

ARE THERE SPILLOVER EFFECTS FROM FOREIGN DIRECT INVESTMENT IN SUB-SAHARAN
AFRICA?
ASSESSING THE LINKAGE EFFECTS IN MOZAMBIQUE

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ABSTRACT

Foreign direct investment (FDI) has been considered to be a crucial mechanism for development in many Sub-Saharan Africa (SSA) countries as it brings not only capital but technology and knowledge that can spillover to other local firms. Governments in SSA countries are engaged in attracting FDI and several reforms have been introduced to target it. The mechanism through which spillover effects occur is not automatic or simple. This paper aims to analyze the dynamic of FDI and its spillover effects in SSA countries in general, and Mozambique in particular. The paper argues that the nature of FDI as well as the conditions in which the national firms operate may influence the potential spillover from FDI and the learning process. Therefore, it is necessary that governments address clear strategies that permit countries to benefit from this learning process.

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ABBREVIATIONS

ADI – African Development Indicators

AEO- African Economic Outlook

BdM- Bank of Mozambique

BIP – Beluluane Industrial Parque

CPI- Investment Promotion Center

EPZ- Export Process Zone

FDI – Foreign Direct Investment

GDP- Gross Domestic product

GFCF- Gross Fixed Capital Formation

IMF – International Monetary Fund

INE- Statistic National Institute

MDG – Millennium Development Goal

MNEs- Multinational Enterprises

ODA – Official Development Assistance

OECD - Organization for Economic Co-Operation and Development

SMEs- Small and Medium Enterprises

SSA- Sub-Saharan Africa

UNCTAD – United Nations Conference on Trade and Development

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1. INTRODUCTION

Sub-Saharan Africa (SSA) economies are characterized as developing economies with low levels of saving and deficit in capital. Foreign direct investment (FDI) was assumed to have great potential for economic growth and for economic development of these countries as it brings stable capital and new technologies.

Two broad categories are used to study the effects of FDI on economic development. The first category entails *direct effects* – for example effects on growth through increases in volume of investment, factors of production, resource mobilization (tax revenues), and trade as it allows the host country to increase the import level without increasing necessarily its export (Seers and Joy, 1971:309). After the production processes begin the export level of the host country increases as most of the firms that engage in FDI have the marketing channels and institutional links with other firms overseas. However, these positive effects may be reversed by the outflows of interests and profits unless there is a constant growth of new capital and reinvestment of profits.

The second category consists of *indirect spillover effects*. These effects are linked to the idea that the presence of FDI will spillover into productivity, efficiency and competitiveness gains for the domestic firms through technologies, skills and knowledge transfer (Blomstrom and Kokko, 2001; Chowdhury and Mavrotas, 2006; Kim, 1999; Odenthal, 2001 and UNCTAD, 2005). Nevertheless, the question on whether or not the spillover effects of FDI do take place in SSA is not conclusive and the evidence is mixed. This is because these effects are neither simple, nor an automatic exercise. As Seers and Joy (1971) stressed, the effect of FDI can in some cases be favorable but it is naive to assume this is always the case.

This paper seeks to study FDI inflows and some evidence of its spillover effects, in SSA in general and in Mozambique in particular. The main argument is that there are few spillover effects of FDI in Mozambique for two main reasons. Firstly, the FDI in Mozambique is dominated by capital intensive megaprojects that are extractive industries and local enterprises have no capacity to compete. Secondly, most of the local firms have difficulties in developing backward and forward linkages with FDI because: (i) the supplied products locally have no demanded quality; and (ii) the FDI production has very low or no demand. Therefore, the existing FDI spillover tends to shape the dynamic of local private sector in Mozambique.

There is an extensive literature on spillover effects of FDI based on econometric studies on developing and developed countries (Aitken and Harrison, 1999; Girma et al., 2001; Haddad and Harrison, 1993; Li et al., 2001; Kim, 1999; Kugler, 2006; Ruane and Sutherland, 2005; Smarzynska, 2002). Nonetheless, only a few

studies have shown supportive evidence (Görg and Greenway, 2001). Firstly, as Seers and Joy (1971) highlighted, the use of mathematical models with merely capital and labor as factors of production are certainly too restricted to reveal what is happening in the real world. Secondly, and linked to the first point, there is no evidence of such a linear relationship between FDI inflows and its spillover effect. Thirdly, FDI is not a static variable. It is a dynamic variable which is affected by and affects the social, economic and political environment of the host country.

This paper employs a political economy approach to study the spillover effects of FDI. This consists in the analysis of the dynamics and patterns of FDI inflows, how these have transformed the economy and which new dynamics have emerged in the case of Mozambique. Due to the lack of data, different studies at firm level are used to examine the linkages developed by FDI in Mozambique.

This paper is structured as follows. The second chapter briefly summarizes the theoretical debate about FDI in terms of its definition, its determinants and its spillover effects discussed in the literature. Chapter 3 examines the FDI in SSA. This chapter is presented first with the historical context of FDI, then with the examination of the trends of FDI and finally with consideration of the spillover effects. The next chapter analyses the FDI in Mozambique, in terms of its trend and dynamics. The following chapter assesses the spillover effects of FDI in Mozambique. Lastly some conclusions are drawn.

2. THEORETICAL ISSUES ON FOREIGN DIRECT INVESTMENT

2.1. Definition of foreign direct investment

The definition of FDI is complex. According to the OECD Benchmark definition and the IMF Balance of payment, FDI “reflects the objective of obtaining a *lasting interest* by a resident entity in one economy (‘direct investor’) in an entity resident in an economy other than that of the investor (‘direct investment enterprise’). The *lasting interest implies the existence of a long-term relationship* between the direct investor and the enterprise and a significant degree of influence on the management of the enterprise” (OECD, 2009 and IMF, 2005:86).

The World Investment Report 2009 defines FDI as “an investment involving a *long-term relationship* and reflecting a *lasting interest* and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor (FDI enterprise or affiliate enterprise or foreign affiliate)”. (UNCTAD, 2009:243)

A common feature shared by the above definitions lies in the use of terms such as ‘lasting interest’ and ‘long-term relationship’. According to Moosa (2002) these terms are used to distinguish FDI from portfolio investment since the latter represents a short-term investment with high turnover of securities. Additionally, a non-clear distinction can complicate the assessment of the effects of FDI inflow as well as its policy formulation in the host country (Francis, 2010).

Nonetheless, there are some disagreements about the size of ownership that constitute control (Kvinge, 2008:17). For instance, while the UNCTAD (2009) consider the threshold for control of assets as being at least 10% of the original shares or voting, for the OECD (2009), the ownership of at least 10% implies that the investor can participate and exert influence on management without necessarily having an absolute control of the enterprise. For this reason the OECD considers that the 10% is not required as a threshold.

