PANEL A:                | ECONOMIC C | OMPLEXITY | UNEMPLOYMENT |           |
| FMOLS                   | estimate   | p-value   | estimate     | p-value   |
| LFDI_private            | -0.2315    | 0.3082    | 0.0032       | 0.6012    |
| FDI_private.SQ          | 0.0349     | 0.0001*** | -9.61E-05    | 0.7055    |
| Human capital           | -0.3779    | 0.7485    | 6.8959       | 0.0251**  |
| Physical capital        | -15.2584   | 0.2879    | 59.6019      | 0.1069    |

| Table 7.10: Estimates for private | SQ FDI |
|-----------------------------------|--------|
|-----------------------------------|--------|

| Household   | -3.5257             | 0.4431    | -43.0894  | 0.0005*** |
|---|---------------------|-----------|-----------|-----------|
| consumption   | 4 4775              | 0.0700    | 07.0000   | 0.4074    |
| Government  | -1.4775             | 0.8782    | -37.9802  | 0.1274    |
|   | 4 4 7 0 7           | 0.5440    | 4 0045    | 0 7045    |
| Exports   | 1.1797              | 0.5448    | 1.3815    | 0.7815    |
| Arable land   | -0.8881             | 0.6881    | 5.5322    | 0.0000^^^ |
| R <sup>2</sup>  | 0.63                | 524       | 0         | .4963     |
| Adjusted R <sup>2</sup>   | 0.56                | 572       | 0         | .4070     |
| PANEL B:  | LGI                 | <b>DP</b> | EMPL      | OYMENT    |
| DOLS  | estimate            | p-value   | estimate  | p-value   |
| LFDI_private  | 0.0051              | 0.4427    | 0.0040    | 0.6927    |
| FDI_private.SQ  | -0.0001             | 0.3179    | -6.31E-06 | 0.9696    |
| Human capital   | 0.5910              | 0.0000*** | 16.1540   | 0.0000*** |
| Physical capital  | -11.7381            | 0.0000*** | -12.5827  | 0.2008    |
| Household   | -0.7106             | 0.0026*** | 8.9647    | 0.0546    |
| consumption   |                     |           |           |           |
| Government  | 2.0024              | 0.0000*** | -54.0121  | 0.0000*** |
| expenditure   |                     |           |           |           |
| Exports   | 0.7017              | 0.0000*** | 0.0343    | 0.9849    |
| Arable land   | -0.1414             | 0.0000*** | 0.4989    | 0.0343    |
| R <sup>2</sup>  | 0.99                | 95        | 0         | .9947     |
| Adjusted R <sup>2</sup>   | 0.99                | 87        | 0         | .9866     |
| PANEL B:  | ECONOMIC COMPLEXITY |           | UNEMF     | PLOYMENT  |
| DOLS  | estimate            | p-value   | estimate  | p-value   |
| LFDI_private  | -0.4162             | 0.3021    | 0.0178    | 0.3774    |
| FDI_private.SQ  | 0.0138              | 0.1627    | 0.0270    | 0.4000    |
| Human capital   | -1.1714             | 0.5997    | -17.1138  | 0.0001*** |
| Physical capital  | -27.4557            | 0.2426    | 364.3182  | 0.0000*** |
| Household   | -18.8074            | 0.0894    | -34.3075  | 0.0595*   |
| consumption   |                     |           |           |           |
| Government  | -2.1650             | 0.8909    | 1.7195    | 0.9467    |
| expenditure   |                     |           |           |           |
| Exports   | 1.1945              | 0.7843    | -78.4405  | 0.0000*** |
| Arable land   | -0.2878             | 0.5925    | -1.9786   | 0.0320**  |
| R <sup>2</sup>  | 0.88                | 78        | 0         | .9558     |
| Adjusted R <sup>2</sup>   | 0.71                | 45        | 0         | .8876     |
| "****", "**", "*" represents significance at 1%, 5% and 10% levels respectively |                     |           |           |           |

Table 7.11 shows nonlinear results for economic growth and economic complexity with foreign direct investment but no nonlinearity in other variables. There is a positive effect of foreign direct investment on economic growth; however, at higher levels foreign direct investment is insignificant. For economic complexity, low levels of foreign direct investment are insignificant, yet, higher levels of foreign direct investment there is a positive influence on economic complexity.

Results further show economic growth and employment that are nonlinear with human capital, physical capital and household consumption. Human capital positively affects both economic growth and employment. Physical capital and household consumption are adversely affecting economic growth, yet they are positively affecting employment. Results also show nonlinearity between economic growth and government expenditure. Government expenditure adversely affects employment. Furthermore, employment and unemployment show nonlinearity results with exports. Exports adversely affect employment but positively affect unemployment. Results show economic growth and unemployment that are nonlinear with arable land. Arable land adversely affects economic growth, but positively affects unemployment.

