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GORDON INSTITUTE
OF BUSINESS SCIENCE
University of Pretoria

The impact of multinational corporations on the South African economy

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A research project submitted to the Gordon Institute of business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

07 November 2012

Abstract

According to Saville (1993), the economic growth of less developed countries is impeded due to the presence of four “gaps” in these economies. However, Saville (1993), states that, by filling these gaps, developing economies are able to achieve economic growth and development. The main objective of this research is to update the study of Saville (1993) in order to determine the impact of the multinational corporation on the host economy in reference to the drivers of exogenous and endogenous growth in contribution to filling these gaps.

This is a quantitative study which makes use of secondary data obtained from JSE listed firms operating in the mining sector in South Africa. Statistical regression analysis was conducted and results are compared to the previous Saville (1993) study.

In summary, the results of the study are mixed however in terms of informing government policy, this study confirms the importance of FDI in emerging markets. The caveat however, firstly, is to inform policy to attract the right kinds of FDI to contribute to filling specific gaps in to achieve the required economic growth. Secondly, policy should require collaboration between MNC’s, private firms as well as public sector firms in order to share knowledge and profits in having a positive effect on social welfare and economic growth in the domestic economy.

Keywords

Multinational Corporation

Emerging Markets

Local Firms

Domerstic Economy

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Signed _____ Date _____

Acknowledgements

I would like to thank Dr Adrian Saville, my research supervisor, for allowing me the privilege to update his study. I have really enjoyed this topic of research and admire your passion and achievements it has been a great learning experience working with you. To Patrick, for all of your love and support throughout this challenging last year, you made this all so easy, thank you. To Petra, the most brilliant statistician an MBA student could hope for, you made this process easy. To Amy my editor for all your assistance, thank you.

A dedication to GIBS, It has been a profound privilege to be part of the of the GIBS MBA programme. It has been an incredible journey; I have been starched to beyond my limits and have grown immensely both academically and emotionally. To all my MBA classmates, I have met some wonderful people who I hope continue to be a part of my life, thank you for all the great times in class an outside, it was an absolute blast.

And finally to my family for their continued support throughout this MBA journey, specifically, to my mother for her constant belief in my abilities, strength and everlasting love and support she has given me in my life, I would not be here without you. I love you.

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1. Introduction to the research problem

1.1. Research title

The impact of multinational corporations on South African Industry within the mining industry.

1.2. Research problem and purpose

According to Saville (1993), the economic growth of less developed countries (LDCs) is impeded due to the presence of four "gaps" in these economies. However, Saville (1993), states that, by filling these gaps, LDCs are able to achieve economic growth and development. The task of economic policy makers is to bring about policy that attempts to fill these gaps, however, there are opposing views on how these gaps can be filled. These opposing schools refer to exogenous and endogenous growth models, however, both schools provide evidence as to how these forms of growth contribute to filling the gaps.

The endogenous growth model differs from the exogenous model in its emphasis that "economic growth is an endogenous outcome of an economic system, not the result of forces that impinge from outside" (Romer, 1994, pg 3). Furthermore, Romer (1994) explains endogenous growth based on the origins of the theory of convergence. Romer (1994) cites a study conducted by Maddison (1982), which concluded that poorer countries' per capita income increases over time to meet richer countries' per capita income. That is, income per capita in poor and rich countries was to be converging. Abramovitz (1986) agrees with this theory and

links this to his “catch-up hypothesis” where “the hypothesis asserts that being backward in level of productivity carries a potential for rapid advance” (pg.2) that is, the more backward a country is, the faster they can catch up. Researchers agree (Abramovitz, 1986; Lall, 1992; Romer, 1994; Barro, Mankiw, & Sala-i-Martin, 1993) this is due to the argument that poorer countries can replicate production methods and adopt innovations and technologies from richer countries to facilitate the catch-up or convergence. However, it was noted from a cross-country study that convergence only occurred in countries that had industrialised (Romer, 1994). Further analysis indicated that the failure of cross-country convergence refutes the two main conventions of the exogenous model; firstly, that technological change is external, and secondly, that the same technological opportunities exist in all countries (Romer, 1994). Barro et al. (1993) agree with this finding and provide empirical evidence that the level of technology is in fact dissimilar in different countries. Furthermore, research (Barro et al., 1993; Romer, 1994) specifies that the reduced level of convergence is due to the law of diminishing returns and in order to reduce these effects, significant externalities or spillovers are required to ensure that economic growth can develop at a continuous, undiminished rate (Griliches, 1992). Thus, it can be stated that endogenous growth requires externalities and spillovers to take effect.

The “Flying-Geese” (FG) theory of economic development is recognised as one of the major principles of the catch-up or convergence theory. It was introduced by Kaname Akamatsu in the 1930s, which entailed three patterns of “FG formation related to the process of industrial development in the Asian countries” (Ozawa, 2010, p. 3). In alignment with the catch-up theory and in reference to the third formation pattern ”countries at different stages of development”, Ozawa (2010)

explains how developing countries cannot develop further without interaction and influence from developing countries. These influences take the form of endogenous externalities and spillovers, however, an element of exogenous growth is required to facilitate these internal spillovers through capital accumulation and foreign aid. Li and Liu (2005) discuss the theory regarding the impact of FDI on economic growth in developing countries; they claim that FDI can facilitate both endogenous and exogenous growth through various means, that is, exogenously through increasing host country investment and endogenously through externalities and spillovers. Evidence of such economic growth and development is provided by many economic researchers (Blomström, 1991; Borensztein, De Gregorio, & Lee, 1998; Dunning, 1988; Kokko, Zejan, & Tansini, 2001; Luiz R. De Mello, 1997; Wang, 2010) and shows how these two types of growth contribute to filling the economic gaps in developing countries.

The four gaps highlighted by Saville (1993) comprise of the foreign exchange gap, the resource gap, the skills and technology gap, and the budgetary gap. These gaps result in a shortage of investment capital, foreign exchange, skills and technology, and government revenue within the LDC. In response to this problem, it is argued that the multinational corporation (MNC) is one of the most effective means in generating growth and development in a host LDC. The argument is supported by the widely accepted notion that investment through multinational firms has become the core of international economic activity (Markusen & Venables, 1999; Narula & Dunning, 2010; Raj et al., 2010; Wang, 2010). Over the past two decades, globalisation has profoundly affected the economies of both developed and developing countries. By increasing the flow of trade and Foreign Direct Investment (FDI), trade liberalisation policies have transformed and

modernised the economies of emerging markets (Raj et al., 2010), showing that developing countries and emerging markets understand the benefits of FDI in terms of growth and development.

Despite this, opposing perspectives regarding the effects of the MNC on host country economies have been debated for many decades. Although 19 years have passed since Saville's study (1993), there is still uncertainty as to whether the impact of the MNC has a positive or negative effect on the host country's economy. Saville (1993) based his research on views set out by Schatz (1981), who argues that views on MNCs range across a wide spectrum. Opposite sides of the spectrum are referred to as "critics" and "advocates" of the MNC. Within this spectrum, and in accordance with opposite sides, evaluation of the MNC is divided into the rejection approach and the acceptance approach, with each approach tending towards their respective views. Schatz (1981) refers to this as the "pragmatic approach" in that the views of MNC operations are mixed, resulting in costs and benefits for the host.

Wang (2010) confirmed this approach when he studied the impact of inward FDI on 50 host countries. Briefly summarised, Wang (2010) collected and analysed data from 50 countries between 1970 and 2004. The research concluded that inward FDI in the short term has a negative effect on the host economy, while the cumulative effect of FDI over time tends to be positive. Research from Fedderke and Romm (2006) supports this by showing that there is a crowding out effect of domestic investment from FDI in the short run and positive effects in the long run. This cumulative positive effect aligns with the Schatz (1981) pragmatic approach which, in the long run, provides positive results. However, there are still cases of

cumulative negative effects which contribute to the continued uncertainty on this topic.

1.3 Research motivation

Due to the continued uncertainty and debate regarding the impact of the MNC on the host country, this research seeks to update the study conducted by Saville (1993). Based on the opposing arguments found in the theory, an empirical study was undertaken by Adrian Saville in 1993 to determine the impact of the MNC on a "case-by-case basis" (p. 18).This method aligns with the pragmatic approach specified by Schatz (1981). Saville's study is currently outdated and a case can be made for the need to update the investigative study.

Saville's research (1993) focused on the building, construction, and engineering sectors in South Africa. South Africa was identified as a LDC at the time of writing based on the identification of characteristics typically associated with an LDC economy (Saville, 1993). For the purposes of this research proposal, South Africa will continue to be the subject country of the research, however, it will be referred to as an emerging economy due to economic development since 1993 (Arnold & Quelch, 1998).

1.4 The South African Context

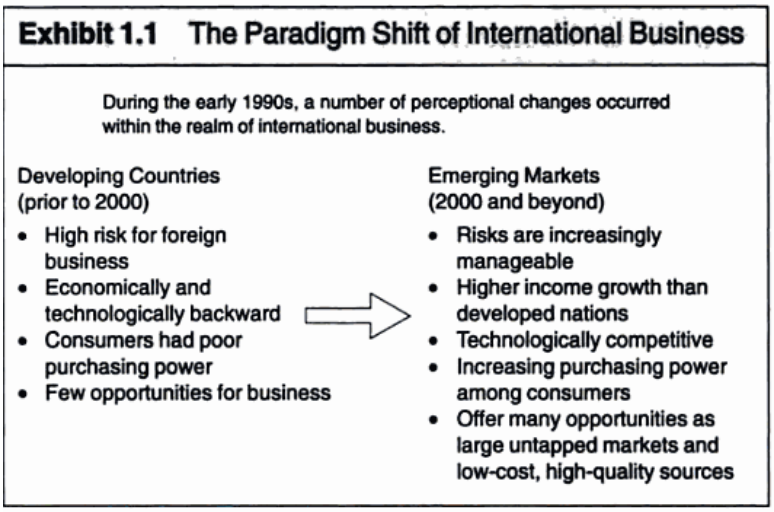
Since the time of Saville's research (1993), FDI literature has moved towards the emerging market replacing the LDC. Arnold and Quelch (1998) elaborate on this development: "The phrase 'emerging markets' has been adopted in place of the

previous lexicon of 'less developing countries', 'newly industrialising countries' or even 'Third World countries."(p. 8).

The emerging market is seen as a major growth opportunity in international business (Arnold & Quelch, 1998; Cavusgil, Ghauri, & Agarwal, 2002; Hoskisson, Eden, Lau, & Wright, 2000; Luo & Tung, 2007), therefore attracting increased levels of FDI.

The table below, from Cavusgil et al., (2002) shows changes that have occurred since the early 1990's with regards to emerging markets motivating MNCs to invest in these markets. This shows that foreign investment through the MNC has become common practice in international business.