2.2. Determinants of foreign direct investment

Despite the fact that the determinants of FDI are not the focus of the present paper, it is necessary to identify them in order to understand the types and constraints in the supply of FDI and consequently its spillover effects. The pioneer in the studies of FDI determinants was Stephen Hymer with the publication in

1976 of his PhD thesis having its theoretical contributions inspired subsequent research in that area (Calvet, 1981:43).

Nowadays, the literature on FDI has identified a range of factors that determine where FDI allocated their production facilities. Those factors have been divided into microeconomic, which is related to firm performance and macroeconomic, that emphasizes the characteristics of the host country. Table 1 summarizes the major determinants of FDI identified by various authors.

Table 1: Determinants of FDI

Firms factors		Host country factors	
Determinants	Drivers	Determinant	Drivers
Ownership (O)	Competitive advantages	Economic Context	Market size, access, structure and growth; cost of raw material and quantity and quality of skilled labor; cost of other inputs (transport, telecommunication, energy); the existing macro-innovatory, entrepreneurial and managerial
Location (L)	Market seeking; Resource seeking; Efficiency seeking; Asset seeking.	Institutional and Structural context	Political and macroeconomic stability; corruption; democracy; trade openness; privatization; propriety rights;
Internalization (I)	Costs of exchanged technology, information, managerial skills and market techniques		
Linkages	Learning process		

Adapted by the author based on Blonigen (2005); Calvet (1981); Dunning (2000, 2004); Hanson (2001); Kaplinsky and Morris (2009); Odenthal (2001); and Onyeiwu and Shrestha (2004)

Dunning (2000), in his eclectic paradigm, suggested a framework with three key factors to explain the extent and patterns of FDI and foreign activities of multinational enterprises (MNEs) determinants, namely, *ownership, location and internalization (OLI)*.

- i) *Ownership* – refers to the competitive advantages of the MNEs that are specific to their ownership, so the greater the advantages comparing to the ones in the host country firms, the greater the allocation of the firms abroad (Dunning, 2000:168-174).

- ii) *Location* – refers to the attraction of regions that can create a value added to the activities undertaken by MNEs, namely market seeking, resources seeking, efficiency seeking, asset seeking (Dunning, 2000:174-179).
- iii) *Internalization* - explains that if the local costs of licensing rights are higher than the net internalization benefit abroad then firms will choose to allocate their investment in other countries (Dunning, 2000:179-183).

The literature identified a fourth determinant regarding firm's factors which was not contemplated into the Dunning (2000) framework. The linkage determinants mean that firms can enhance their competences by the learning process for investing abroad (Kaplinsky and Morris, 2009:14).

All these determinants are related to the productions undertaken by MNEs and reflect the nature, strategy and competence of the foreign firms.

In terms of host country factors that motivate firms to invest across national borders two broad determinants are identified:

- i) *Economic context* - a strong private investment record acts as a signal of high returns to capital and an adequate public investment in infrastructures can reduce the cost of doing business and raise the marginal return of FDI as well as the cost of inputs and intermediate inputs are key factors for FDI location (Dunning, 2000 and 2004 ; Ndikumana and Verick, 2008).
- ii) *Institutional and structural context* - other studies have highlighted the institutional factors and evaluated the impact of structural reforms on FDI (Calvet, 1981; Onyeiwu and Shrestha, 2004; and Singh and Jun, 1995). For instance, in their study, Sing and Jun (1995) found that political risk, macroeconomic stability and business environment were all significant in determining the allocation of FDI.

2.3. Spillover effects of foreign direct investment

Theoretically, FDI can provide new technology, training for staff and managers, and technical assistance to local suppliers. This is positive as it improves productivity and competitiveness of local firms, forcing them to operate efficiently by transforming the knowledge acquired into practical and commercial use (Kokko,

1994 and Lall, 1976), but these gains cannot be internalized by the foreign firms. As a result this effect is known as ‘spillover’ effects (Fan and Warr, 2000:2).

Kugler (2006) and Zhang et al. (2010) defined “spillovers” as positive externality on local producers derived from the presence of MNEs that result in an improvement of the local firms’ productivity. In this paper, spillover effect of FDI is defined as the positive (or negative) external effects of the technology transfer and diffusion from foreign to domestic firms that can lead to a greater (or less) productivity, efficiency and competition.

Table 2: Spillover effects - channels and determinants

Spillover Channels: Drivers	Source of productivity gain
Imitation	<ul style="list-style-type: none"> • Adoption of new technology • Adoption of new production methods • Adoption of new management practices
Competition	<ul style="list-style-type: none"> • Reduction in X-inefficiency
Human capital	<ul style="list-style-type: none"> • Increase productivity of new complementary labor
Market access or exports	<ul style="list-style-type: none"> • Tacit knowledge • Scale economies • Exposure to technology frontier
Allocative efficiency	<ul style="list-style-type: none"> • Removing of barrier and monopolistic distortion
Linkages (forward and backward)	<ul style="list-style-type: none"> • Knowledge for local suppliers and distributors • Development of local industry
Determinants of Spillovers	
Supply	<ul style="list-style-type: none"> Value of underlying technology Intellectual property protection Cost of absorption Organizational and managerial skills Commercial benefits
Demand	<ul style="list-style-type: none"> Absorption Skills capacity Trade regime Protectionism

Source: Adapted by the author based on Blomström et al.(1999); Görg and Greenway (2001); and Lall (1992)

The spillovers of FDI can occur through different channels. Table 2 shows some mechanisms that are suggested by the literature (Blomström and Kokko, 1998; Görg and Greenway, 2001; Spencer, 2008 and Zhang et al., 2010).

i) *Imitation effects*

This is the classical channel for new processes and products, in which the exposure to foreign technology and management practices can lead to an increase in productivity as local firms can observe and copy the best practices (Blomström and Kokko, 1998; Görg and Greenway, 2001; and Zhang et al., 2010).

ii) *Competition effects*

In the competition effects, if the local firms can imitate the production process from the FDI, and also make effective and efficient use of the available technology, this may result in more competition (Blomstrom and Kokko, 2003:3). In turn, greater competition leads to reduction in X-inefficiency which is the source of major gain in productivity (Görg and Greenway, 2001:6).

iii) *Human capital*

In human capital, positive spillover effects are created because MNEs invest in training workers (Blomstrom and Kokko, 2003). Therefore, labor migration from foreign to domestic firms generate improvements in the productivity as these workers take with them all the knowledge (direct agents of technology transfer) and the unskilled workers tend to improve their productivity (Görg and Greenway, 2001 and Zhang et al., 2010).