| PANEL A:                |            | DEPENDE   | NT VARIABLE   |           |
|-------------------------|------------|-----------|---------------|-----------|
| FMOLS                   | LGI        | )P        | EMPL          | OYMENT    |
|                         | estimate   | p-value   | estimate      | p-value   |
| LFDI_bank               | 0.0422     | 0.0401**  | -0.0014       | 0.9335    |
| FDI_bank.SQ             | -0.0003    | 0.0938    | 2.61E-05      | 0.8959    |
| Human capital           | 0.5901     | 0.0000*** | 15.9299       | 0.0000*** |
| Physical capital        | -9.7321    | 0.0000*** | 63.2773       | 0.0014*** |
| Household               | -1.9097    | 0.0005*** | 24.6651       | 0.0004*** |
| consumption             |            |           |               |           |
| Government              | 0.7347     | 0.4391    | -66.2843      | 0.0000*** |
| expenditure             |            |           |               |           |
| Exports                 | 0.1582     | 0.4304    | -7.3678       | 0.0070*** |
| Arable land             | -0.1450    | 0.0000*** | 0.4077 0.1626 |           |
| R <sup>2</sup>          | 0.9892     |           | 0.9602        |           |
| Adjusted R <sup>2</sup> | 0.9846     |           | 0.9434        |           |
| PANEL A:                | ECONOMIC C | OMPLEXITY | UNEM          | PLOYMENT  |
| FMOLS                   | estimate   | p-value   | estimate      | p-value   |
| LFDI_bank               | -1.0615    | 0.0294    | -0.0642       | 0.1141    |
| FDI_bank.SQ             | 0.0216     | 0.0004*** | 0.0005        | 0.2082    |
| Human capital           | 0.4560     | 0.7304    | 5.6829        | 0.3689    |
| Physical capital        | -21.5601   | 0.1874    | -36.6498      | 0.6318    |
| Household               | -1.0152    | 0.8549    | -11.8401      | 0.6538    |
| consumption             |            |           |               |           |
| Government              | -2.8182    | 0.7940    | 28.2179       | 0.5826    |
| expenditure             |            |           |               |           |
| Exports                 | 1.4937     | 0.5140    | 28.3767       | 0.0136**  |
| Arable land             | 0.0169     | 0.9475    | 6.9754        | 0.0000*** |
| R <sup>2</sup>          | 0.91       | 37        | 0             | .2935     |
| Adjusted R <sup>2</sup> | 0.87       | 73        | -(            | ).0053    |
|                         | LG         | )P        | EMPL          | OYMENT    |

Table 7.11: Estimates for bank\_SQ FDI

| PANEL B:<br>DOLS  | estimate   | p-value             | estimate | p-value      |  |
|---|------------|---------------------|----------|--------------|--|
| LFDI_bank   | -0.1943    | 0.4023              | -0.2210  | 0.6441       |  |
| FDI_bank.SQ   | 0.0033     | 0.6607              | 0.0053   | 0.7506       |  |
| Human capital   | 0.5957     | 0.0000***           | 14.7461  | 0.0000***    |  |
| Physical capital  | -10.4315   | 0.0000***           | -0.1522  | 0.9888       |  |
| Household   | -0.3932    | 0.3009              | 9.8713   | 0.0461       |  |
| consumption   |            |                     |          |              |  |
| Government  | 2.1803     | 0.0059              | -46.4382 | 0.0001***    |  |
| expenditure   |            |                     |          |              |  |
| Exports   | 0.6661     | 0.0044              | -2.7042  | 0.2665       |  |
| Arable land   | -0.1348    | 0.0001              | 0.2017   | 0.4804       |  |
| R <sup>2</sup>  | 0.99       | 94                  | 0.9950   |              |  |
| Adjusted R <sup>2</sup>   | 0.9981     |                     | 0.9848   |              |  |
| PANEL B:  | ECONOMIC C | ECONOMIC COMPLEXITY |          | UNEMPLOYMENT |  |
| DOLS  | estimate   | p-value             | estimate | p-value      |  |
| LFDI_bank   | 5.05E-05   | 0.0953*             | -0.5645  | 0.1397       |  |
| FDI_bank.SQ   | -0.0070    | 0.3022              | 0.0056   | 0.5754       |  |
| Human capital   | 0.6429     | 0.6638              | -19.8600 | 0.0064***    |  |
| Physical capital  | -27.6015   | 0.0601*             | 321.9204 | 0.0001***    |  |
| Household   | -3.9426    | 0.4933              | -44.4986 | 0.0802*      |  |
| consumption   |            |                     |          |              |  |
| Government  | -7.5320    | 0.4668              | 30.5815  | 0.4787       |  |
| expenditure   |            |                     |          |              |  |
| Exports   | 2.8515     | 0.3476              | -72.9729 | 0.0001***    |  |
| Arable land   | -0.1219    | 0.7322              | -2.1902  | 0.1576       |  |
| R <sup>2</sup>  | 0.98       | 20                  | 0        | .9425        |  |
| Adjusted R <sup>2</sup>   | 0.94       | 47                  | 0        | .8227        |  |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |            |                     |          |              |  |

Table 7.12 shows nonlinear results for economic complexity only and other variables show no nonlinearity in the regressions. For economic complexity, low levels of foreign direct investment are insignificant, but at higher levels of foreign direct investment there is positive effect of foreign direct investment on economic complexity. Results also show economic growth and employment that are nonlinear with human capital, physical capital, household consumption and exports. Human capital and exports positively affect economic growth, employment and unemployment. However, physical capital and household consumption adversely affect economic growth and unemployment, yet positively affect employment. Results further show nonlinearity between employment and government expenditure. Government spending adversely affects employment. Results further show nonlinearity between economic growth and unemployment with arable land. Arable land positively affects unemployment, yet it adversely affects economic growth.