Figure 1: Paradigm Shift of International Business (Cavusgil et al., 2002)



Hoskisson et al. (2000) define emerging markets as "low-income, rapid-growth countries using economic liberalization as their primary engine of growth" (p. 245). In accordance with the definition by Cavusgil et al. (2002) South Africa can be defined as an emerging market as it is a developing country that is firstly, currently undergoing a process of economic reform which is designed to address poverty

and improve the living standards of previously disadvantaged people. Secondly, South Africa has recorded positive economic growth over a sustained period, though the financial crisis of 2008 has impacted this growth (as it has in almost all countries). These two points are in alignment with the argument posed by Cavusgil et al. in terms of their definition of an emerging market. In additional there appears to be widespread agreement among academics (Arnold & Quelch, 1998; Hoskisson et al., 2000; Cavusgil et al., 2002; Luo & Tung, 2007) that emerging markets include the economies of China, India, Russia, Poland, Ukraine, the Middle East, Latin America, Southeast Asia and Africa. It is with this definition that South Africa will be referred to as an emerging market economy. Further evidence of this is the recent inclusion of South Africa in the BRICS (Brazil, Russia, India, China, and South Africa) group in 2011 cementing their position in the world economy.

2. Theory and literature review

2.1 Introduction

In an attempt to build on Saville's (1993) research of the effects MNC's have on the South African economy, it is first necessary to make a number of introductory remarks on the MNC in emerging markets. In this regard, this chapter has three main objectives:

i. To investigate the opposing views regarding the MNC and its role in facilitating economic growth and development in the host country.
ii. To identify the costs and benefits associated with FDI, more specifically the impacts of the MNC on the host countries' industries and in doing so, provide a general framework for investigating these impacts.
iii. To update the literature on the African views and the problems facing emerging markets as a result of increased foreign investment.

In line with the above, the rest of this chapter is made up of four main sections, namely Section 2.2 which provides a synopsis of the positive and negative impacts of the MNC on the host economy, Section 2.3 which suggests an overall investigative framework and provides a review of the evidence, 2.4 which is devoted to the South African context, and section 2.5 which is dedicated to final remarks.

The next section will focus on the literature around the identified effects of the MNC on the host country economy.

2.2 Impacts of the MNC on economic growth and development in host countries

Saville (1993) explored the effects of the MNC on the host country, specifically on less developed countries (LDC). His research attempted to empirically prove if the MNC had a positive or negative effect on the host country and whether the MNC was able to fill the four gaps which are prevalent in LDCs. These four gaps are said to preclude, or at least hamper, growth and development in these countries. The gaps have been identified as the “foreign exchange gap”, the “budgetary gap”, the “resource gap”, and the “skills and technology gap”. Saville (1993) argued, “It is often contended that foreign investment and more specifically the MNC, can substantially assist in closing the four gaps, thereby serving as an engine for growth and development in the LDC” (p. 24). However, in the 1970s, many host country governments and some economists viewed multinational investment as detrimental to host economies’ welfare and development, creating monopoly situations that exploited those economies and stifled local competition (Markusen & Venables, 1999). Despite these negative views, it can be noted that since the 1990’s, global FDI has increased substantially and the universal view on foreign investment by way of MNC’s has become more permanent. This suggests that multinationals provide important complementarities with local industry, resulting in stimulated development in host economies (Markusen & Venables, 1999). Furthermore, FDI-based development strategies were common among LDCs and competition between developing countries was growing due to increased pressure to attract the right kinds of FDI (Narula & Dunning; 2000, Blomström & Kokko, 2003). Narula and Dunning (2000, 2010), examined some of the changing realities

associated with globalisation and indicated that MNCs play a growing role as catalysts, participants, and instigators in developing countries. Blomström and Kokko (2003), however, identified complications as a result of the growing competition, such as host governments trying to attract FDI resulting in a shift of profits and social welfare.

Alfaro and Rodrigues-Clare (2004) conducted a first generation industry-level (cross-section) study and generally found a positive correlation between foreign presence and sectorial productivity. Their literature review revealed that this was a common outcome, “For example, the pioneering work of Caves (1974) finds positive FDI spillovers in Australia; Blomström (1986) and Blomström and Wolff (1994) find positive effects for Mexico; and Sjöholm (1999) reports a positive impact for Indonesia” (Alfaro & Rodrigues-Clare, 2004, p. 117). However, at the macroeconomic level, cross-section empirical work by Borensztein et al. (1998) and Alfaro and Rodrigues-Clare (2004) found little support that FDI has a positive effect on economic growth.

Despite the polar view between advocates and critics, there is nevertheless agreement that MNCs do provide some sort of benefit to the host country. This argument was built by evaluating the sum of these effects, focusing on the individual costs and benefits, but ultimately combining them to come to a holistic or macroeconomic level. The short-term versus long-term effects on the host economy as a whole are a result of costs and benefits of MNC investment. These costs and benefits have an effect on industry, the local firm, and ultimately the host economy.

In the next section, said costs and benefits have been identified in detail. Furthermore, the arguments from both advocates and critics will be reviewed with evidence to support their claims in order to build the case for the research.

2.3 The investigative framework

In an attempt to update Saville's (1993) study in investigating the impacts of the MNC, the same investigative framework as defined by Saville (1993) will be used in this study. Saville (1993) defined a set of costs and benefits in order to empirically evaluate the effects of these costs and benefits on the host economy. Saville, (1993) broke down the set of costs and benefits into three subsets; (i) external effects, (ii) resource effects, and (iii) competition effects. In addition to Saville's sources, recent literature (Blomström & Kokko, 2003; Borensztein et al., 1998; Markusen & Venables, 1999) identified an additional effect, stating that FDI creates technological externalities and knowledge spillovers for the local economy. These technological externalities relate to the skills and technology gap to which Saville (1993) refers to, however, the argument can be made for them to be included as a separate effect due to a great deal of literature and research on the topic (Borensztein et al., 1998; Lall, 1992).

The effects have been detailed in the table below, along with the identified costs and benefits which will be discussed in detail in the following section.

Table 1: The effects of the MNC on the host country (Saville, 1993)

1. External effects	a) Size of initial capital inflow b) Relative marginal propensity to import and export c) Relative marginal propensity to replace imports d) Extent of profit/dividend repatriation e) Size of royalty payments f) Use of transfer pricing
2. Resource effects	a) Employment creation b) Relative labour productivity c) Relative capital intensity d) Impact on distribution of income e) Local training of labour f) Comparative use of skilled expatriate managers g) Relative cost of finance h) Undertaking of appropriate local R&D i) Creation of forward and backward linkages j) Relative contribution to government revenue
3. Competitive effects	a) Displacement of firms at entry and after entry b) Relative efficiency and profitability
4. Spillover effect	a) Technological and human resource externalities

2.3.1 External effects

The external effects are based on the impacts of the MNC from a macroeconomic perspective. Literature on the effects of MNC entry and investment in the host economy has been assessed.

The foreign exchange gap, which is prevalent in developing countries, is a result of their current account deficit being greater than the value of their capital inflows. It can be argued that increased capital by way of FDI through the MNC can assist in filling this gap. Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) showed that during 1998, more than half of all private capital inflows to developing countries

was as a result of FDI. Wang (2010) provided evidence from the United Nations in terms of the increase in world FDI by MNC over the past few decades. In the 1980s the annual average growth rate of world FDI inflows was over 20% and by the late 1990s it was nearly 40%. There was a slowdown in the 2000's but an annual average growth rate of 15% was maintained between 2001 and 2007 (p. 104). Advocates argue that "international flows of capital perform a variety of functions in the world economy…for example, they permit levels of domestic investment in a country to exceed the country's level of saving" (Lipsey, Feenstra, Hahn, & Hatsopoulos, 1999, p. 307). Increased domestic saving is a determinant of exogenous growth and therefore assists in filling the budgetary and foreign exchange gap. It has also been argued that the MNC can assist in filling the foreign exchange gap in a second way, that is, through replacing imports and encouraging exports (Saville, 1993). Studies by Blomstrorm (1991), Lipsey et al. (1999), and Markusen and Venables (1999) have found evidence that the presence of the MNC has a positive effect on local firms' propensity to export. In agreement with this, Ray and Venaik (2008) stated that FDI is acknowledged for boosting exports, and they also found evidence that the MNC has a greater ability than local firms to export. Furthermore, in support of both Moss, Ramachandran, and Kedia Shah, (2004) and Ramstetter (2012), Ray and Venaik (2008) found that the export to output ratio for MNCs was three times higher than local firms. Chan and Chow (1997) showed that MNCs in China charge higher prices on exports. In theory, this should contribute to filling the gap, however, their research also showed that MNCs shift their profits to lower tax rate countries to minimise their global tax, thus repatriating profits out of the host country, not contributing to GDP and increasing the foreign exchange gap. In addition, transfer pricing through the overpricing of

imports and under-pricing of exports can also serve to increase the gap. Chan and Chow (1997) referenced studies where MNCs in Columbia, Brazil, Bangladesh, and Asia Pacific all overprice their imports which can account for the low profitability of the MNC. Chan and Chow (1997) and Kumar (1996) also claimed that MNCs employ transfer pricing to move profits to tax havens or bypass foreign exchange controls, however, the extent of transfer pricing depends on the relative tax rates between the host country and other regions. The findings from an empirical study conducted by Chan and Chow (1997) were inconsistent with the allegation that MNCs shift profits out of the host country by transfer pricing manipulations. Their research revealed that MNCs pay higher prices for imports, however, they also charge relatively higher prices on exports when compared to local firms therefore negating the effect.

In summary, there is inconclusive evidence as to what the external effects of the MNC on the host country are and whether the MNC in fact assists in closing the budgetary and foreign exchange in the host country. Thus Saville (1993) argued, based on (Schatz, 1981), that “it is only possible to assess the impact of the MNC on the external sector on a case by case basis” (p. 18). Kugler (2006) agreed with this view and argued that due to data limitations, empirical studies on the effects of the MNC on the host country can only be made up of case studies in alignment with Schatz's (1981) “pragmatic approach”.

2.3.2 Resource effects

The resource effects are based on the effects of the MNC in the internal economy from a microeconomic perspective and the diffusion of resources from the MNC to

local firms operating within or between industry sectors. The literature review is in relation to the costs and benefits detailed under the resource effect in Table 1, however, they have been arranged into four categories: (i) labour creation, productivity, and income distribution; (ii) capital markets; (iii) government revenue; and (iv) linkages.

2.3.2.1 Labour creation, productivity and income distribution

Advocates of the MNC contend that multinationals play an important role in creating and growing employment in the host country (Bhaumik, Estrin, & Grzegorz, 2007; Blomström & Kokko, 2003; Moss et al., 2004; Ramstetter, 2012). However, a study completed on employment data by Ramstetter (2012) suggested that employment growth in MNCs kept pace with that of local firms. Conversely, Mthombeni (2006) stated that during the reintegration of South Africa into the world economy, the policy that was employed "contributed to the loss of between 500 000 and 1 million jobs in the private sector" (Mthombeni, 2006, p. 167). That aside, advocates have found evidence that MNCs tend to be more productive than local firms (Markusen & Venables, 1999; Kokko, Zejan, & Tansini, 2001; Alfaro & Rodrigues-Clare, 2004; Ramstetter, 2012) and have argued that increased labour productivity would lead to higher profits and ultimately add to the gross domestic product (GDP) of the host country. However, based on claims that multinationals pay higher market wages than their local counterparts (Alfaro & Rodrigues-Clare, 2004; Chan & Chow, 1997; Lipsey et al., 1999; Ramstetter, 2012), Alfaro and Rodrigues-Clare (2004) argued that the increased wages would completely capture the increased GDP, hence not contributing to increased national welfare. However,

it is very likely that the higher wages and increased productivity will positively influence local firms (Ramstetter, 2012). The higher wages could lead to increased individual spending or saving within the host country which indirectly have positive effects on the economy (Maki, 2000; Uhlig & Yanagawa, 1996).