iv) *Export effects*

Export effects refer to the channels in which MNEs may serve to export to world markets, hence establishing the networking distribution and connecting local firms to foreign buyers (Aitken et al., 1994). This gives access to regulatory arrangement and other overseas information that local firms would not acquire without the FDI entry (Görg and Greenway, 2001). Consequently, exports may raise productivity due to the economies of scale, the exposure to other new production methods and practices.

v) *Allocative effect*

According to Blomstrom and Kokko (2003:10) foreign firms entry into countries where there are strong entry barriers improve the allocative efficiency by reducing monopolistic distortion at the same time as imposing competition pressures to host country firms and demanding from these firms high technical efficiency.

vi) *linkage effects*

A linkage effect is the idea that FDI can result in backward and forward linkages. These concepts were initially introduced by Hirschman (1958:98-104) to explain the interdependency between industries and how it leads to industrialization. The demand and supply of intermediate inputs by and for multinationals by local suppliers and distributors may lead to a transformation and development of local industry as knowledge, skills, techniques and technology can be transmitted (Barrios et al., 2005; Kugler, 2006; Smarzynska, 2001 and 2002; and Spencer, 2008).

Nonetheless, it is crucial for policy design to understand the nature and magnitude of the determinants of FDI efficiency spillover because there are factors that are firm specific and/or country specific which may reduce these effects (Blomström et al., 1999 and Lall, 1992). The second half of table 1 summarizes the supply and demand force that determines the spillover from FDI to local market.

On the supply side, issues such as firm size, the value of technology, organizational and managerial skills, absorption costs, and existence of commercial benefits can influence the decision to make technology available for appropriation (ibid). On the other hand, on the demand side, the absorptive capacity of firms in terms of skills and information to get new technology and transform it into production and also the degree of protectionism in some firms may make technology acquisition and assimilation difficult and delay the process of upgrading (Lall, 1992 and Zhang et al.2010).

Morrissey (2011) argued that the developing countries' government main constrain is to identifying the existing absorptive capacity to choose the right FDI policies that can fulfill those capacities. Morrissey (2011:26-28) doubt the studies on spillover effects of FDI in developing countries, especially in SSA, as the term spillover is problematic. There is no clear distinction between spillover, linkages and externalities (ibid). Domestic firms can benefit from FDI supply and demand goods and services without any transfer of technology. Hence, linkages are being created without any spillover effects and externalities from MNEs may be available even in firms that are not in transaction with them (Morrissey, 2011 and Narula and Driffield, 2011).

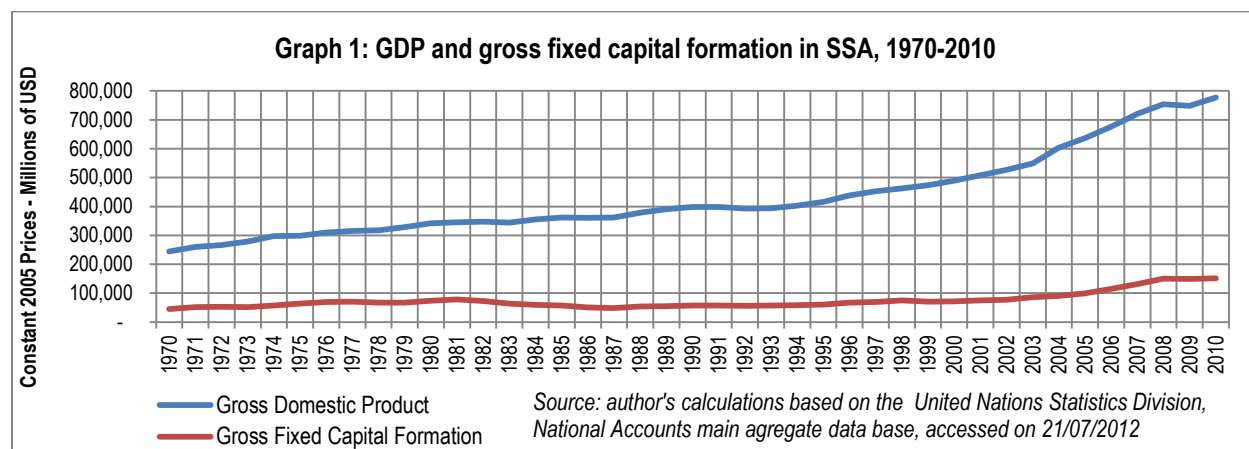
Additionally, the notion of spillover effects requires that some sort of knowledge and technology is being transferred from foreign firms to domestic firms but in practice studies measure spillover effects through the performance of domestic enterprises and a figure of MNEs, consequently the learning process is rarely acknowledged and studied (Morrissey, 2011). Most often a simple linkage (no technology and knowledge transfer) is treated as spillover (technology and knowledge transfer). Hence, the lesson to learn is that without linkages, spillovers do not happen but not all linkages can lead to spillovers.

3. FOREIGN DIRECT INVESTMENT IN SUB-SAHARAN AFRICA

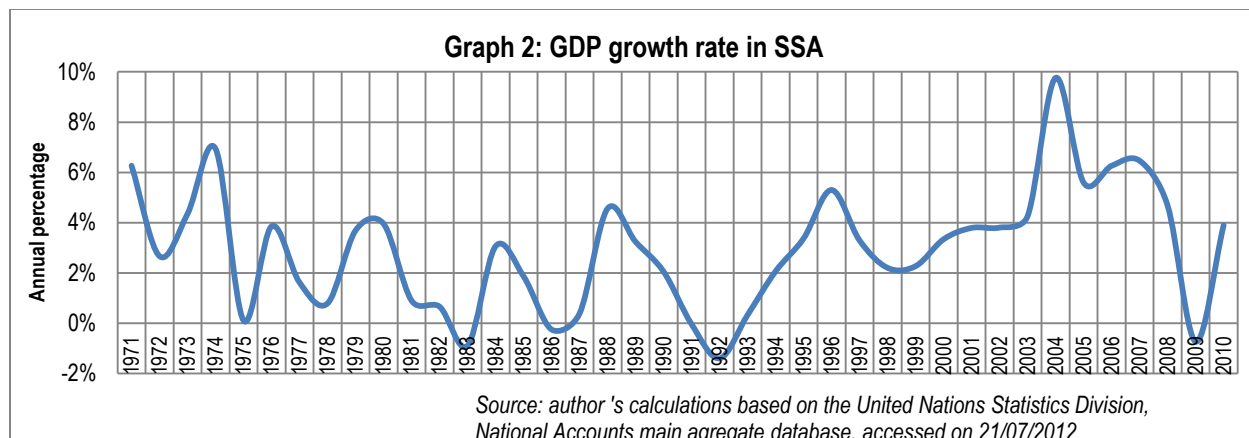
3.1 Context of foreign direct investment in Sub-Saharan Africa

Most of the SSA economies grew faster since their respective independence until mid-1970's. Historically, before the 1980's many African countries had restricted FDI entry to a specific percentage of equity (UNCTAD, 1995). In the 1980's, with the rise of neoliberalism, the idea that liberalization leads to a greater integration of countries in the global market and an efficient allocation of productive resources resulting in welfare in the developing countries was developed.