| PANEL A:                | DEPENDENT VARIABLE |           |           |           |
|-------------------------|--------------------|-----------|-----------|-----------|
| FMOLS                   | LGI                | OP        | EMPL      | OYMENT    |
|                         | estimate           | p-value   | estimate  | p-value   |
| LFDI_total              | 0.0065             | 0.0886    | -0.0040   | 0.1823    |
| FDI_total.SQ            | -0.0001            | 0.1983    | 5.60E-05  | 0.4282    |
| Human capital           | 0.7078             | 0.0000*** | 12.9643   | 0.0000*** |
| Physical capital        | -9.9742            | 0.0000*** | 41.2452   | 0.0000*** |
| Household               | -1.3037            | 0.0000*** | 23.0061   | 0.0000*** |
| consumption             |                    |           |           |           |
| Government              | 0.3765             | 0.3894    | -40.1422  | 0.0000*** |
| expenditure             |                    |           |           |           |
| Exports                 | 0.5387             | 0.0000*** | -4.9834   | 0.0001*** |
| Arable land             | -0.1210            | 0.0000*** | 0.1946    | 0.1668    |
| R <sup>2</sup>          | 0.99               | 01        | 0         | .9630     |
| Adjusted R <sup>2</sup> | 0.98               | 84        | 0         | .9565     |
| PANEL A:                | ECONOMIC C         | OMPLEXITY | UNEMF     | PLOYMENT  |
| FMOLS                   | estimate           | p-value   | estimate  | p-value   |
| LFDI_total              | -0.3417            | 0.1645    | -0.0010   | 0.8857    |
| FDI_total.SQ            | 0.0183             | 0.0004*** | -1.81E-06 | 0.9913    |
| Human capital           | 0.2396             | 0.7190    | 6.2444    | 0.0367**  |
| Physical capital        | -17.1732           | 0.0402**  | 55.0335   | 0.1330    |
| Household               | -0.3217            | 0.9029    | -45.2947  | 0.0002*** |
| consumption             |                    |           |           |           |
| Government              | -5.2805            | 0.3274    | -32.3481  | 0.1754    |
| expenditure             |                    |           |           |           |
| Exports                 | 1.1246             | 0.3209    | 1.4462    | 0.7715    |
| Arable land             | -0.0482            | 0.7046    | 5.4638    | 0.0000*** |
| R <sup>2</sup>          | 0.85               | 36        | 0         | .5005     |
| Adjusted R <sup>2</sup> | 0.82               | 2//       |           |           |
| PANEL B:                | LGI                | )P        | EMPL      |           |
| DOLS                    | estimate           | p-value   | estimate  | p-value   |
| LFDI_total              | 0.0068             | 0.4171    | -0.0020   | 0.8521    |
| FDI_total.SQ            | -0.0001            | 0.4071    | 5.63E-05  | 0.7561    |
| Human capital           | 0.5884             | 0.0000*** | 15.8003   | 0.0000    |
| Physical capital        | -11.8748           | 0.0000*** | -10.0546  | 0.3183    |
| Household               | -0.7506            | 0.0109*** | 11.7302   | 0.0178    |
| Covernment              | 2 0 2 0 1          | 0.0000*** | 50 9590   | 0 0000*** |
| ovpondituro             | 2.0291             | 0.0000    | -50.6560  | 0.0000    |
| Experialitate           | 0 7020             | 0.0000*** | -0 1870   | 0 8025    |
| Arable land             | -0 1360            | 0.0000    | 0.4073    | 0.0023    |
| $R^2$                   | n ac               | 193       | 0.0300    | 9951      |
| Adjusted R <sup>2</sup> | 0.98<br>0 00       | 184       | 0         | 9877      |
| PANEL B:                |                    |           |           | PLOYMENT  |
| DOLS                    | estimate           | p-value   | estimate  | p-value   |
| LFDI total              | 0.7461             | 0.0121**  | 0.0416    | 0.0130**  |

Table 7.12: Estimates for total\_SQ FDI

| FDI_total.SQ  | -0.0252  | 0.0065*** | -0.0006  | 0.0178**  |
|---|----------|-----------|----------|-----------|
| Human capital   | 0.2356   | 0.8846    | -18.9446 | 0.0002*** |
| Physical capital  | -20.8458 | 0.2186    | 327.5842 | 0.0000*** |
| Household   | -3.4091  | 0.6942    | -42.1206 | 0.0450**  |
| consumption   |          |           |          |           |
| Government  | -5.7100  | 0.5971    | 17.4929  | 0.5323    |
| expenditure   |          |           |          |           |
| Exports   | 0.2445   | 3.2221    | -80.0798 | 0.0000*** |
| Arable land   | -0.2074  | 0.3924    | -2.5110  | 0.0217**  |
| R <sup>2</sup>  | 0.94     | 87        | 0        | .9580     |
| Adjusted R <sup>2</sup>   | 0.86     | 96        | 0        | .8932     |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels respectively |          |           |          |           |

## 7.8 GRANGER CAUSALITY

The research employs two causality tests, namely the Stacked test and the Dumitrescu-Hurlin test. The Stacked test assumes that all coefficients are the same across all the cross-sections, whereas Dumitrescu-Hurlin allows all the coefficients to be different across all the cross-section data. The purpose of these tests was to determine the direction of causality between the variables. Tables 7.13, 7.14 and 7.15 below present the causality results.