In addition, a study by Glass and Saggi (2002) showed that wage differentials are relative to industry. For instance, in the textiles and metal products industries, MNCs pay roughly the same wages as local firms. However, Glass and Saggi (2002) identified the differentiating factor as “technology”, and agreed with Saville (1993) and Ramstetter (2012) that “MNCs tend to employ technology that is more capital-intensive” (Saville, 1993, p. 19), thus MNCs tend to pay higher wages due to the requirement for skilled workers which command a higher pay rate (Glass & Saggi, 2002). Glass and Saggi (2002) also cited a second reason why MNCs pay higher wages, that is, as a means of retaining skilled labour, reducing the risk of their employees being poached by local firms.

In terms of job creation, Ramstetter (2012) disagreed with the advocates, however, his research associated technology with job creation, and showed that MNC’s tend to produce higher quality products based on these technology advantages over local firms, which tended to negatively impact the amount of jobs created. The argument, however, still favours the advocates in terms of the total benefits gained by the host economy. Even if MNCs create fewer jobs than local firms, the cost is offset by higher labour productivity, higher product quality, and thus higher revenues (Ramstetter, 2012).

2.3.2.2 Capital markets

Saville (1993) argued that "the MNC adversely affects the LDC economy by distorting capital markets in two ways; (i) gaining favourable access to (cheaper) finance, and (ii) undertaking excessive repatriation of profits rather than reinvesting earnings"(Pg. 20). Profit repatriation was discussed in section 2.3.1 where the outcome resulted in contradictory evidence. In terms of the issue regarding the cost of borrowing of MNCs compared to local firms, the literature focuses specifically on the theory of internationalisation (Klein & Wöcke, 2009) where MNCs are said to have access to more capital as well as cheaper finance based on their access to international markets. However, in specific relation to the issue at hand, contradictory arguments exist. Reeb, Mansi, and Allee (2001) provide reasons for each case, MNCs can take advantage of market imperfections and hence gain access to cheaper finance, and on the other hand, the argument of "exchange rate risk and political risk… suggest that the international firm will have a greater probability of financial distress and, therefore, a higher cost of debt" (Reeb et al., 2001, p. 398). Furthermore, Saito and Hiramoto (2010) made reference to Errunza and Senbet (1981) who stated that "MNCs have the ability to arbitrage segmented capital markets, obtaining lower cost of debt" (Saito & Hiramoto, 2010, p. 65). In agreement with this, Doukas and Pantzalis (2003) based the MNCs' lower cost of debt on the fact that MNCs tend to be industrially and geographically diverse, resulting in lower business and financial risk when compared to local firms.

2.3.2.3 Government revenue

Advocates of the MNC suggest that MNCs pay relatively higher tax rates than local firms which contribute to government revenue and in turn contribute to filling the budgetary gap (Saville, 1993). However, recent literature advocates that tax incentives which reduce the corporate tax rates for MNCs have been implemented to attract MNC investment. Evidence for this was provided by Fedderke and Romm (2006) who stated that "the impact of corporate tax rates is straightforward. Since higher tax rates applied to corporate profits lowers FDI returns, it will discourage inward FDI. Devereux et al. (2002) show that OECD countries do indeed compete with each other over corporate taxes in order to attract investment."(p. 748).

2.3.2.4 Linkages

Saville (1993) identified the forward and backward linkages provided the by MNC as a "significant stimulus to the economy" (p. 21). Depending on where the MNC enters the market, backward linkages can be created which can lead to an increased demand for local inputs, and forward linkages through encouraging investment in successive phases of production. These linkages are seen to have a positive impact on the host industries and sectors, however, empirical evidence to determine whether these linkages are in fact created is inconclusive. Hobday (1995), cited in Markusen and Venables (1999), is in support of this based on a study conducted in East Asia which found a number of circumstances in which initial MNC investments created backward linkage effects to local suppliers. However, Narula and Dunning (2010) concluded that it is unclear as to whether MNC activities increase linkages. A review of the evidence conducted by Meyer

(2012) concluded that both forward and backward linkages are evident, however, they are more prevalent across industries than linkages within the same industry. Meyer (2012) cited Gertler (2003) who found strong evidence of linkages in vertically related industries, whereas linkages in the same industry had no significant effect.

2.3.3 Competitive structure of the host economy

Saville (1993) identified and assessed two key influences on the competitive structure of the economy as a result of MNC entry and operation in the host country. Available literature on each of these influences is reviewed below.

2.3.3.1 Profitability

Saville (1993) assessed the competitive structure of the economy while investigating the displacement of local firms once MNCs have entered the market. Markusen and Venables (1999) stated that the competition effect is created when a MNC enters the local market and increases competition, however, depending on where in the production process they operate, there are both positive and negative outcomes. They go on to say that the MNC reduces the profitability of the local firms in the same industry resulting, in the displacement that Saville (1993) referred to. Furthermore, their study showed that increased competition in the final product industry, as a result of the MNC entry, reduced the profitability of domestic firms in the same industry. Kugler (2006) showed that MNCs tend to target industries in which domestic firms can easily be out-produced, resulting in the inability of the

local firm to challenge the MNC thus losing market share which may lead to them closing down.

2.3.3.2 Efficiency

Critics argue that MNCs displace local firms through higher operational efficiencies, resulting in higher productivity per asset (Markusen & Venables, 1999) therefore creating oligopolistic market structures and displacing local firms (Saville, 1993). However, MNC operational costs tend to be higher as a result of the technology used which can result in reduced profits and thus the increased efficiency not having any positive macroeconomic effect. Still, increased efficiencies can result in better quality outputs which can be sold at a higher price or exported, therefore having a positive effect on the host economy. Saville (1993) investigated the effect of increased MNC efficiencies on creating oligopolistic markets and cited the work of Hymer and Rowthorn (1970); Lall (1980) Mandel (1980) and Grosse (1989), further research on this topic is lacking and therefore references to earlier work has been cited. The conclusion regarding the creation of oligopolistic markets as a result of MNC efficiencies is argued to be inconclusive (Saville, 1993).

2.3.4 Spillover effects

Spillovers from MNC to domestic firms can result in positive or negative effects; however, it is difficult to empirically test these relationships. Research has been completed in this area but the results are inconclusive as to whether they have positive or negative effect on the local firm.

Blomström et al. (1994) examined the role of the host country's overall development level as a factor of spillovers. The results of their study of various economies suggested that spillovers are focused on middle-income developing countries. However, in terms of the impacts, Marin and Sasidharan (2010) reviewed the positive and negative spillover effects in India and came to the conclusion that evidence regarding spillover effects shows mixed results. Furthermore, Alfaro and Rodrigues-Clare, (2004) conducted a study which was not able to confirm the existence of positive spillovers from FDI to host countries. Moreover, literature reviews and empirical studies conducted by Alfaro and Rodrigues-Clare (2004); and Gorg and Greenway (2004) show mixed evidence.

Fedderke and Romm (2006) confirmed a positive spillover effect on capital labour and technology as a result of FDI; however, in the short run there was evidence of a crowd-out of domestic investment, while in the long run the effects on output were positive.

Recent literature (Lyer, 2009; Kugler, 2006; Marin & Sasidharan, 2010) has shown a vast increase in studies relating to the spillover effects as a result of MNC entry into local industry. As a result, two main factors have been identified as the key drivers of spillover effects; (i) technology appears to be the main driver in creating spillovers, however, (ii) human resources play a vital role on facilitating the diffusion. The next section discusses the theory of spillover effects and focuses on these drivers.

2.3.4.1 Technology and human resource diffusion

Based on the effects identified in Table 1, literature (Borensztein et al., 1998; Glass & Saggi, 2002; Kugler, 2006; Kumar, 1996; Lall, 1992; Marin & Sasidharan, 2010) identifies technology and human resource diffusion as the two attributes that have the most positive contribution to economic growth, however, there are some limitations.

Borensztein, De Gregorio, and Lee, (1998) conducted research regarding technology diffusion and the effects it has on economic development. They determined that technology diffusion positively affects the growth rates in developing countries. However, they found that the rate of economic growth of a developing country in a typical model of technology diffusion depends on the degree of adoption and implementation of new technologies. Furthermore, their findings indicated that MNCs are considered to be a major channel for the access to advanced technologies by developing countries. MNCs are found to be among the most technologically advanced firms, accounting for a substantial part of the world's research and development (R&D) investment. Similarly, Blomstrom (1991) stated that MNCs undertake a major part of the world's R&D efforts and produce, own, and control most of the advanced production technology. To substantiate this claim, Borensztein et al., (1998) cited Findlay (1978) where he proposed that "FDI increases the rate of technical progress in the host country through a 'contagion' effect from the more advanced technology and management practices used by the MNCs" (p. 116).

Similarly, De Mello (1997) states that "When technology transfers result from the impact of foreign technologies, evidence for China, Zhao (1995) shows that the

local technological capability is positively affected by technology imports; so is output growth, R&D at home and manufacturing exports." (p. 24)

In addition to technology, human resources and knowledge were also identified as factors to positively increase growth rates in the host country. Wang (1990) confirmed that the increase in 'knowledge' applied to production is determined as a function of FDI.

In order to take advantage of these advanced levels of technology, Nelson and Phelps (1966) and Benhabib and Spiegel (1994) agreed that the presence of an adequate level of human capital is required in the host economy. From that they reasoned that the level of human capital in the host country can play a large role in limiting the absorptive capability of the host country which can therefore be a limitation to the growth rates.

Borensztein et al. (1998) tested the effect of FDI on economic growth in a framework of cross-country regressions utilising the data of FDI flows from industrial countries to 69 developing countries over the last two decades. Their results confirmed that FDI is in fact an important vehicle for the transfer of technology. In addition, their research findings showed a strong complementary effect between FDI and human capital, again confirming that the contribution of FDI to economic growth is enhanced by its interaction with the level of human capital in the host country. However, the results also imply that FDI is more productive than domestic investment only when the host country has a minimum threshold stock of human capital.

De Mello (1997) looked at growth as a result of FDI and whether it can be sustainable in the long run as well as the short run. The paper discusses growth

theory models and FDI, looking at endogenous and exogenous growth models. The findings indicated that long run growth as far as FDI is concerned can only result from technological progress and/or population/labour force growth, which are both considered to be exogenous. They state that the "only vehicle for growth enhancing FDI would be through permanent technological shocks" (p. 8). This is in alignment with the findings of Borensztein et al. that technology and human capital investment as a result of FDI through MNCs result in growth in the host country. The caveat, however, is agreed upon by Borensztein et al. (1998), Nelson and Phelps (1966), and Benhabib and Spiegel (1994), that is, that the host country must have a minimum threshold stock of human capital in order for the host country to absorb the capabilities. Alfaro and Rodrigues-Clare (2004) confirm this finding by citing Xu (2000), "who uses data on U.S.-based multinational corporations, finds that a country needs to reach a minimum human capital threshold to benefit from the technology transfer from multinationals and that most developing countries do not meet this threshold" (p. 117).