Consequently, many African governments in general and SSA, in particular, have since been engaged in attracting FDI. One argument is that MNEs convey high technology and this will spillover to local firms thus supporting them improving efficiency, productivity and competitiveness (Barrios et al., 2005). For this reason, a number of reforms were introduced in most African economies and these were mainly based on revising the laws, eliminating or/and reducing the barrier for foreign capital entry (UNCTAD, 1995).



Graph 1 shows the SSA gross domestic product (GDP) and gross fixed capital formation (GFCF) evolution during 1970 to 2010, in constant 2005 prices. While the level of GDP tends to increase annually, the GFCF, which represents the amount of new value added invested in the economy, has declined since the 1980's until mid-1990s from where it starts to increase slowly. According to UNCTAD (2005:6), the share of GFCF in GDP dropped from approximately 25% in late 70s to 17% in mid-1990s. This happened because until the mid-1990s, large scale privatization was not introduced as some governments were reluctant to open some strategic sectors hence discouraging investments (Sukar et al., 2011:65).



The trend of GDP growth rate is very unstable with a declining tendency in the long-run, with 3% growth rate for the period in analysis (graph 2).

There are four key periods in the history of Africa's post-independence. Each of them includes its own features in terms of model of development adopted and the socio-economic development outcomes (UNECA, 2008:15). The period between the 1960's and mid-1970's was characterized by state-led development strategies and policies; the crisis period followed in the mid-1970's and 1980's; then the 1990's are characterized by the post-adjustment reform era; and lastly, is the current revitalization period of the 21st Century.

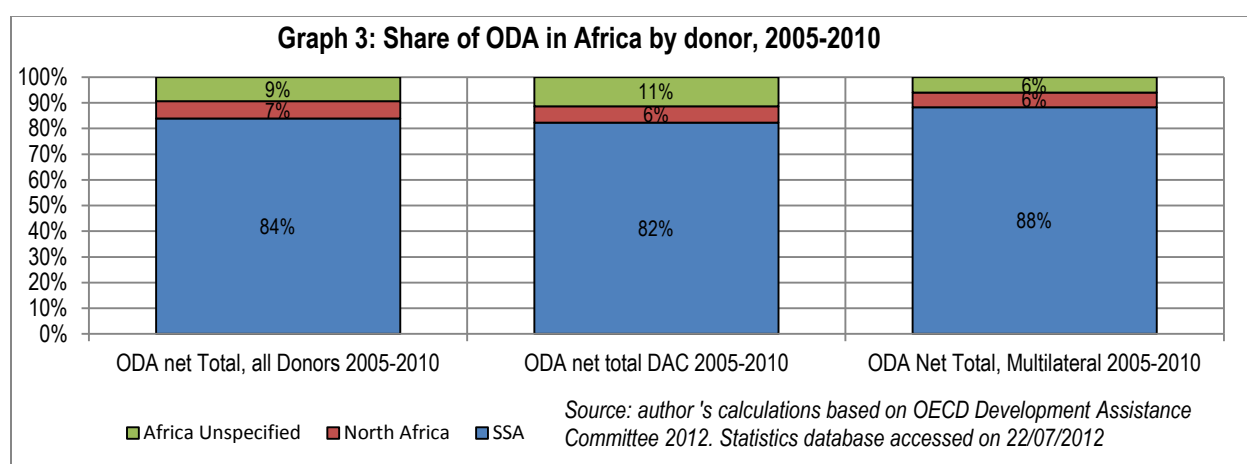
In the first period, until mid-1970's, SSA faced a rapid annual growth rate, achieving an average of 5.1%. This era also known as the "Golden Age" was the period where almost all developing countries had a reasonable economic performance (Lo, 2011). The state played a crucial role as an economic agent to build a consolidation of national political as well as economic independency (UNECA, 2008:15).

The second period, between 1975 and 1980, was characterized by a decline in growth and economic performance of SSA countries as the budget, trade deficits and inflation rates were unsustainable (ibid). The average growth rate reduced dramatically to 2.3% due to the crisis verified in the region (graph 2).

The third period, between 1981 and 1993, was the deep debt crisis period. This period also known as "lost decades" (Odenthal, 2001:13) was characterized by a complete absence of strategies for economic development on the policy agenda, especially for industrialization (Lo, 2011). The average growth rate for this period was 1.7%. Most SSA relies on the IMF and World Bank to get financial aid. Structural adjustment programmes were initiated to resolve the internal and external macroeconomic instabilities (UNECA, 2008:16-17). According to Lo (2011), unlike the pre-neoliberalism era that focused on strategies

for growth and industrialization, the new era policies were based on privatization, financialization and trade liberalization.

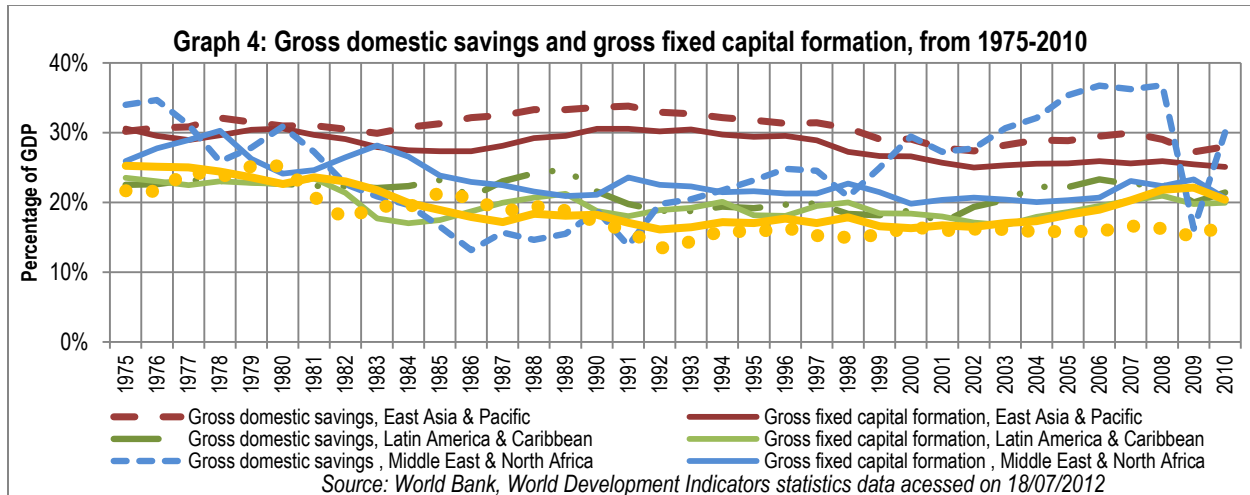
The last period started with a gradual recovery of the economies with the average growth of GDP, from 1993 onwards for SSA of 3%. According to UNCTAD (2005:2-3) SSA economies, based on the market fundamentals, were able to attract FDI to the region due to its openness to international business. Despite all the effort to implement reforms and structural adjustment, the attraction of FDI to the African continent and for SSA region, in particular, is still unsatisfactory. Additionally, SSA is still highly aid dependent (graph 3).