Table 7.13 shows the causality results between economic growth, employment, economic complexity and unemployment, and foreign direct investment. The cointegration estimates results show that there is long run linear relationship between economic complexity and foreign direct investment. In addition, a nonlinear relationship exists between economic complexity and foreign direct investment. The causality results show that there is granger causality between economic growth and economic complexity with foreign direct investment. South African studies that support these results are Masipa (2014), Sunde (2017) and Masipa (2018).

| Stacked test  |                     |         |            |                |  |  |  |
|---|---------------------|---------|------------|----------------|--|--|--|
| Null Hypothesis   | F-statistics        |         | P-value    |                |  |  |  |
| LFDI_private does not   | 0.8191              |         | 0.4452     |                |  |  |  |
| Granger cause LGDP  |                     |         |            |                |  |  |  |
| LGDP does not Granger   | 2.8247              |         | (          | ).0164**       |  |  |  |
| cause LFDI_private  |                     |         |            |                |  |  |  |
| LFDI_private does not   | 1.3879              |         |            | 0.2587         |  |  |  |
| Granger cause Employment  |                     |         |            |                |  |  |  |
| Employment does not Granger                                       | 1.4032              |         |            | 0.2529         |  |  |  |
| cause LFDI_private  |                     |         |            |                |  |  |  |
| LFDI_private does not   | 0.8262              |         | 0.4378     |                |  |  |  |
| Granger cause Economic  |                     |         |            |                |  |  |  |
| Complexity  |                     |         |            |                |  |  |  |
| Economic Complexity does  | 4.9450              |         | 0.0099***  |                |  |  |  |
| not Granger cause   |                     |         |            |                |  |  |  |
| LFDI_private  | /                   |         |            |                |  |  |  |
| LFDI_private does not   | 0.3854              |         |            | 0.6816         |  |  |  |
| Granger cause Unemployment  |                     |         |            |                |  |  |  |
| Unemployment does not   | 0.1843              |         |            | 0.8321         |  |  |  |
| Granger cause LFDI_private  |                     |         |            |                |  |  |  |
| Du  | imitrescu Hurlin te | est     |            | <u> </u>       |  |  |  |
| Null Hypothesis   | W-stat              | Zba     | ar-stat    | P-value        |  |  |  |
| LFDI_private does not   | 3.2431              | 0.      | 6192       | 0.5358         |  |  |  |
| homogenously cause LGDP   |                     |         |            |                |  |  |  |
| LGDP does not homogenously  | 7.4864              | 3.      | 6067       | 0.0000***      |  |  |  |
| cause LFDI_private  | 0 7000              |         |            | 0.0407         |  |  |  |
| LFDI_private does not   | 2.7038              | 0.2395  |            | 0.8107         |  |  |  |
| nomogenously cause  |                     |         |            |                |  |  |  |
| Employment  | 0.7000              | 0       | 0570       | 0.000.4        |  |  |  |
| Employment does not   | 3.7232              | 0.      | 9572       | 0.3384         |  |  |  |
| nomogenously cause  |                     |         |            |                |  |  |  |
| LFDI_private  | 0 7074              | 0.0054  |            | 0.7000         |  |  |  |
| LFDI_private does not   | 2.7974              | 0.3054  |            | 0.7600         |  |  |  |
| nomogenously cause  |                     |         |            |                |  |  |  |
|   | 2 5002              | 0.4050  |            | 0.0000         |  |  |  |
| Economic Complexity does  | 2.5993              | 0.1659  |            | 0.8682         |  |  |  |
| LED private   |                     |         |            |                |  |  |  |
| LFDI_private daga not   | 4.0704              | 0       | 7040       | 0 4 4 4 7      |  |  |  |
| LFDI_private does not   | 1.2781              | -0.7642 |            | 0.4447         |  |  |  |
| Inomogenously cause   |                     |         |            |                |  |  |  |
|   | 0 0200              | 4       | 0725       | 0.0000         |  |  |  |
|   | 0.8388              | -1.     | 0130       | 0.2830         |  |  |  |
| LEDL privato  |                     |         |            |                |  |  |  |
| LFUI_PIIVale  | hifiaanaa at 10/ Eu | / and 4 | 00/ 101/01 | o roopootivolu |  |  |  |
| , , represents significance at 1%, 5% and 10% levels respectively |                     |         |            |                |  |  |  |
| Source: Author's own computation                                  |                     |         |            |                |  |  |  |

## Table 7.13: Causality tests for private FDI

Table 7.14 only shows the results of Stacked tests. The Dumitrescu-Hurlin test could not be tested due to unavailability of sufficient foreign direct investment data. Cointegration estimate results show a linear long run relationship between economic complexity and foreign direct investment. In addition, a nonlinear long run relationship exists between economic complexity and foreign direct investment. However, there is no granger causality between the variables.

| Stacked test   |              |         |  |  |  |  |
|--|--------------|---------|--|--|--|--|
| Null Hypothesis  | F-statistics | P-value |  |  |  |  |
| LFDI_bank does not Granger   | 0.8685       | 0.4242  |  |  |  |  |
| cause LGDP   |              |         |  |  |  |  |
| LGDP does not Granger cause  | 0.4590       | 0.6338  |  |  |  |  |
| LFDI_bank  |              |         |  |  |  |  |
| LFDI_bank does not Granger   | 0.9621       | 0.3873  |  |  |  |  |
| cause Employment   |              |         |  |  |  |  |
| Employment does not Granger  | 0.2527       | 0.7774  |  |  |  |  |
| cause Employment   |              |         |  |  |  |  |
| LFDI_bank does not Granger   | 1.8787       | 0.1607  |  |  |  |  |
| cause Economic Complexity  |              |         |  |  |  |  |
| Economic Complexity does   | 1.1449       | 0.3244  |  |  |  |  |
| Granger cause Economic   |              |         |  |  |  |  |
| Complexity   |              |         |  |  |  |  |
| LFDI_bank does not Granger   | 0.5738       | 0.5661  |  |  |  |  |
| cause Unemployment   |              |         |  |  |  |  |
| Unemployment does Granger  | 1.3950       | 0.2549  |  |  |  |  |
| cause Unemployment   |              |         |  |  |  |  |
| "***", "**", " *" represents significance at 1%, 5% and 10% levels |              |         |  |  |  |  |
| respectively   |              |         |  |  |  |  |