This investigative framework was based on some of the available evidence on the impact of the MNC, however, the next section will provide information specific to the South African context and therefore provide the logic for undertaking South Africa as the subject of this study.

2.4 The South African context

The context in which Saville (1993) wrote his paper can be described as a time of political unrest in South Africa. During the late 1980's and early 1990's in South Africa, sanctions were in the process of being lifted, political turmoil was rife and

the future of the country was uncertain. It was evident from the FDI flows during that time that the sanctions had a negative effect on the development of the country and the government has focused on attracting international investment into South Africa since then.

To date, polar opposite views on whether MNCs impact positively or negatively on the South African economy exist, though they are based on beliefs and opinions rather than empirical evidence. The political and economic landscape of South Africa has changed dramatically over the last two decades, hence the requirement to re-evaluate the effects of MNCs on the South African economy. Policy is currently influenced by ideology rather than evidence, hence the need for this study to inform policy based on empirical evidence.

There has been much debate around nationalisation within the South African environment, spurred by some South African citizens and politicians who are of the belief that nationalisation is a way to empower the country and to solve inequality and socioeconomic issues. This is an indication of negative sentiment regarding MNCs in South Africa. This has been evident in the recent Massmart/Wal-Mart acquisition which received much attention in 2011 from the media and economists alike. Many people protested against the acquisition and identified the negative effects associated with MNCs as reasons for Wal-Mart not to acquire Massmart. There was also strong support for the acquisition, citing the benefit of job creation due to their expansion plans through the creation of forward and backward linkages. The acquisition did go ahead despite protests from the South African labour unions, however, it is still too soon to analyse the impacts. This example highlights the polar views of the effects of the MNC in South Africa, and it can be

said that these views are not based on empirical evidence and are merely based on opinions.

Despite the South African MNC critics, the table below shows how inward FDI in South Africa since 1995 has increased. This indicates that the downward trajectory noted in Saville (1993) has been reversed since the inception of democracy in 1994. However, the evidence as to whether increased FDI has had a positive effect on South African industry must be empirically investigated.

Figure 2: Inward foreign investment into South Africa

Foreign investment

Inward investment

Foreign liabilities (foreign investment in South Africa), 1975–2009

	1975	*1980*	*1985*	*1990*	*1995*	*2000*[c]	*2005*	*2009*
					Rbn			
Direct investment	7.44	12.27	22.76	23.60	54.76	328.86	499.59	866.66
Non-direct investment[a]	9.30	14.34	68.13	66.48	173.61	446.04	706.48	1 223.25
Total[b]	**16.74**	**26.61**	**90.89**	**90.08**	**228.37**	**774.90**	**1 206.07**	**2 089.91**
Direct investment as a proportion of total	44.4%	46.1%	25.0%	26.2%	24.0%	42.4%	41.4%	41.5%
Increase (direct investment)	–	64.9%	85.5%	3.7%	132.0%	500.5%	51.9%	73.5%
Increase (direct investment) 1975–2009	–	–	–	–	–	–	–	11 549%

Source: SARB, www.resbank.co.za, time series data, accessed 10 August 2011

a Includes portfolio investment, and long- and short-term loans from various sources.
b Figures should add up vertically but may not, owing to rounding.
c According to the SARB the very large increase in South Africa's foreign liabilities in 1999 and 2000 was the result of the transfer of the primary listing of certain companies from the Johannesburg to the London Stock Exchange.

2.4.1 African scepticism toward foreign investment

With the onset of globalisation and increasing global competition to attract FDI, Africans still have a negative attitude towards foreign capital investment and ownership. This is based on their past experiences of European capitalism entering their countries and exploiting all their resources (Moss et al., 2004). This negative sentiment can be applied to South Africa and provides reasons for the current opposition to MNC's owning and investing in South African companies.

Many of the supported benefits of FDI are repeatedly challenged directly, both on ideological and empirical grounds. There is a common criticism that MNCs and foreign investment have a crowding out effect on local firms and that these firms cannot compete because of financing, size, marketing power, or some other unfair advantage (Dunning, 1993; Sylwester, 2005; Fedderke & Romm, 2006; Wang, 2010).

Moss et al. (2004) highlighted this negative attitude against foreign investment by quoting an article published in the government-owned *Times of Zambia* on March 4, 2004; "The uneven playing field has led to local industry and products failing to compete effectively ... there are far too many cases of investors coming into the country and divert into ventures that should be best left to the locals ... It is such issues that investment legislation needs to address" (p. 8). In contrast, a study by Fedderke and Romm (2006) conducted in South Africa, empirically showed positive effects on growth as a result of foreign investment in South Africa.

2.5 Concluding Remarks

The literature regarding the effects of the MNC on the local firms, and ultimately the host country's economy, does not provide a clear position, either empirically or theoretically. The literature looks at both macroeconomic and microeconomic factors and in many cases comes to mixed conclusions. Therefore, it can be stated that the impacts of MNCs on local firms sit on a continuum ranging from positive to negative effects which are based on a number of other attributes. This results in the need for further investigations into this subject. Based on updating the Saville (1993) study, the case has been made to use South Africa as the country of interest. Previous studies conducted on South Africa have resulted in mixed conclusions based on empirical evidence; however, the ideological views tend to sway toward the negative side of the continuum therefore making the argument for continuous research.

3. Research questions

In recent times the political landscape of Africa has led to reduced interest in FDI. African countries tend toward nationalising local firms and do not want the MNCs to operate in their countries for fear of a loss of control (Moss et al., 2004). Moss et al, (2004) expand on this statement, they argue; “Although there has been substantial turnover of political leadership in Africa over the past decade, many of the current decision-makers (including those frequently hailed as reformers) have held political positions for decades and were trained on the socialist model steeped in anti-foreign investment ideology. Indeed, nearly every African leader, no matter how liberal he is considered today, began his career as a socialist or Marxist. Even as most of Africa’s finance ministers have become increasingly convinced that economic openness can be beneficial for their countries and fluent in the language of international capitalism, many of their cabinet colleagues remain unreconstructed economic nationalists. Some of the ideological opposition to foreign investment is part of a general critique of capitalism and more recently of globalization and foreign capital remains an easy target” (Moss et al., 2004, pg7).

In line with the argument made by Moss et al., this research will shed light on the impacts of the MNC within the South African context. It attempts to provide empirical evidence to ascertain whether the MNC has a positive or negative effect on the South African economy. The results will be used to either validate or reject the African claims regarding MNC investment from an empirical rather than an ideological perspective.

The effects on the South African economy will be analysed at firm level and specifically aims to answer the following three research questions.

3.1 Research Question 1: Does the MNC assist in creating increased labour productivity within the host country?

In order to answer the above question, the following determinants of total labour productivity have been identified. These determinants are in line with those used by Saville (1993), given that this research will serve as an update to his work.

Table 2: Determinants of labour productivity

Determinants of labour productivity
• **Job creation** • **Employee productivity** • **Productivity resultant of capital intensity** • **Income distribution** • **Government revenue**

3.2 Research Question 2: Does the MNC adversely affect the host economy by distorting capital markets?

In order to answer the above question, the following determinants of capital market distortion have been identified which inform the research question. These determinants are in line with those used by Saville (1993), given that this research will serve as an update to his work.

Table 3: Determinants of capital market distortion

Determinants of capital market distortion
• **Cost of financing** • **Extent of profit repatriation**

3.3 Research Question 3: Is the MNC responsible for creating a negative effect on the competitive structure of the host economy?

In order to answer the above question, the following determinants of competitive structure have been identified which inform the research question. These determinants are in line with those used by Saville (1993), given that this research will serve as an update to his work.

Table 4: Determinants of competitive structure

Determinants of competitive structure
• **Profitability** • **Efficiency**

4. Research method

4.1 Research Background

Based on a review of available literature, it can be concluded that there are two opposing schools of thought on the impact of MNCs on the host economy, the advocates and the critics. The evidence provided confirms that there is no general agreement. Both theoretical reviews and empirical studies have resulted in mixed conclusions (Alfaro & Rodrigues-Clare, 2004; Wang, 2010) For that reason, it can be argued that it is only possible to evaluate the impact of the MNC on a case-by-case basis. On this premise, the method used to empirically test the validity of claims made by advocates and critics, made use of a case-study approach. This study specifically evaluated the case of South Africa. It was a comparative study which aimed to establish whether MNC's contribute to the South African economy in a positive or negative way. Finally, it aimed to prove whether MNCs are more efficient than local firms in filling the four gaps in the South African economy.

4.2 Research design and method

The research made use of a quantitative, descriptive case study method. The study compared secondary information gathered from the financial statements of Johannesburg Stock Exchange (JSE) listed companies.

This study aimed to build on the research of Saville (1993) and to determine if the results from his study still hold true. The research design and method used is in accordance with this goal. Saville's research was conducted almost 20 years ago

and focused on empirically testing the comparative performance of multinational and local firms operating in the construction and engineering sectors in South Africa. Due to the time constraints of the research project and the nature of the data available, only cross sectional data was used in Saville's research. Saville (1993) cites Jenkins (1990) in order to make the argument for the use of cross sectional data, however Jenkins (1990) argues that a "suitable size of time series data, for instance 20 years, poses a vast problem in that firm buyouts, mergers and acquisitions and internal restructuring over that period make it difficult to compare these firms based on internal homogeneity" (p. 25). Therefore Savilles' (1993) study made use of cross-sectional data for the year 1989 to 1990. However, data from 2007 to 2011 was used in this study in order to increase the sample size considerably. In terms of the issue highlighed with regards to buyouts, mergers and acquisitions, it did not play a role in the dataset and therefore the larger sample was used.

In summary, this study made use of pooled cross-sectional time series data over five years, dating 2007 to 2011. In support of this method, Alfaro and Rodrigues-Clare, (2004) and Wang (2010) also made use of cross-sectional time series studies on the effects of foreign investment on the host country.

4.3 Population and unit of analysis

The unit of analysis for this research was the multinational firm and local firm operating within South Africa. The sample included multinational and local firms listed on the JSE. JSE data was chosen as it stems from audited company data and is assured to be easily accessible, accurate and reliable. Saville's study (1993)

was conducted within the South African industrial sector, specifically on the construction and engineering industries.

Saville (1993) specifically investigated multinational and local firms within the same sector in order to comply with the "fungibility" assumption. This assumption is based on the interchange ability between multinational and local firms. Saville (1993) argues that it is necessary to compare firms that are similar. In order to make a quantitative comparison, the multinational and local firms must be equivalent substitutes for each other. Saville (1993) also argues that firms operating in the same sector display some degree of homogeneity and therefore fulfil the fungibility assumption.

An analysis of the main board of the JSE in 2012 identified a reduction in the amount of local and multinational firms operating within the industrial sector. Further analysis indicated that there was a sufficient amount of multinational and local firms operating in the basic material sector, thus this study was based on that sector.