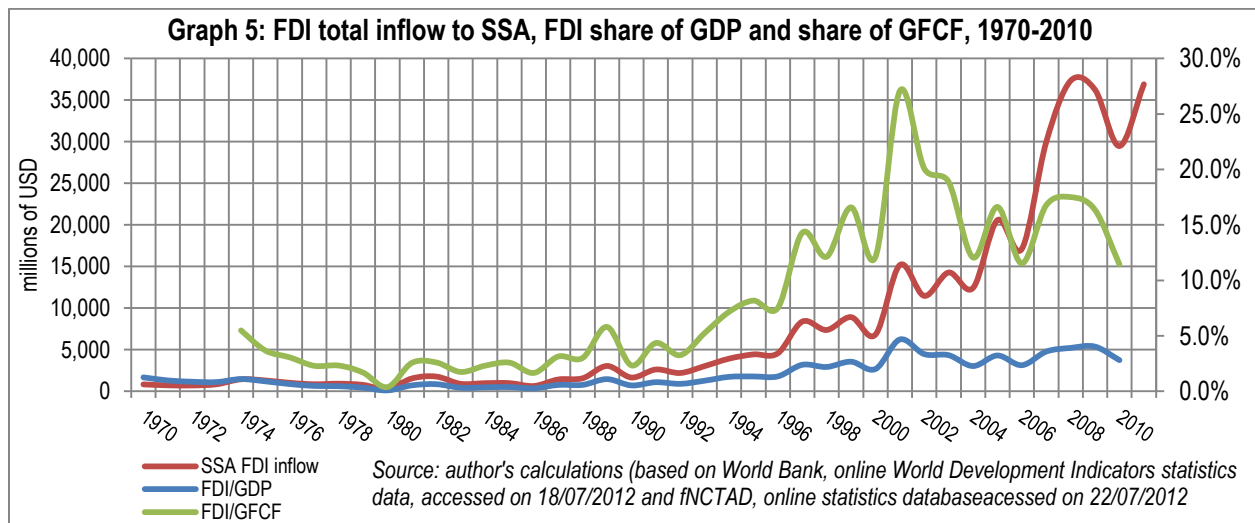
The SSA countries absorbed more than 80% of the total official development assistance (ODA) to Africa during 2005 to 2010 (graph 3). According to the Africa Economic Outlook (AEO) 2005/2006, most of the ODA is directed to the social sectors. However, to achieve long-term development involves capitalizing on extra gains and mobilization of additional resources to finance productive activities including infrastructures (OECD/DAC, 2006).

3.2. Trends of foreign direct investment in Sub-Saharan Africa

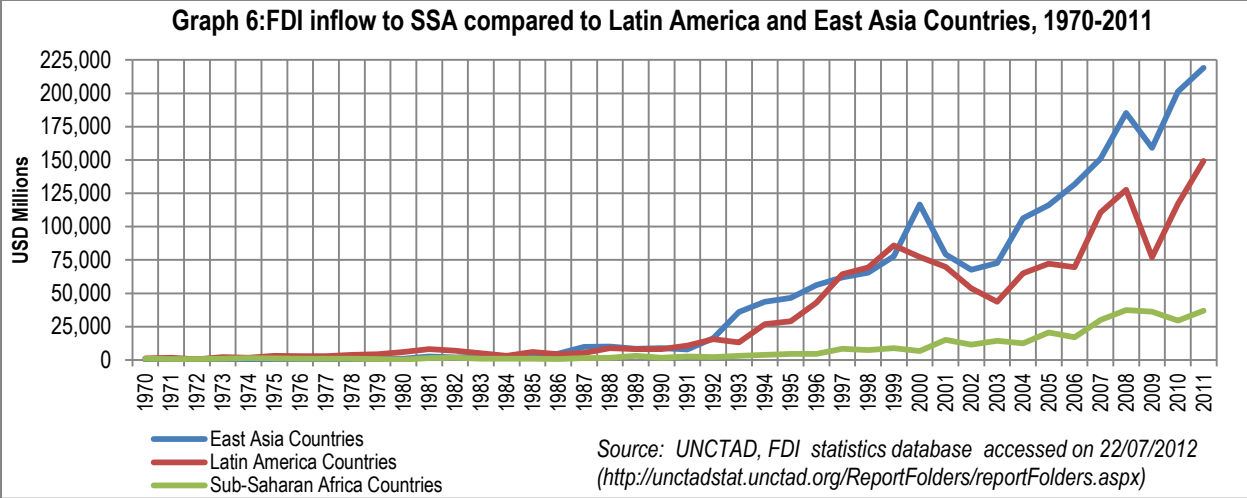
Some studies argue that the levels of saving in SSA is very low and this is the reason why investment in this region is also low (Asiedu, 2002 and 2006; Jeppesen and Mainguy, 2007 and UNCTAD, 2005).



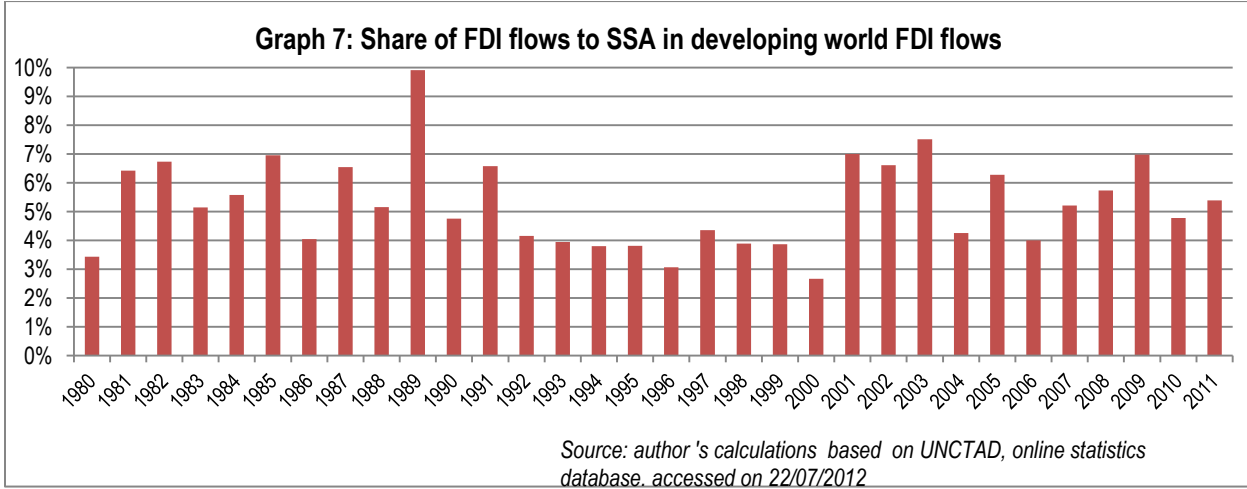
Graph 4 shows that since the 1990's, SSA has been presenting the lowest levels of saving, as well as GFCF, compared to other developing regions. Despite this, since late 1990's the level of GFCF in SSA has increased rapidly as a result of the role of FDI inflows in the region.