Table 7.14: Causality tests for bank FDI

Source: Author's own computation

Table 7.15 below shows the causality results between economic growth, employment, economic complexity and unemployment, and foreign direct investment. The cointegration estimates results show a linear long run relationship between economic complexity and foreign direct investment. In addition, nonlinear long run relationship exists between economic complexity and foreign direct investment. There is granger causality between economic growth and employment with foreign direct investment. These results are similar to the findings of Masipa (2014) Sunde (2017) and Masipa (2018) who found a causal relationship between economic growth and foreign direct investment.

|--|

| Stacked test   |              |           |           |  |  |  |  |
|--|--------------|-----------|-----------|--|--|--|--|
| Null Hypothesis  | F-statistics |           | P-value   |  |  |  |  |
| LFDI_total does not Granger<br>cause LGDP  | 0.1513       |           | 0.8598    |  |  |  |  |
| LGDP does not Granger cause<br>LFDI total  | 0.1927       |           | 0.8251    |  |  |  |  |
| LFDI_total does not Granger<br>cause Employment                                  | 0.8716       |           | 0.4230    |  |  |  |  |
| Employment does not Granger<br>cause LFDI total                                  | 0.4291       |           | 0.6528    |  |  |  |  |
| LFDI_total does not Granger<br>cause Economic Complexity                         | 1.8188       |           | 0.1701    |  |  |  |  |
| Economic Complexity does not<br>Granger cause LFDI_total                         | 1.9311       |           | 0.1530    |  |  |  |  |
| LFDI_total does not Granger<br>cause Unemployment                                | 0.4262       |           | 0.6547    |  |  |  |  |
| Unemployment does not<br>Granger cause LFDI_total                                | 0.5133       |           | 0.6008    |  |  |  |  |
| Dumitrescu Hurlin test   |              |           |           |  |  |  |  |
| Null Hypothesis  | W-stat       | Zbar-stat | P-value   |  |  |  |  |
| LFDI_total does not<br>homogenously cause LGDP                                   | 3.6235       | 0.8870    | 0.3751    |  |  |  |  |
| LGDP does not homogeneously cause LFDI_total                                     | 7.4281       | 3.5656    | 0.0004*** |  |  |  |  |
| LFDI_total does not<br>homogenously cause<br>Employment                          | 3.1218       | 0.5338    | 0.5935    |  |  |  |  |
| Employment does not<br>homogeneously cause<br>LFDI total                         | 6.2610       | 2.7439    | 0.0061*** |  |  |  |  |
| LFDI_total does not<br>homogenously cause LGDP<br>Economic Complexity            | 2.1678       | -0.1378   | 0.8990    |  |  |  |  |
| Economic Complexity does not<br>homogeneously cause<br>LFDI_total                | 4.2522       | 1.3296    | 0.1836    |  |  |  |  |
| LFDI_total does not<br>homogenously cause LGDP<br>Unemployment                   | 1.2001       | -0.8191   | 0.4127    |  |  |  |  |
| Unemployment does not<br>homogenously cause LFDI_total                           | 1.4219       | -0.6629   | 0.5073    |  |  |  |  |
| "****", "**", " *" represents significance at 1%, 5% and 10% levels respectively |              |           |           |  |  |  |  |

The following section is the summary of the chapter.

### 7.9 STUDY FINDINGS

Several previous South African studies support the findings of this research. These include Masipa (2014), Nchoe (2016), Sunde (2017), Meyer and Habanakize (2018) and Masipa (2018). However, these studies employed different cointegration techniques such as Engle-Granger, Johansen cointegration, autoregression distributed lag (ARDL), instead of fully modified ordinary least squares (FMOLS) and dynamic least squares (DOLS). In addition, these studies used general foreign direct investment instead of BRIC foreign direct investment.

### 7.10 SUMMARY

This chapter analysed and interpreted the results on the relationship between economic growth and foreign direct investment in South Africa. The chapter commenced with descriptive statistics, which provided a summary of the properties of the data used in the study. Due to the limited data for foreign direct investment inflows for BRIC countries, data used was only for the period from 1997 to 2016. A number of control variables were used in the economic growth and foreign direct investment equation to form a multivariate framework in order to enhance the statistical power.

The research employed descriptive statistics. The results show private foreign direct investment is relatively lower than bank foreign direct investment. This could be due to many factors. For instance, the South African foreign direct investment policy in the private sector could be more open, welcoming and having less tariffs compared to the banking sector. Exports also show relatively low performance. South African exports are more concentrated in commodities, which might be an issue. The drop in demand due to trade war could have an adverse effect on South African exports. Furthermore, unemployment shows relatively high value, due to lack of jobs. South Africa is dominated by unskilled labour, which could be adversely affecting job creation.

In addition, correlation matrix results show a positive relationship between foreign direct investment and economic growth, employment, economic complexity, unemployment. The results also revealed evidence of no multicollinearity between the variables.