Creamer (2012) shows how important the mining sector is to the growth and development of the South African economy; "The South African mining industry's contribution to the South African economy had shrunk from R103-billion in 1993 to R93-billion in 2009, despite the global commodity boom and the talk of the so-called super cycle. Trevor Manual conceded that the South Africa government had failed to put in place the requisite water, rail and electricity infrastructure needed for much higher mining output. With such infrastructure in place, there was no reason why mining output could not double in the decade to support a 7% annual

economic growth rate" (Creamer, 2012, par. 5, 8, 9). This provides further rationale for basing this study on firms operating in the mining sector.

Regression analysis was conducted to investigate the relationships between specific variables in alignment with the identified determinants which inform the research questions in Chapter 3. The following secondary data for companies listed in the basic resources sector were collected from the McGregor's database for five years, 2007 to 2011; total assets, fixed assets, total liabilities, long term interest bearing debt, turnover, earnings before interest and tax, interest paid, tax paid, operating profit margin, dividend cover, number of employees, number of directors, remuneration to directors, cost of borrowing, change in profit margin, change in owners' equity, owner, capital intensity, capital intensity of fixed assets.

In comparison with Saville (1993), the data collected was the same, with the exception of the number of expatriate directors. This information was not easily available and due to time constraints was left out of the sample. In addition, fixed assets and capital intensity of fixed assets was included due to a recent study which indicated that fixed assets may be a better means of comparison (Ramstetter, 2012).

4.4 Sampling method and sample size

An analysis of the main board of the JSE identifies 74 companies listed in the basic resources sector (as at 03 September 2012). This sector is made up of the following industries;

Table 5: Basic resources

Basic Resources
Forestry and Paper
Industrial Metals and Mining
Mining

Firm ownership was determined based on shareholding percentage, firms that showed foreign shareholder ownership were classified as foreign and the opposite rule held for local ownership. The breakdown of the firm ownership is shown in the table below.

Table 6: Owership per sector

SECTOR	FOREIGN	LOCAL	TOTAL
Basic Resources	**37**	**39**	**76**
Forestry and Paper	1	3	4
Industrial Metals and Mining	7	5	12
Mining	28	30	58
Grand Total	**37**	**39**	**74**

Upon closer inspection, the forestry and paper industry was excluded from the final sample set. This was based on dissimilarity of operations when compared to industrial metals and mining, and mining industries which may have resulted in skewed results, in line with the fungibility assumption. This reduced the initial sample of 74 down to 71 companies. A further 35 firms were excluded from the final sample for one of four reasons:

1. Nineteen of the 35 firms in the initial sample were not operating mines. These firms were involved in mining exploration and therefore could not be compared to firms with mining operations.
2. Based on the definition that only firms with operating mines within South Africa are to be included in the dataset resulted in the exclusion of a further nine firms from the dataset.
3. Two firms no longer had operating mines, due to various reasons, therefore showing no accounting activities over the five year period and thus no means of comparison.
4. The remaining five firms were still setting up operations and once again had no accounting activates to report and thus compare on.

The final sample consisted of 36 companies, 15 foreign owned and 21 locally owned, operating in the industrial metals and mining, and mining industries. Data was collected for a five year period from 2007 to 2011 for each firm. Not all firms had information for the full period. In the cases where information was not available it was ignored when running the statistical analysis.

4.5 Data collection and analysis

All secondary data was collected from the McGregor BFA Research Domain with exception of the number of directors and ownership. Financial statements retrieved from company websites and SENS information downloaded from Sharedata was used to complete the missing information. The “Who Owns Who” (McGregor, 2012) publication was also used.

In an attempt to ensure data accuracy, information received from McGregor's was compared to data downloaded from the Osiris database via the Gibs database portal and actual financial statements downloaded from individual company websites.

Some firms' financial statements were presented in currencies other than the South African Rand (ZAR). Currencies such as US Dollar (USD), Australian Dollar (AUD), British Pound (GBP) and Canadian Dollar (CAD) formed part of the initial sample. These currencies were converted to ZAR using the following exchange rates:

Table 7: Currency conversion

Currency	ZAR Rate	Source	Date Accessed
USD	R8.28	www.jse.co.za	23-Sep-12
GBP	R13.43	www.jse.co.za	23-Sep-12
AUD	R8.65	www.jse.co.za	23-Sep-12
CAD	R8.50	http://fx-rate.net/ZAR/CAD/	23-Sep-12

A copy of the final data set can found in the appendix. The data analysis was carried out in STATISTICA version 10, a data analysis software system. It can be noted that not all companies had data for all years. This was due to non-operation of some companies in some of the years. Some companies moved from exploration operations to operational mines and did not record adequate financial activity during this period. This data was excluded from the analysis.

4.6 Research Limitations

This study was conducted in a South African context and may not be applicable to other countries due to economic and political differences; it focusses exclusively on the mining sector; tests only for directly observable and empirically quantifiable effects; ignores unlisted firms and excludes some firms based on the unavailability of data.

5. Research results

The final data set contained financial data from 36 companies in the SA mining sector over a period of 5 years (2007 to 2011). The aim of the study was to investigate the models used by Saville (1993) in order to inform three research questions. Some changes have been made to the models that were used by Saville (1993), reasons for which have been provided in the main text, along with the regression results and summary statistics.

All data was analysed and tested for normality, outliers and so on. Due to the highly skewed distributions of most of the variables, each variable was tested for significant differences between 'years' and 'owner'. This was done by a non-parametric alternative to the ANOVA, namely, the Kruskal-Wallis test and a non-parametric alternative to the t-test, namely, the Mann-Whitney U test. There were no significant differences between years for any of the variables in the study, however, significant differences were found between owner.

Saville (1993) made use of two sectors in his study and therefore used a control variable in order to control for differences. The present study only evaluated one sector, however, as discussed previously, the control variable, year, has been included to control for differences in the five years of data.

5.1 Research question 1: Does the MNC assist in creating increased labour productivity within the host country?

The first question aims to test whether there is a difference between labour productivity in terms of a significant contribution by foreign or locally owned firms. In order to test productivity as per Chapter 3, five separate models were run.

5.1.1 Employment Creation

Critics argue that MNC's are no better at creating jobs than local firms. The model employed to test the validity of this claim is adopted from Saville (1993), where it is argued that the number of jobs created by a firm is a function of the size and the relative profitability of the firm, in that more profitable firms tend to require and hire more workers. Saville (1993) measured size of the firm and relative profitability by total assets and operating margin. However, it can be argued that a firm's total assets are not an accurate measure of its size due to historical accounting associated with assets that may lead to accounting convention distortions. As a result, turnover has been identified as a more accurate way of measuring and comparing firm size as it is not stated historically and is based on recent annual performance. In comparing the performance of local firms and MNCs, it is necessary to control for ownership differences. This is achieved by constructing the dummy variable owner, with foreign as the reference category. Furthermore, the model was run across five years, with year added as the covariate to control for variation, and with 2011 as the reference category for year. The model is used to explain the level of employment creation, and thus includes the following variables:

Table 8: Employment creation

Model	Dependent Variable	Independent Variables
Employment creation	Number of employees	Operating margin Turnover Year Owner

The initial model was run and extreme values were identified, therefore, the regression model was rerun excluding these values. The regression results and summary statistics are presented below.

Table 9: Employment creation results

	Level of Effect	Parameter	SE	t	p
Intercept		3851.296	1530.480	2.516	0.013
Operating Margin		-40.824	27.175	-1.502	0.136
Turnover/1000000		933.848	83.862	11.136	<0.0001
Owner	Local	-1597.702	1187.551	-1.345	0.181
year	2007	3225.710	2408.050	1.340	0.183
year	2008	-298.933	2223.250	-0.134	0.893
year	2009	1307.752	2155.669	0.607	0.545
year	2010	-1237.838	2123.203	-0.583	0.561

The results show that the overall model was significant ($F=22.3$; $p<0.0001$) .The model explained 55% of the variance in employment levels, and indicates that the effect of turnover ($p<0.0001$) on employment levels was significant. The results also indicate that the average number of jobs created by firms in the sample is 3851, as given by the intercept. Moreover, holding all other factors constant, every R1 billion increase in turnover leads to 933 additional jobs. These results are interpreted and discussed in more detail in Chapter 6.

5.1.2 Labour productivity

It is argued by advocates of the MNC that even if MNCs create fewer jobs than local firms, the cost is offset by the higher productivity of MNC labour. This model, based on Saville (1993), measures labour productivity by value added per employee, which is calculated by dividing earnings before interest and tax (EBIT) by number of employees. The model includes the following independent variables; capital intensity defined as assets per employee, scale of operations for which turnover is used as a proxy, and the degree of supervision of labour, approximated by turnover per director. In respect of keeping the model up to date, specific changes were made. In accordance with Blomström and Kokko (2003), capital intensity has been changed to include fixed assets in the calculation, rather than total assets. Initial diagnostics indicated a high correlation between supervision of labour and turnover ($r=0.997$, $p<0.0001$), this may be a result of the supervision of labour calculation in which turnover is an input. To reduce the high correlation and potential issues as a result of multicollinearity, the supervision of labour calculation has been altered and is therefore determined by number of employees per director. Arguably, a better measurement would be number of employees per manager instead of number of employees per director, however, information on the number of management employees was not available at the time of data collection.

Again, the model controls for annual differences and measures ownership differences with the aid of dummy variables year and owner respectively. The model includes a no-intercept model, since zero turnover and thus zero supervision implies zero value added per employee. The model used is presented below.

Table 10: Labour productivity

Model	Dependent Variable	Independent Variable
Labour productivity	Value added per employee	Owner Capital intensity Turnover Year Supervision of labour

The initial model was run and extreme values were identified, therefore, the model was rerun excluding these values. The regression results and summary statistics are presented below.

Table 11: Labour productivity results

No of Obs: 106	Level of effect	Parameter	SE	t	p
Capital intensity		0.213	0.081	2.646	0.009
Turnover/1000000		4.127	2.011	2.053	0.043
Supervision		-0.012	0.039	-0.301	0.764
Owner	Local	18.468	59.563	0.310	0.757
year	2007	62.114	118.604	0.524	0.602
year	2008	159.655	106.936	1.493	0.139
year	2009	-52.379	106.016	-0.494	0.622
year	2010	-111.944	105.023	-1.066	0.289

The overall model was significant (F=3.52; p=0.001) and it explained 16% of the variance in the dependent variable. Furthermore, the effect of capital intensity and turnover on value added per employee is both significant, indicating that higher capital intensity and turnover leads to greater value added per employee. Specifically, a 1,000-unit increase in capital intensity resulted in an increase in value added per employee of 213 and R 1 billion increase in turnover resulted in an increase in value added per employee of 4.1. These results are interpreted and discussed in more detail in Chapter 6.