Indeed, from graph 5 it is clear that FDI inflows to SSA increased very rapidly since the mid-1990's. Additionally, the FDI share of GDP of SSA countries has also increased dramatically since the mid-1990's. The share of FDI in GFCF increased, from less than 5% in the 70's until late 1980's to 18% in 2008 having reached a peak of 27% in 2001 (graph 5). Ndikumana and Verick (2008:5) suggested that this improvement is due to some efforts developed by the governments to improve incentives for private investment, high commodity prices and macroeconomic stability.



Although the FDI has increased in SSA, its volume is still too low compared to the other developing regions (graph 6). Indeed, starting from almost the same levels in the 1970's, the amount of FDI to SSA remained the same during a long period of time, having increased slightly from 1993 onwards. On the other hand, the East Asia Countries and Latin America Countries experienced a fast increase of FDI inflows after the 1980's.



Additionally, for three decades the share of SSA inflows of FDI in total FDI flows to developing countries remained lower than 10%; with an average of 5% during 1980-2011 (graph 7), although governments have made efforts to attract FDI. Furthermore, the FDI flow to SSA is concentrated in a few countries among years.

Table 3: Top 5 Recipients of FDI in SSA, 1990 – 2011, percentage of the total FDI to SSA

1990-2000	2007	2008	2009	2010	2011
Nigeria 34%	Nigeria 20%	South Africa 24%	Nigeria 24%	Nigeria 21%	Nigeria 24%
S.Africa 18%	S.Africa 19%	Nigeria 22%	S.Africa 15%	D.R.of Congo 10%	S. Africa 16%
Angola 13%	D.R.of Congo 8%	Sudan 7%	Angola 6%	Ghana 9%	Ghana 9%
C.d'Ivoire 4%	Sudan 8%	Congo 7%	Congo 5%	Congo 7%	Congo 8%
Zambia 3%	Congo 6%	D.R.of Congo 5%	Sudan 5%	Sudan 7%	Mozambique 6%
Top 5 71%	Top 5 61%	Top 5 65%	Top 5 55%	Top 5 54%	Top 5 62%
All other	All other	All other	All other	All other	All other
SSA 29%	SSA 39%	SSA 35%	SSA 45%	SSA 46%	SSA 38%

Source: Author's calculations based on UNCTAD, online statistics database accessed on 22/07/2012

Table 3 shows the top five recipients of FDI in SSA from 1990 to 2011. For instance, Nigeria and South Africa have been in the top five since the 1990's. These investments are also largely in natural resources such as oil and natural gas (Jenkins and Thomas, 2002:22). As highlighted by UNCTAD (2005:9), data showing the bias on a specific sector are hard to find on a continuous basis, although the fact that FDI is predominantly concentrated in primary activities cannot be disputed.

3.3. Spillover effects of foreign direct investment in Sub-Saharan Africa

Empirical evidence has shown that most of the FDI to SSA is based on MNEs that are extractive industries producing and exporting primary commodities, mainly natural resources or service activities (energy, telecommunication and tourism) with fewer or even no spillover effects (Asiedu, 2006; Morisset, 2001; and UNCTAD, 2008). Smarzynska (2001 and 2002) has been arguing that spillover only takes place when backward linkages are associated with foreign enterprises that are market-oriented rather than export-oriented.

Unfortunately, most of the studies on FDI to SSA countries concentrate on issues such as determinants of FDI to the region, its causality relationship with growth and its general effects on the host economies. Generally these studies tend to be "propaganda" to set up the policy agenda based on those advanced by institutions such as World Bank and IMF. Very little attention is given to spillover effects. Adding to that most of these studies are based on econometric work and cross-section methodology which are inadequate to the purpose of evaluation of spillover of FDI (Görg and Greenway, 2001).

Furthermore, these studies provide aggregate data that are not suitable to evaluate the spillover effects of FDI in SSA. However, a better understanding of this issue would require not only a particular country-level study but a firm-level study as well. For this reason, assessing spillover effects in SSA is not an easy exercise.

Morrissey (2011) noted that the SSA countries have few foreign enterprises operating in activities (such as manufacturing) that could result in learning processes instead most FDI is on natural resources. For this reason, the author suggested that in the SSA context, the focus should be in linkage effects rather than in spillover effects as the former is easy to identify and more appropriate to capture the effects of FDI whereas trying to classify the latter is an ambiguous exercise. However, Cockcroft and Riddell (1991) attributes this ambiguity to the poor data quality.

Three types of linkages (employment, inputs demand and supply to local enterprises) were suggested. However, very few studies shed light on spillover effects of FDI in SSA by looking to these linkages. For instance, Cockcroft and Riddell (1991) when analyzing spillover effects on employment in SSA concluded that the skill transfer was very weak. This was because wages earned were very low for formal sector employees and a number of managerial posts held by local workers were also low. Additionally, FDI flows to Africa are typically in natural resources industries which are more capital intensive and require highly skilled workers (Jenkins and Thomas, 2002; Ndikumana and Verick, 2008).

The study by Cockcroft and Riddell (1991) also suggested that FDI effects on productivity are insignificant for most African countries. Yet, a study by Akinlo (2004:635) suggested that apart from the structure of the firms, the reforms (in the high education sector) undertaken by Nigeria's government were crucial to enhance the efficiency through which the technological knowledge become available in the market.

The next section will study the case of Mozambique for a more profound understanding of the dynamic of FDI in the country and why the spillovers are weak. The argument is that the nature of FDI as well as the local firms and conditions in the country to absorb technology play a crucial role in determining the success or failure of FDI spillover effects.