Furthermore, the research employed stationarity check in the variables to avoid spurious results. Stationarity was to make sure that none of the time series is I(2) or

higher. The results show all the variables to be stationary in first difference. In addition, the research employed cointegration to determine the long run relationship between the variables of the study. The results show that foreign direct investment linearly has a small effect on economic growth and the nonlinear results show that foreign direct investment affects economic growth at low levels and significantly influences economic growth and economic complexity cause foreign direct investment. Therefore, foreign direct investment has been responding to these variables and not the other way around. The final chapter below is dedicated to the summary of the study, and conclusions and recommendations of the study.

### **CHAPTER EIGHT**

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### 8.1 INTRODUCTION

This chapter summarises the general issues discussed throughout the study and concludes the study. The study was based on yearly data obtained from the South African Reserve Bank (SARB) and World Bank Indicators for the period 1997 to 2016. The main objective of this study was to investigate the behaviour of South Africa's economic growth in relation to inflows of foreign direct investment from BRICs economies. This study was conducted in the context of the 2007/08 global financial crisis. The financial crisis negatively affected almost the whole world. South Africa recorded a loss of nearly a million jobs in 2009 alone, and the unemployment continued to remain at more than 25 percent (Rena & Soni, 2014). Hence, the investigation of the impact of inflows of foreign direct investment from BRICs economies on South Africa's economic growth was envisaged to provide some answers to the crisis the country faced.

This chapter is organised as follows: Section 2 summarises the issues discussed in the study, including the empirical findings. Section 3 provides a conclusion on the major findings of the study and section 4 provides policy implications and recommendations. The chapter ends with section 5, which discusses the limitations of the study and areas of future research.

### 8.2 SUMMARY OF THE STUDY

This section presents a summary of issues discussed in the study. It combines the theoretical and empirical arguments on foreign direct investment and economic growth. The macroeconomic trends and the results generated by the study are also discussed in the section.

### 8.2.1 SUMMARY OF THE MAIN FINDINGS

The aim of this study was to investigate a behaviour of South Africa's economic growth towards inflows of foreign direct investment from BRICs economies. Chapter 2 provided the theoretical foundations and empirical evidence of the study. In this study, two classes of theories were discussed, namely theories on economic growth and

theories on foreign direct investment. The new endogenous economic growth theories, which consist of Frankel's (1962) AK model, Cass' (1965) endogenous growth model, Romer's (1986) endogeneous growth model and Lucas' (1988) endogenous growth model were the growth theories reviewed and found relevant to investment. Foreign direct investment theories were also discussed, namely the Product theory of Vernon (1966), Current area theory (Capital market theory), Industrial organization theory, Monopolistic advantage theory, Oligopolistic theory, Internalization theory and FDI institutional fitness.

Theories on economic growth provided a basis for understanding the role of saving and investment in the development of economies. Theories on FDIs identified a number of factors that are important in attracting FDI in the countries. This contemporary study followed the new endogenous growth theory. Foreign direct investment has a positive impact on economic growth (see Prabhakar *et al.*, 2015; Agrawal, 2015; Awolusi & Adeyeye, 2016; Makhetha & Rantaoleng 2017).

Empirical literature has been consistent with the theories reviewed in Chapter Two. Savings and investment were found to be significant factors in economic development of the nations. A majority of the studies reviewed on the effect of foreign direct investment and economic growth were found to be positive and significant.

Chapter 3 presented the macroeconomic trends of the BRICS economies during the period 1997 to 2016. The chapter dealt with macroeconomic trends in BRICS countries and the relationship between economic growth and foreign direct investment in BRIC countries. It also discussed the destination of foreign direct investment flows from BRICS countries to other economies. The chapter also detailed the determinants of FDI in South Africa.

India was found to be the country investing the most in South Africa, with flows of FDI above 10 million US dollars. It was followed by China with FDI flows of 8.1 million US dollars, and then Brazil with FDI flows to South Africa of 6 million US dollars. Russia has been investing in South Africa on an on and off basis. From 1997 until 2003, there were no Russian FDI flows into South Africa. In 2004/5, Russia begun to invest in South Africa at a high rate of above 8 million US dollars, which was above all other BRICS economies for that period. However, in 2006/8, Russia FDI flows to South

Africa were again unavailable. From 2009 until 2016, the country invested in South Africa but at a diminishing rate. (See Figure 3.1 in chapter 3.)

In 1998, South African exports to Brazil exceeded imports from the same. However, at the beginning of 1999, exports dropped drastically and imports increased. In 2000, the exports to Brazil went up again to 0.3 percent and imports decreased drastically to a negative percent. When exports exceed imports, it is a good economic outlook for the country. In 2009, both exports and imports dropped drastically below the zero margin to -0.2 percent. This was because of the financial crisis. The year after, exports and imports recovered, but imports exceeded exports. In late 2011, exports exceeded imports but at a diminishing rate. In 2014, exports merely increased for a year and afterwards dropped but the trajectory was above imports. When exports decrease in relation to imports, this is not a good economic outlook for the country. (See Figure 3.2 in chapter 3.)

In 1998, South Africa exports to Russia increased to 1.6 percent and imports were also increasing but below exports. Between 2000 and 2008, the exports and imports were fluctuating below 0.4 percent. In 2009, exports and imports dropped drastically due to financial crisis. Afterwards, both exports and imports recovered, but still below 0.4 percent. During 2013 to 2016, South African exports to Russia exceeded imports but at a diminishing rate. This situation portrays an economic outlook that is not good for South Africa's economy. (See Figure 3.3 in chapter 3.)