5.1.3 Appropriate Technology

Critics argue that the main factor contributing to the higher productivity of MNC employees is the availability of more capital intensive technology, however, critics and advocates agree that for local firms to take advantage of this technology depends on the degree of adoption and implementation of new technologies within the industry (Borensztein et al., 1998). The model employed at this point is once again adopted from Saville (1993), however, changes have been made based on new developments. Saville (1993) makes the argument based on Kirim (1986), that capital intensity is positively correlated with size of the firm and scale of operations, therefore, the independent variables used in the model are turnover and assets respectively. However, new developments and improved access to resources since 1993 has resulted in fixed assets being used in place of assets. As noted in previous models, the existence of multicollinearity between turnover and fixed assets, and concerns based on fixed assets' historical nature, would result in the elimination of fixed assets as an independent variable. However, whist it is acknowledged that this is a limitation of available resources, fixed assets is arguably the best proxy for scale at this time.

Again, the model controls for annual differences and measures ownership differences with the aid of dummy variables, year and owner. A no-intercept model was used since, by definition, zero fixed assets correspond to zero capital intensity. Also note that diagnostics indicated that the log of capital intensity is a better measure for the purposes of meeting model assumptions.

Table 12: Appropriate technology

Model	Dependent variable	Independent variable
Appropriate technology	Log (capital intensity)	Fixed assets Turnover Year Owner

The initial model was run and extreme values and outliers were identified, therefore, the regression model was rerun excluding these values. The regression results and summary statistics are presented below.

Table 13: Appropriate technology results

No of Obs: 104	Level of Effect	Parameter	SE	t	P
Fixed assets/1000000		0.393	0.084	4.696	<0.0001
Turnover/1000000		0.078	0.026	3.016	0.003
Owner	Local	1.544	0.366	4.219	<0.0001
year	2007	-0.869	0.739	-1.176	0.242
year	2008	-0.108	0.663	-0.163	0.871
year	2009	0.247	0.653	0.378	0.706
year	2010	0.030	0.639	0.047	0.963

The overall model was significant ($F=23.6$; $p<0.0001$). The model explained 60% of the variance in the dependent variable. The effects of turnover ($p<0.0001$) and owner ($p=0.001$) were significant. Specifically, a R1 billion increase in turnover resulted in an increase in capital Intensity of 1.25 times. Of greatest significance, though, is the significant coefficient on the variable, owner, which suggests that local firms translate into higher capital intensity when compared to MNCs, all else equal. These results are interpreted and discussed in more detail in Chapter 6.

5.1.4 Distribution of income

Research shows that MNCs tend to pay above market wages in comparison to local firms. Critics argue that this phenomenon distorts income patterns in the host economy and increases inequality in the South African population. Data concerning labour remuneration was not accessible for enough of the firms in the sample. Thus, the model used is based on Saville (1993). As in the case of Saville (1993), data on directors' remuneration is used as a proxy for management salaries. The model tests for differences in remuneration by regressing remuneration per director on the identified determinants of directors' pay, namely, firm size based on assets, relative operating margin, and absolute profitability or EBIT in this case. Diagnostics indicated that EBIT and assets are highly correlated. Reasoning for this may be that larger, more profitable, firms tend to pay higher wages, for example, an individual working at a larger firm has greater responsibility and is paid in accordance with this increased responsibility and profitability. Due to historical accounting of assets and the accounting implications thereof, it has been decided to remove assets from the model.

The model once again controls for annual differences and measures ownership differences with the aid of dummy variables, year and owner. Also note that diagnostics indicated that the log of management remuneration is a better measure for the purposes of meeting model assumptions.

Table 14: Distribution of income

.Model	Dependent variable	Independent variable
Distribution of income	Log(Management remuneration)	EBIT Operating margin Year Owner

The regression results and summary statistics are presented below.

Table 15: Distribution of income results

No of Obs: 157	Level of effect	Parameter	SE	T	p
Intercept		9.568	0.075	126.831	<0.0001
Operating margin		0.003	0.002	1.542	0.125
EBIT/1000000		0.017	0.005	3.076	0.003
Owner	Local	-0.047	0.071	-0.656	0.513
year	2007	-0.127	0.139	-0.912	0.363
year	2008	-0.023	0.136	-0.169	0.866
year	2009	-0.078	0.135	-0.580	0.563
year	2010	0.001	0.131	0.008	0.994

The overall model was significant (F=3.01; p=0.0005). The model explained 8% of the variance in the dependent variable. The effect of EBIT (p=0.003) was significant, specifically, a R1 billion increase in EBIT resulted in an increase in management remuneration of 1.02 times. These results are interpreted and discussed in more detail in Chapter 6.

5.1.5 Government revenue

Advocates of the MNC suggest that MNCs pay relatively higher tax rates than local firms, which contributes to filling the budgetary gap (Saville, 1993). In reference to Saville's model (1993), tax rates are calculated by dividing tax paid by EBIT. Based on Kindleberger (1972), Saville (1993) argues the prime determinant of the tax rate as relative profitability, in which less profitable firms are more reluctant to contribute to revenue. Further, the number of employees is used as a proxy to control for the potential amount of time firms can devote to tax issues. Moreover, it is argued that tax rates are predisposed by scale of operations, firm size, and sectoral and ownership differences. In contrast to Saville's (1993) model, and

based on previously discussed issues regarding the relationship between assets and turnover, assets have been removed from the model due to accounting convention distortions.

Dummy variables for year and owner have been included to control for differences. Also note that a no-intercept model was used, since an operating margin of zero implies a tax rate of zero.

Table 16: Government revenue

Model	Dependent variable	Independent variable
Relative contribution to government revenue	Tax rate	Operating margin Turnover Number of employees Year Owner

The initial model was run and outliers were identified, therefore, the outliers were removed and the model was rerun. The regression results and summary statistics are presented below.

Table 17: Government revenue results

No of obs: 126	Level of effect	Parameter	SE	t	p
Number of employees		0.000	0.000	1.450	0.150
Operating margin		0.217	0.112	1.935	0.055
Turnover/1000000		-0.015	0.197	-0.076	0.939
Owner	Local	10.014	4.828	2.074	0.040
year	2007	-13.997	10.076	-1.389	0.167
year	2008	-0.965	9.556	-0.101	0.920
year	2009	0.438	9.153	0.048	0.962
year	2010	6.605	8.998	0.734	0.464

The overall model was significant (F=2.59; p=0.012). The model explained 9% of the variance in the dependent variable. The effect of owner (p=0.040) was significant and the results are discussed in more detail in Chapter 6.

5.2 Research question 2: Does the MNC adversely affect the host economy by distorting capital markets?

Costs are said to be imposed on the host country through capital market distortions as a result of MNC activity. Two determinants which are said to have an impact on host country capital markets have been identified as a result of Saville's research (1993). The determinants and their relative models and regression results are presented in this section.

5.2.1 Relative cost of long term finance

In order to determine if the MNC does in fact distort host country capital markets through favourable access to finance compared to local firms, the regression model is adopted from Saville (1993). He argues that favourable access to finance is defined as a reduced cost of borrowing, which is defined as the ratio of interest paid to total liabilities. However, Saville (1993) indicates that this method is "flawed in that it ignores the maturity structure of debt" (p. 55). In respect of updating the study, increased access to resources has enabled the data collection of long-term interest-bearing liabilities for each firm in the sample. It has been decided to exclude short-term interest-bearing liabilities on the basis that short-term debt has tenure of less than one year and no specific information is given as to what the debt is made up of. It can be assumed that these instruments are used as working

capital requirements of the business for operational purposes and do not necessarily impact on the long-term capital structure of the firm. Thus, long-term interest-bearing liabilities to interest paid is used as the proxy for cost of borrowing. Some firms in the data set do not carry a great deal of long-term debt when compared to short-term debt. These firms have been excluded from the regression model as their reliance on short term financing imposes an unequal comparison between firms.

Once again, the extreme observations in cost of borrowing must be taken into account in model development. In this case, however, it was sufficient to take the log of cost of borrowing in order to meet model assumptions.

Table 18: Cost of finance

Model	Dependent variable	Independent variable
Relative cost of long term finance	log (cost of borrowing)	Changes in relative profitability Changes in owners' equity Year Owner

The initial model was run and extreme values and outliers were identified, therefore, the regression model was rerun excluding these values. The regression results and summary statistics are presented below.

Table 19: Cost of finance results

No of Obs: 113	Level of effect	Parameter	SE	t	p
Change in profitability		0.000	0.000	-0.362	0.718
Change in owners' equity		0.000	0.001	-0.766	0.445
Owner	Local	0.005	0.168	0.028	0.978
year	2008	-0.093	0.282	-0.329	0.743
year	2009	0.350	0.284	1.235	0.220
year	2010	-0.118	0.278	-0.425	0.671

The overall model was not significant (F=0.35; p=0.91) and the model explained 0% of the variance in the dependent variable. There were no significant model terms. These results are interpreted and discussed in more detail in Chapter 6.

5.2.2 Extent of profit and dividend repatriation

Critics of the MNC argue that there is a second element to the distortion of host country capital markets, "... that is, by undertaking excessive profit repatriation rather than returning capital to the local economy in the form of reinvested earnings" (Saville, 1993; pg. 56). The model adopted by Saville (1993) to test this claim makes use of pay rate or dividend pay-out ratio determined by dividends paid to EBIT. The model goes on to test for differences in the pay rate by regressing it to relative operating margin and absolute profitability, in this case, EBIT. Assets were initially included as a proxy for firm size. However, as seen in previous models, diagnostics indicated that EBIT and assets are highly correlated (r=0.906, p<0.0001), and due to the historical accounting of assets and the implications thereof, it has been decided to remove assets from the model.

Once again, the model controls for annual and ownership differences by way of the dummy variables, year and owner. Also note that a no-intercept model was used since operating margin or EBIT of zero imply a dividend pay-out ratio of zero.

Table 20: Profit and divident repatriation

Model	Dependent variable	Independent variable
Extent of profit and dividend repatriation	Dividend pay-out ratio	Operating margin EBIT Year Owner

The initial model was run and outliers were identified, therefore, the outliers were removed and the model was rerun. The regression results and summary statistics are presented below.

Table 21: Profit and divident repatriation results

No of Obs: 170	Level of effect	Parameter	SE	t	p
Operating margin		0.172	0.115	1.493	0.137
EBIT/1000000		0.793	0.402	1.975	0.050
Owner	Local	5.454	5.165	1.056	0.293
year	2007	2.291	10.284	0.223	0.824
year	2008	7.995	10.106	0.791	0.430
year	2009	-9.912	10.019	-0.989	0.324
year	2010	-4.352	9.810	-0.444	0.658

The overall model was not significant (F=1.68; p=0.12) and the model explained 3% of the variance in the dependent variable. The results are discussed in more detail in Chapter 6.

5.3 Research question 3: Is the MNC responsible for creating a negative effect on the competitive structure of the host economy?

In order to test the validity of the claim that MNCs create oligopolistic market structures in the host economy, models determined by Saville (1993) test for the displacement of local firms based on higher profitability or increased efficiencies by the MNC. The relevant models and regression results are presented in this section.

5.3.1 Profitability

It is argued by critics, that MNCs create oligopolistic market structures through higher profitability. This is a result of local firms being unable to compete, ultimately closing down operations or being acquired by MNCs. In reference to Saville's model (1993), which is based on Connor and Mueller (1982), he argues that relative profitability is principally determined by firm size; capital intensity, scale of operations, and ownership differences. Again, capital intensity is defined as assets per employee, however, in respect of once again keeping the model up to date, the capital intensity calculation has been changed to include fixed assets rather than total assets. Initial diagnostics indicated a high correlation between assets and turnover, and in keeping with previous reasoning, assets were excluded from the model and turnover is used to measure size and scale. As seen previously, a no-intercept model was used, since an operating margin of zero implies a turnover of zero.