4. FOREIGN DIRECT INVESTMENT IN MOZAMBIQUE

4.1. Mozambique: macroeconomic context

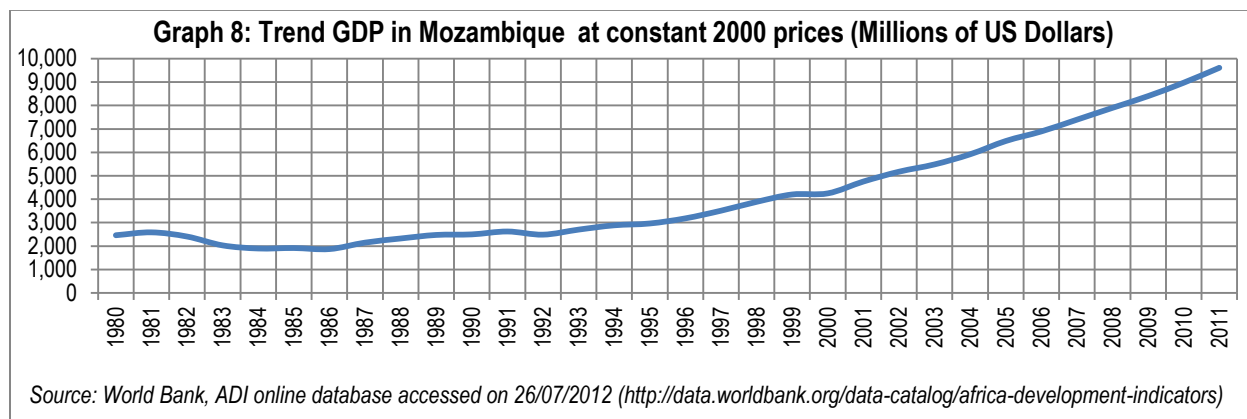
i) *About Mozambique*

The country experienced 16 years of civil war after becoming independent from Portugal in 1975. With the crisis of 1980's, the country joined the IMF and World Bank which imposed structural adjustment reforms in exchange of financial assistance and technical support. The restructuring of the economy that began in 1987, with the introduction of the economic rehabilitation program (PRE), meant that private firms had to assume the role of producers and distributors without any state intervention whose function was limited to regulate the economy.

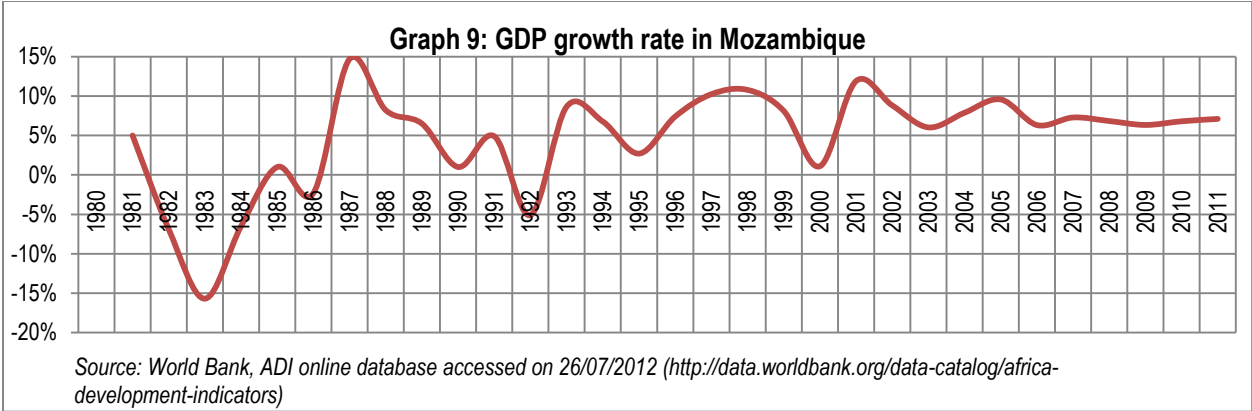
After two decades of the caustic war, the country has being pointed as one of Africa's best-performing economies (World Bank, 2008 and 2011; and IMF, 2011). This growth is mainly due to inflow of foreign capital: aid and FDI (IMF, 2010 and 2011). Despite this, the degree of inequality is very high and the poverty is still problematic, with roughly 55% of the population living in extreme poverty (IMF, 2011:6). In 2006, Mozambique was considered to be the seventh most populous country in SSA with 21million inhabits (Fox et al, 2008 and World Bank, 2008).

ii) *Gross domestic product*

Historically, the GDP annual average in Mozambique during 1980 to 2011 was approximately 4.2 billion USD with a high record of 9.6 billion USD in 2011 and the lowest record of 1.87 billion USD in 1986 (graph 8).



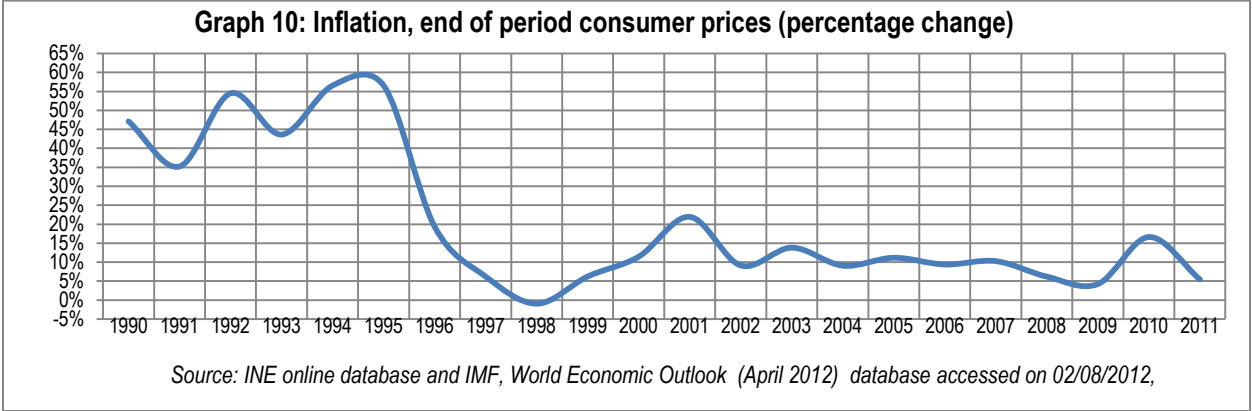
Mozambique was recently listed as one of the SSA countries that succeeded to generate rapid economic growth in post-conflict era by the African Development Indicators (ADI) 2011 report (World Bank, 2011:176). The country is also considered as the fastest growing non-oil economy in SSA (Nucifora and da Silva, 2011:65).