In 1998, South African exports to exceeded imports from India. From 2000 to 2001, exports dropped from 0.2 percent to below 0.1 percent, but were still above imports. From 2001 to 2004, exports rose above imports to 0.2 percent. In 2003, imports from India increased to above 0.4 percent exceeded South Africa's exports. In 2009, both exports and imports dropped drastically to zero percent. Afterwards, exports and imports recovered until they reached 0.3 percent. In 2011, South Africa's exports decreased together with imports to below zero margin. This implies a negative economic outlook. Between 2015 and 2016, both exports and imports moved from the negative zone. The exports exceeded imports. This implies a positive economic outlook. (See Figure 3.4 in chapter 3.)

In the beginning of 1998, South Africa exported to more than it imported from China. The trajectory was positive. In 2000/1, imports and exports dropped to below 0.1

percent. The year after, imports dominated exports. This is negative for the economy of South Africa. From 2003 to 2009 both exports and imports diminished, especially in 2009 because of the global financial crisis. Afterwards, exports and imports improved drastically but imports from China were still more than South Africa's exports to China. From 2010 to 2015, exports and imports decreased until they reached a negative percent. This was due to economic difficulties South Africa faced during the period. In late 2015, exports and imports showed signs of an upward trajectory. (See Figure 3.5 in chapter 3.)

The study also interpreted the real effective exchange rate trends of BRICS countries during 1997 to 2016. According to Figure 3.7 in Chapter Three above, that the Brazilian Real currency against US dollar was weakening due to economic instability. The overall Brazilian real exchange rate against US dollar during the period under review was weak. This implies bad economic outlook for Brazil, which in turn would affect South Africa's economic growth. (See Figure 3.6 in chapter 3.)

Between 1997 and 1998, the Russian Ruble was very weak against the US dollar. In 1999, the Russian Rube gained strength measured against the US dollar until late 2013. This showed a strong Russian economy. From 2014 to 2016, the Russian Ruble deteriorated against US dollar due to poor economic performance. (See Figure 3.6 in chapter 3.)

Indian real exchange rates showed a positive trajectory from 1997 to 2016. This implies a strong Indian Rupee against the US dollar as well as economic growth during the period under review. The Chinese Yuan showed a negative trajectory against US dollar from 1997 to 2014. This was due to economic instability. From 2005 to 2015, the Chinese Yuan gained strength against the US dollar. This was due to strong economic outlook amongst other things. From late 2015 to 2016, the Chinese Yuan weakened against the US dollar. This implies a negative economic performance. (See Figure 3.6 in chapter 3.)

The South African Rand fluctuated negatively against the US dollar between 1997 and 2016. This shows poor performance of the South African Rand against the US dollar and economic outlook during the year under review. (See Figure 3.6 in chapter 3).

The study merely interpreted the trends of the BRICS exports, imports and real exchange rate variables and did not use them in the regression model. This is because

the main objective of the study was to investigate the behaviour of South Africa's economic growth towards FDI inflows from BRICs economies.

Regarding the economic growth of BRICS countries between 1997 and 2016, China was leading. China is the second leading economy in the world after United State of America (USA). India came as the second leading amongst the BRICS bloc during the period under review. Next came South Africa, Russia and Brazil respectively. This implies that the BRICS bloc ought to boost each other's economies through FDIs. (See Figure 3.8 in chapter 3.)

A majority of empirical studies indicated that FDIs and economic growth had a positive relationship. In Figure 3.8 (see chapter 3), it was shown that South Africa's economic growth and Brazil, India and China's FDI inflows have signs of positive relationships during the period 1997 to 2016. However, Russia's FDI inflows towards South Africa's economic growth showed negative relationship. This is due, amongst other reasons, to FDI policy uncertainty of South Africa and Russia.

BRICS countries have limited bilateral FDI stock amongst themselves. It has however grown fast over the past decades from US\$ 260 million in 2003 to US\$ 29 billion in 2011. BRICS outward stock in other BRICS countries increased from 0.1 percent in 2003 to 2.5 percent in 2011. China is the largest investor among the BRICS countries, with the total of nearly US\$ 425 billion in FDI stock worldwide. However, Chinese outward FDI stock to other BRICS countries accounts for only 2.2 percent. South Africa and the Russian Federation have been important targets of outward FDI from China, with FDI stocks of US\$ 4.1 Billion and US\$ 3.8 billion respectively by the end of 2011. Both countries were eighth and ninth largest recipients of Chinese FDI respectively. The services sector accounts for a major share of Chinese FDI stock in South Africa and Russia. At the stock level, the amounts of Chinese FDI in Brazil and India were comparably small, at US\$ 1.1 billion and US\$ 657 million respectively.

Chapter 4 discussed the overview of foreign direct investment in South Africa, in the context of Multinational Corporation. South Africa has been attracting low FDI. This is due to poor economic growth, investment policy uncertainty and government corruption. The MNCs have benefits and drawbacks, as discussed Chapter 4.

Chapter 5 discussed foreign direct investment policies of BRICS countries. The common thing about BRICS economies is that they all want to attract more FDI into
their respective economies. In order to do so, they must create favourable environments for the foreign investor and allow ease of doing business. It is, therefore, the primary concern of the BRICS countries' FDI policies to be more accommodative towards foreign investors so that the investments could come to their respective countries. That would lead to more economic growth and creation of jobs.