Table 22: Profitability

Model	Dependent variable	Independent variable
Profitability	Operating margin	Capital intensity Turnover Year Owner

The initial model was run and outliers were identified. The outliers were removed and the model was rerun. The regression results and summary statistics are presented below.

Table 23: Profitability results

No of Obs: 108	Level of effect	Parameter	SE	t	p
Intercept		3.056	4.909	0.623	0.535
Capital intensity		0.007	0.005	1.386	0.169
Turnover/1000000		0.195	0.083	2.333	0.022
Owner	Local	4.499	3.961	1.136	0.259
year	2007	6.657	8.042	0.828	0.410
year	2008	1.677	7.207	0.233	0.816
year	2009	-7.959	7.234	-1.100	0.274
year	2010	5.395	6.965	0.775	0.440

The overall model was *not* significant (F=1.50; p=0.18). The model explained 3% of the variance in the dependent variable and the effect of turnover was significant (p=0.022. Specifically, a R1 billion increase in turnover resulted in an increase in operating margin of 0.2%. These results are interpreted and discussed in more detail in Chapter 6.

5.3.2 Efficiency

It is argued by critics, that MNCs create oligopolistic market structures by displacing local firms through being more efficient. Based on Saville's model (1993), efficiency is measured by differences between the maximum output and actual output generated, given the inputs. This is referred to as x-inefficiency, which Saville (1993) adopted from Foote and Ashegian (1985). The model employs the log transformed production function, which specifies the output of a firm for all combinations of inputs and can therefore be used as a measure of efficiency. Again, dummy variables are used to control for year and owner. The following

model is used to run the regression, which replaces the log of assets with the log of fixed assets for a more accurate measure of operational scale.

Table 24: Efficiency

Model	Dependent variable	Independent variable
Efficiency	Log of turnover	Log of fixed assets Log of number of employees Year Owner

The regression results and summary statistics are presented below.

Table 25: Efficiency results

No of Obs: 109	Level of effect	Parameter	SE	t	P
Intercept		6.897	0.432	15.956	0.000
log fixed assets		0.233	0.037	6.232	0.000
log num. employees		0.634	0.050	12.797	0.000
Owner	Local	-0.236	0.074	-3.190	0.002
year	2007	0.025	0.158	0.160	0.873
year	2008	0.086	0.141	0.611	0.543
year	2009	-0.137	0.139	-0.989	0.325
year	2010	-0.007	0.137	-0.049	0.961

The results indicate that the overall model was significant ($F=78.7$; $p<0.0001$). The model explained 83% of the variance in the dependent variable and the effects of ln(fixed assets), ln(number of employees), and owner were significant. Specifically, a 1-unit increase in ln(fixed assets) and ln(number of employees) resulted in an increase in ln(turnover) of 0.23 and 0.63 respectively. In terms of the ownership significance, local firms had a mean ln(turnover) of 0.24 lower than that MNCs, controlling for all other variables. These results are interpreted and discussed in more detail in Chapter 6.

6. Discussion of results

This Chapter povides an analysis of the research results in which the expected outcomes as well as the theory base are reviewed. The final section disucsses the reasech questions and whether the research objectives have been met.

6.1 Research question 1: Does the MNC assist in creating increased labour productivity within the host country?

6.1.1 Employment Creation

Savilles' (1993) results showed that the number of jobs increased relative to the firms' size; however they also revealed that more profitable firms create fewer jobs. The significant finding for Saville (1993) was that of ownership, results indicated that MNCs tend to create fewer jobs than local firms.

The results of this study show that the number of jobs increases relative to turnover, an increase of R1 billion in turnover shows that the number of jobs will increase by 933 thus confirming that increased sales contribute to job creation. Saville (1993) used a different measure for firm size, total assets, however due to the accounting distortions identified turnover was used in place of total assets. Based on turnover being the proxy for firm size, it can be said that the results are as expected when compared to Saville (1993). However, in contrast with Saville's (1993) findings, the firm ownership was not significant therefore not supporting either the advocates or the critics. The results refute both arguments, for example Meller and Mizala (1982) show that MNCs create fewer jobs and advocates

Bhaumik et al., (2007); Blomström and Kokko (2003); and Moss et al. (2004) found that MNCs have higher employment growth than local firms. The findings of this study are however in agreement with Ramstetter (2012) who indicated that there was no significance difference between MNC and local firm job creation.

The non-significance of ownership, results in the failure to reject the null hypothesis, in short the results indicate no difference between MNCs and local firms in terms of the propensity to create employment.

6.1.2 Labour productivity

Findings by Saville (1993) showed a significance of ownership and revealed "that workers employed by MNCs are more productive than local firms" (p. 49) therefore the expectation of this study was to show a similar result. However, in contrast with Saville's (1993) findings, 'owner' did not come up as significant and thus evidence is not in support of the advocates (Alfaro & Rodrigues-Clare, 2004; Kokko et al., 2001; Markusen & Venables, 1999; Ramstetter, 2012; Saville, 1993) or the critics (Mthombeni, 2006).

The overall model was however significant indicating that higher capital-intensity and turnover lead to greater value added per employee, providing evidence to substantiate the claims of Blomström (1988) in that, capital-intensity and turnover is a function of value added per employee. Saville's (1993) findings were however insignificant therefore results are once again in contrast.

In summary the results indicate that there is no difference in labour productivity between foreign and locally owned firms. This results in failure to reject the null

hypothesis as there is not enough evidence to confirm claims made by advocates or critics of the MNC.

6.1.3 Appropriate Technology

The argument posed by Saville (1993) in terms of this model, is related to his findings based on labour productivity. Saville's (1993) findings showed that employees of MNCs are more productive than employees of local firms, thus he argues that the employment of more capital-intensive technology by the MNC, is the primary factor contributing to the higher labour productivity. His findings were however in contrast with his argument, in that, no significant difference between the capital-intensive technology employed by foreign and local firms was found.

In terms of this research, the results showed conclusive evidence that firm ownership is significant, specifically, local firms are found to be seven times more capital-intensive than MNC's, thus opposing the arguments of Blomstrom (1991) and Borensztein et al., (1998) and Saville (1993) that prove MNC's are more capital intensive than local firms.

In terms of an explanation as to why the results are not as expected, one such theory can be attributable to the industry factor. This study is specific to the mining industry, which can be argued in the context of South Africa. The results show more fixed assets per employee for local firms, thus arguments can be made that local firms are more technologically advanced, which can be attributable to factors such as, industry complexity and maturity. It can be argued that South African mining firms have been in operation in South Africa longer than their MNC counterparts and thus have accumulated more fixed assets, skills and expertise,

allowing for them to extract more value out of their assets. In addition South African firms are on the cutting edge of mining engineering technology, for example, the Shaft Sinkers Group has been at the forefront of technical know-how in the mining industry since 1961, indicating the technology is in fact more advanced as a result of local expertise.

Furthermore, as cited in Saville (1993), Kirim (1986) argues that capital intensity correlates positively with the size and scale of the firm, or in this case, assets and turnover. The results of this study show a positive correlation and are thus in accordance with this argument.

6.1.4 Distribution of income

Critics contend that MNCs tend to overpay managers thus distorting income patterns in the local economy. Chang and Chow (1997) found that wages paid by MNCs are 11% higher than those paid by domestic enterprises. However, Saville's (1993) results are in direct contradiction with the critics. His results show that "MNCs pay their directors roughly R150 000 less than directors of local firms" (p. 52).

The overall results of this study agree with expectations, in that, directors' pay correlates with profitability (Saville, 1993). More specifically, findings indicate that an increase in earnings results in an increase in directors' remuneration, which is as expected; the more profitable the firm is the more the employees benefit. However, no significant relationship was found between directors' pay and firm ownership, which contradicts the empirical findings of both Chan and Chow (1997); and Saville (1993) therefore, providing inconclusive evidence which refutes the

argument that MNCs distort income patterns in South Africa by overpaying managers.

6.1.5 Government revenue

Results from this analysis, when all other variables are controlled, show that local firms have a mean tax rate that is ten percent greater than that of MNCs. These results disprove expectations that were created by Saville's (1993) findings that MNCs pay a higher tax rate than local firms and in doing so, fill the budgetary gap.

Furthermore in contrast to Saville (1993), none of the other variables used in this model are significant determinants of tax rates, therefore disproving the theory put forward by Kindleberger (1972). Consequently, this result does not support the argument that MNCs contribute to reducing the budgetary gap by way of paying increased tax rates. Conversely, the result does support the theory that governments provide tax incentives to MNC's to attract FDI into the host country (Fedderke & Romm, 2006). However, increased MNC activity offers other benefits, for example studies by Blomstrorm (1991), Lipsey et al. (1999), and Markusen and Venables (1999) have found evidence that the presence of the MNC has a positive effect on local firms' propensity to export, thus having a positive effect on the host country's balance of payments and therefore contributing to filling the budgetary gap.

In summary, the overall results show that local firms pay a higher tax rate than that of MNC's, which contradict the findings of Saville (1993) and other citics.

6.2 Research question 2: Does the MNC adversely affect the host economy by distorting capital markets?

6.2.1 Relative cost of long term finance

Results indicate that there is no significant relationship when using long-term, interest-bearing liabilities as the input for the cost of borrowing calculation. Therefore, an additional test was run including total liabilities in place of long-term, interest-bearing liabilities. Despite this adaptation, the overall model was still not significant, however, the effect of the owner variable had significance. Specifically, local firms showed a mean cost of borrowing that is 1.3 times that of foreign firms, when controlling for the other variables in the model. This result indicates that MNCs have a lower cost of financing, however, the difference between total liabilities and long–term, interest-bearing liabilities indicate that short–term, interest-bearing liabilities do have an effect on capital structure and MNCs tend to bring better capital structuring skills into the host country. From a short-term perspective, it is difficult to argue that the lower cost of MNC borrowing will distort the capital markets. Further information as to what the short-term debt instruments consist of is required in order to derive an appropriate conclusion. Therefore, it can be said that, in this case, the evidence does not support the argument that MNCs distort local capital markets. These findings are in alignment with Saville's (1993) finding.

6.2.2 Extent of profit and dividend repatriation

Saville (1993) shows results in favour of the critics in that MNCs pay out higher dividends than local firms thus supporting the argument that "MNC's distort capital markets by reinvesting earnings at a lower rate than local firms" (Pg 57). In the case of this research study, results indicate that the overall model is not significant and that there are no significant effects on the dividend pay-out ratio. Thus, these results are not in alignment with expectations. As per Saville (1993) it is noted that the test does not evaluate indirect profit repatriation in the form of management and licencing fees, royalty payments, interest payments, and transfer pricing to the parent company. Therefore, it can be argued that this test underestimates the impact.

6.3 Research question 3: Is the MNC responsible for creating a negative effect on the competitive structure of the host economy?

6.3.1 Profitability

The results agree with expectations that were set by Saville (1993) in that an increase in firm size leads to an increase in profitability. Specifically, the results show that a R1-bill increase in turnover leads to 0.2 percent increase in operating margin. However, in contrast to Saville (1993), capital intensity has not come up as significant thus counteracting the evidence that capital intensity negatively affects profitability. As per Saville (1993), in this case ownership is not significant (p=0.259) and thus these findings are in support of Saville's conclusion (1993) that ownership is not an important determinant of differences in profitability (Pg. 60). This is in contrast to Chan and Chow (1997) who show that transfer pricing

employed by MNC's lead to reduced MNC profitability. The results do not show a difference between the relative profitability of the MNC when compared to the local firms.

6.3.2 Efficiency

The aim of this test is to determine whether MNCs displace local firms as a result of creating oligopolistic market structures through increased efficiencies. Saville (1993) ran a test to establish which firms are more efficient. His findings are in contrast with the literature, in that local firms proved to be more efficient than MNCs. However according to the results of this study with regard to the issue of ownership and efficiency, the results exhibit conflicting findings in that, for a given increase in inputs, the increase in production by local firms is 24 percent lower than the increase in production by MNCs. In summary, based on the results that local firms exhibit lower efficiency than MNCs, the argument posed by Saville (1993) that MNCs create oligopolistic market structures by displacing local firms through being more efficient can be used. However, in contrast, it is difficult to prove that the local firms are in fact being displaced and this theory depends on a variety of factors. Factors such as market size, consumer demand and market saturation levels can have an effect. In the case of high demand, low supply and low market saturation, MNC entry will contribute to increasing industry profits thus adding to economic growth. In turn higher MNC operational efficiencies can lead to positive spillovers of technology and human capital to the local firms as well as possible forward and backward linkages within and between sectors. Examples include,

Fedderke and Romm (2006) who confirmed a positive spillover effect on capital labour and technology as a result of FDI.

Conversely from a oligopolistic perspective, this could be the case should the MNC enter a saturated industry where operational efficiencies result in increased profits compared to local firms creating barriers to entry and ultimately push out local firms. Increased MNC profits can also lead to local firm buyouts, once again proving the theory.

Similarity between the two studies is however seen in the case of labour and assets, results of this study indicate that increases in both labour and assets lead to higher levels of output which is in alignment with Saville's findings (1993).

In summary the results indicate that MNCs are more efficient than local firms, however this does not make a watertight case for the theory that this leads to oligopolistic market structures.

6.4 Summation

Wih regards to the research questions, the following section provides an overall summary of the test results.

6.4.1 Research Question 1: Does the MNC assist in creating increased labour productivity within the host country?

Table 26: Research question 1 results

Test	Determinants	Results
1	Employment creation	No ownership significance
2	Labour productivity	No ownership significance
3	Appropriate technlogy	Ownership significant – local firms are more capital-intensive than MNC's,
4	Distribution of income	No ownership significance
5	Government revenue	Ownership significant – local firms pay higher taxes than MNC's

The table shows a summary of the test results and indicates that two of the five tests (40%) showed the significance of ownership. However in relation to the research question, none of the results show that the MNC is more significant in contributing to increased labour productivity, in fact the significant results show that the local firms contribute to more of the labour productivity. It can be argued that these findings are a result of the nature of the industry and that the local mining firms are more mature and complex than MNC firms in the same industry, therefore an additional study in another sector would be helpful in proving this theory.

6.4.2 Research Question 2: Does the MNC adversely affect the host economy by distorting capital markets?

Table 27: Research question 2 results

Test	Determinants	Results
1	Relative cost of long term finanace	No ownership significance
2	Extent of profit and dividend repatriation	No ownership significance

The table shows a summary of the test results and indicates that none of the tests showed ownership significance. Thus rejecting the argument that MNCs distort capital markets.

6.4.3 Research Question 3: Is the MNC responsible for creating a negative effect on the competitive structure of the host economy?

Table 28: Research question 3 results

Test	Determinants	Results
1	Profitability	No ownership significance
2	Efficiency	Ownership significant - MNCs are more efficient than of local firms

The table shows a summary of the test results and indicates that one of the two tests (50%) indicated ownership significance. At face value, the significant result is in alignment with the research question in that MNC's are more efficient than local firms thus, providing evidence that MNC's are responsible for creating a negative effect on the competitive structure of the host economy. However, as previously argued, the mere fact that the MNC is more efficient is not adequate to prove that there is a negative effect on the competitive structure of the economy. Furthermore, only one of the two tests is significant providing another reason to reject the research question.

7. Conclusion

Due to the theory regarding the insufficient development base offered in developing countries, it is claimed that the right amount of economic growth cannot be attained in order to compete with developed country economies. Thus, resulting in a perpetual state of economic backwardness which is argued, to give rise to the presence of four “gaps” in these developing economies. Research shows, by filling these gaps, developing countries are able to achieve economic growth and thus compete on an international scale. However, there exist opposing views as to how economic growth and development can be achieved. The investigative framework used in this study provides techniques to fill these gaps and show that a combination of these opposing views is required to achieve the economic growth necessary to fill the gaps. Therefore the theoretical and empirical evidence presented in this study indicate that the combination of exogenous and endogenous growth drivers contribute to filling the gaps.

The results of this study based on comparing the performance of MNC’s and local firms within the context of a host country, are in accordance with most studies of this nature, mixed. The investigative framework focused on effects on the host economy and attempted to answer three questions in order to determine if the MNC contributes to filling the gaps. In terms of the resource effects discussed in the literature review, two of the posed research questions were aimed at testing these effects. Specific tests on employment creation, labour productivity, appropriate technology, income distribution, government revenue, cost of finance and profit repatriation were run which are in alignment with the identified resource effects. The results of the empirical tests show significant outcomes that are explicitly in direct contrast with the results seen in Saville’s (1993) study.

Specifically, local firms adopt technology that is more capital-intensive that MNC's and they pay higher tax rates in comparison to their MNC counterparts. In terms of employment creation, labour productivity, income distribution, cost of finance and profit repatriation no significant differences were found between MNC's and local firms. It can be argued that the unexpected results are directly related to the industry differences between the two studies, and that the local mining industry in South Africa is mature and complex, hence, results that local firms contribute more to economic growth and development.

It can be argued from this point that local firms are contributing to filling the gaps, and not the MNC's. However, a case can be made for the MNC's impact in the economic development of the host economy, thus, contributing to filling the gaps. From an exogenous growth driver perspective, theory shows that foreign investment is an important driver in contributing to economic growth. Evidence from the literature review show that external effects are created as a result of FDI, specifically, MNC's bring in foreign capital, which contribute to filling the foreign exchange gap, in that they permit levels of domestic investment in a country to exceed the country's level of saving. Increased domestic saving is a determinant of exogenous growth and therefore assists in filling the budgetary and foreign exchange gap. It has also been argued that the MNC can assist in filling the foreign exchange gap in a second way that is, through increased exports. Previous studies found evidence that the presence of the MNC has a positive effect on local firms' propensity to export. Furthermore, they found evidence that the MNC has a greater ability than local firms to export and that the export to output ratio for MNCs was three times higher than local firms. This evidence shows how MNCs contribute to filling the gaps through exogenous growth drivers. Moreover, evidence from this

study with regards to the competitive effects are in support of the MNC. Specifically, the empirical evidence revealed that MNC's are more efficient than local firms, once again proving their growth contribution. However, critics argue that MNCs create oligopolistic market structures by displacing local firms through being more efficient, resulting in creating a negative effect on the competitive structure of the host economy. In defence, this result does not provide enough evidence to substantiate that they theory that oligopolistic market structures are resultant from increased MNC efficiency. Finally, based on the theory of convergence, it can be argued that the higher efficiencies can result in positive technological and human resource spillover effects.

In summary, the results shown here are mixed however in terms of informing government policy, this study confirms the importance of FDI in emerging markets. The caveat however, firstly, is to inform policy to attract the right kinds of FDI to contribute to filling specific gaps in to achieve the required economic growth. Secondly, policy should require collaboration between MNC's, private firms as well as public sector firms in order to share knowledge and profits in having a positive effect on social welfare and economic growth in the domestic economy.

This study is limited in a number of ways, specifically the study focusses exclusively on the mining sector; tests only for directly observable and empirically quantifiable effects; ignores unlisted firms; excludes some firms based on the unavailability of data. Based on these limitations future research recommendations are to undertake further studies from a cross-country perspective over a longer time period.

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Appendix 1

	Valid Obs	Mean	95% confidence limit (upper)	95% confidence limit (lower)	Median	Minimum	Maximum	Quartile - Range	Std.Dev.	Skewness	Kurtosis	z(skew)	z(kurt)
Capital Intensity	133	4 235	2 405	6 065	1 622	6	93 837	1 890	10 669	6.00	42.13	28.24	99.19
Change in Owners Equity	143	-45	-104	13	0	-2 518	1 349	29	354	-4.93	34.21	-24.05	83.51
Change in Profitability	143	20	-166	206	-11	-8 010	5 893	166	1 126	-0.54	27.86	-2.62	68.00
Cost of Financing	172	4	3	4	3	0	48	3	5	6.26	50.15	33.50	134.25
Dividend Payout Ratio	180	9	-8	25	0	-1 213	526	32	111	-7.21	85.88	-39.48	235.18
EBIT	171	4 172 248	2 251 184	6 093 312	289 578	-16 491 000	87 229 800	3 028 070	12 725 918	4.79	25.38	25.56	67.75
log Assets	172	16	15	16	16	8	20	3	2	-0.59	1.27	-3.18	3.40
log Num Employees	133	8	8	9	9	4	12	2	2	-0.54	-0.16	-2.52	-0.39
log Turnover	161	15	15	15	15	10	19	3	2	-0.07	-0.38	-0.36	-0.99
Number of Directors	171	10	10	11	10	4	18	4	3	0.24	-0.59	1.28	-1.57
Number of Employees	133	16373	12123	20623	5897	42	116000	13535	24779	2.18	4.63	10.28	10.89
Operating Margin	180	10	4	17	11	-183	223	30	44	-0.29	6.68	-1.61	18.30
Remun of Dirs	159	22 723	19 130	26 316	15 972	65	146 098	18 517	22 938	3.01	11.62	15.51	29.90
Supervision	159	1 354 046	884 931	1 823 162	344 572	1 881	19 477 108	1 156 855	2 994 961	4.51	21.65	23.21	55.72
Tax Rate	180	2	-24	29	23	-2 214	241	32	182	-10.45	124.96	-57.24	342.23
Total Assets	172	29 902 361	17 483 173	42 321 549	5 402 183	4 488	599 819 760	26 976 685	82 513 460	5.32	29.73	28.47	79.58
Total Liabilities	172	12 839 231	7 095 356	18 583 106	2 265 311	3 154	242 214 840	8 995 345	38 162 479	5.17	27.23	27.71	72.89
Turnover	161	16 315 937	10 288 841	22 343 032	3 571 048	18 810	253 202 400	14 012 100	38 723 584	4.65	22.89	24.09	59.27
Value add per employee	133	170	-65	405	107	-10 034	6 266	276	1 368	-2.08	28.29	-9.79	66.59