Chapter 6 presented the methodology of the study and highlighted how the model was estimated. The variables used were South Africa's gross domestic product; Brazil, Russia, India and China (BRICs) foreign direct investment (FDI), unemployment, employment and economic complexity. The study employed panel cointegration tests through the Kao test, fully modified least squares (FMOLS) and Dynamic ordinary least squares (DOLS) tests to determine if there is an existence of cointegration between economic growth, employment and economic complexity and unemployment, and foreign direct investment inflows. The study also employed granger causality tests through Stacked and Dumistrescu Hurlin tests to examine if there is an existence of complexity and unemployment, and unemployment, economic complexity and unemployment, economic complexity and unemployment, economic complexity and unemployment, economic complexity and unemployment, and unemployment, and foreign direct investment inflows.

Chapter 7 discussed the estimation and results of the regression model used in the study. The study employed annual time series data from 1997 to 2016. The data were subjected to stationarity tests using panel Levin, Lin, and Chu (LLC) and Im, Pesaran and Shin (IPS). All the variables were stationary after first difference. Afterwards, the cointegration results between foreign direct investment and economic growth, employment, economic complexity and unemployment were presented. The results showed only economic complexity had significant effect on foreign direct investment while other variables shown insignificant results. On the other hand, the sensitivity results for nonlinearity showed employment and economic complexity were nonlinear with foreign direct investment. However, the results showed no nonlinearity between unemployment, economic growth and foreign direct investment. The granger causality results showed the causality results between economic growth, employment, economic direct investment and foreign direct investment.

### 8.3 CONCLUSION

It can be concluded that South Africa needs to boost economic development through paying close attention to FDI inflows from Brazil, Russia, India and China, as this study has proven that BRICs FDI inflows are the vehicle for South Africa's economic development. The study results are in line with the findings by Aga (2014) for Turkey, Abreu (2016) for South Africa, Haydoroglu (2016) for BRICS countries and Mishra *et al.* (2017) for BRICS countries. The results from these studies showed that there is long run cointegration between FDI inflows and economic growth. The results of this study, as discussed in the chapter above, are also consistent with the new endogenous growth theory that guided the study.

This study also employed the causality test. The results indicated that there is a causal relationship between BRICs FDI flows and South Africa's economic growth. The results are similar to the findings obtained by Sridharan (2009), Masipa (2014), Mahembe and Odhiambo (2015), Awolusi and Adeyeye (2016), Simionescu (2016) and Pandya and Sisombat (2017). The results imply that South Africa needs to create an investment environment with BRICs economies. In addition, the current investment relationships amongst BRICS countries must be strengthened.

There seems to be no study that has been conducted in South Africa focusing on the impact of BRICs FDI Inflows on South Africa's economy. This study, therefore, fills this gap in literature. The study is also different from previous studies in that it employs two panel cointegration models, namely the fully modified ordinary least squares (FMOLS) and dynamic ordinary least squares (DOLS).

# 8.4 POLICY IMPLICATIONS AND RECOMMENDATIONS

The study revealed that BRICs FDI inflows have a positive impact on South Africa's economic growth. The results suggest that the policy makers should focus their attention on lobbying foreign investment from the BRICs economies. FDI can have a critical impact on economic growth and economic development, and should, therefore, be harnessed to achieve developmental objectives of South Africa. South Africa's investment system suffers from the following weaknesses: highly fragmented dispute settlement (arbitration) system without any precedent system to moderate legal and interpretative divergence; a lack of common standards of protection (the treatise grants national treatment, fair and equitable treatment); investor protection;

inconsistent interpretations by arbitration panels even on similar matters, which undermines the predictability of investment law; and lack of transparency, which result in investment cases being shrouded by secrecy and conducted under confidential proceedings. Furthermore, the investment system suffers from a lack of balance between investors' rights and host country obligations. It is, therefore, important for policy makers to make a friendly environment for investors and come up with solutions to the weaknesses that have been identified above.

The South African government adopted a new investment policy framework in July 2010. The policy aims to modernise and strengthen South Africa's investment regime by implementing a series of policy measures that will ensure South Africa remains open to foreign investment, and that there is adequate security and protection to all investors, preserving the sovereign right to regulate in the public interest, and pursuing developmental policy objectives.

In addition to the policy, BRICs economies should focus on enhancing partnership, preventing protectionism, promoting intra-BRICS FDI flows between them. In addition, South Africa should promote ease of doing business with BRICs economies. In other words, South Africa should eliminate barriers to do business with BRICs countries. Policy makers should promote the building of new companies by BRICs countries so that the economy of South Africa could grow and create employment.

# 8.5 LIMITATIONS OF THE STUDY AND AREAS FOR FURTHER RESEARCH

The study used annual time series data due to lack of quarterly BRICs foreign direct investment (FDI) data from the South African Reserve Bank (SARB) and other data sources. The quarterly data could have yielded more robust results and a bigger sample size or observations. Moreover, it could have yielded a utilisation of a variety of other regression models without limitation.

Further research should focus on other BRICS countries and not only focus on South Africa. In addition, focus could be on sectors that are important. This could enable the policy makers to identify the sectors that attract most FDI in the BRICS countries and, therefore, implement appropriate policies that could focus precisely on those identified sectors. In addition, further research should focus on investigating foreign direct investment and other variables such as real exchange rate and inflation rate.

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