Indeed, the Mozambican economy has been growing fast at 7% annual average rate. Nonetheless, this growth rate is not stable (see graph 9). This significant variation on the growth rate is caused by some economic shocks as well as the pattern of GDP growth which is determined by FDI's megaprojects in sectors such as aluminum, electricity and mineral resources.

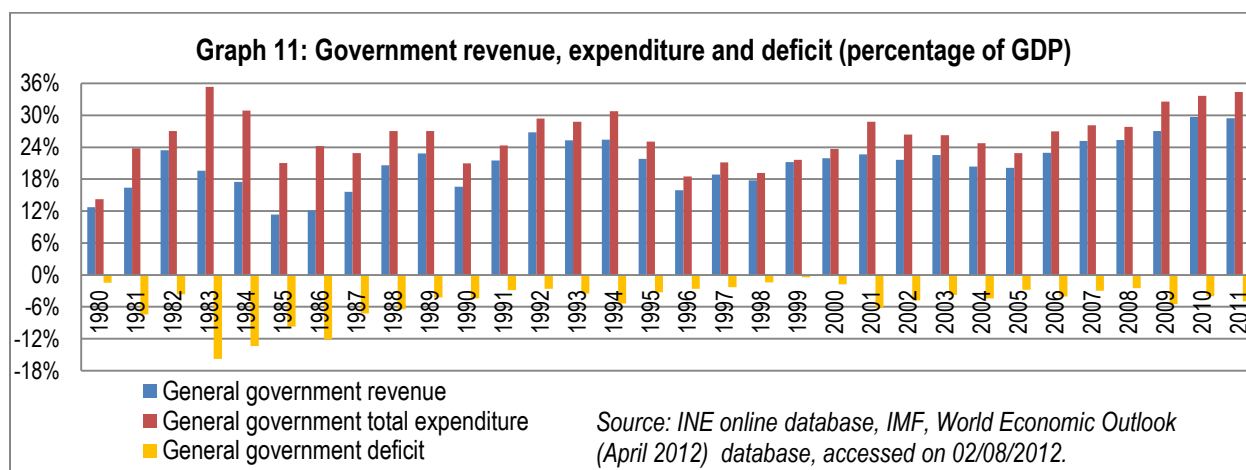
iii) Inflation

From 1990 until the mid-1990s, the inflation rates were predominantly high and above two digits (graph 10). Ubide (1997:6) pointed out four main factors that contribute for the high levels of inflation rate: the large budget deficit, the increase in foodstuff prices resulting from the severe drought, difficulties in monetary control and expansionary fiscal policies.

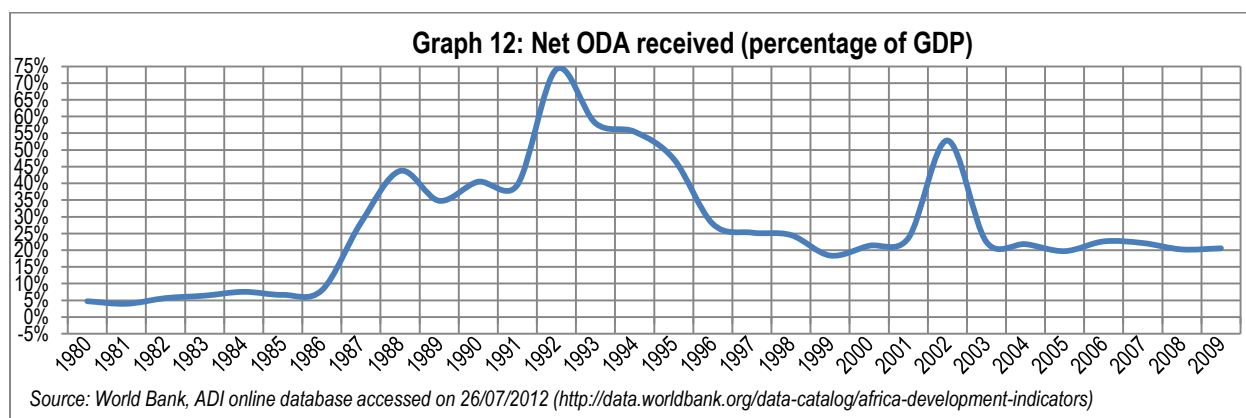


The changeover took place after 1996 when more rigid monetary policies were adopted and the metical stabilized resulting in an inflation rate of 17% (ibid). After 1995 in most of the years, the inflation rates were situated below two digits excluding periods where the country was affected by severe shocks¹ (Meijer, 2011).

iv) *Public finance: revenue, expenditure and net ODA in Mozambique*



The Millennium Development Goal (MDG) report on Mozambique 2010 stressed that the country still depends on foreign aid to finance a substantial part of public expenditures (UNDP, 2011). The level of government expenditure exceeded the level of government revenue resulting in a fiscal deficit (graph 11).



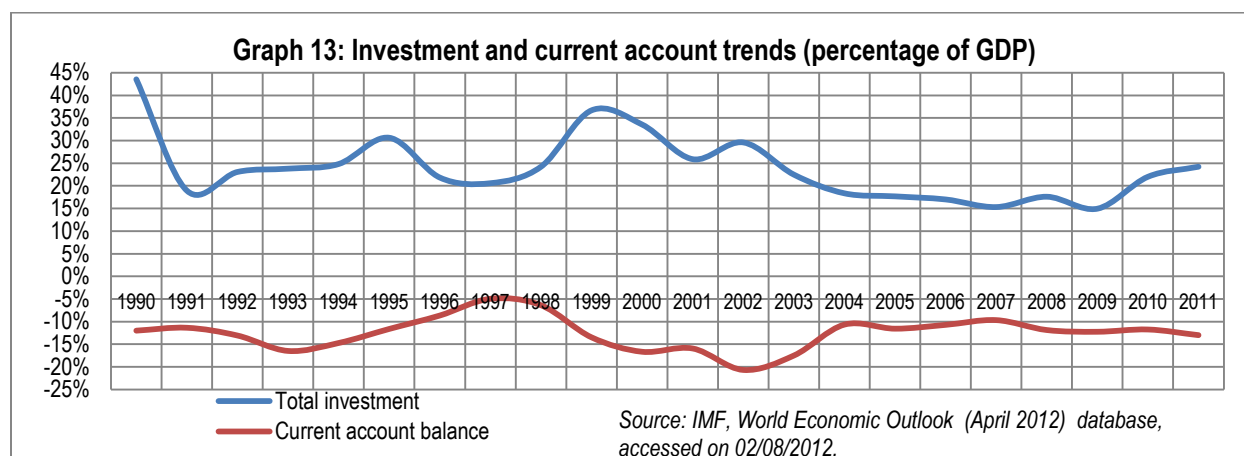
Graph 12 shows the uses of external sources to execute public expenditure as percentage of GDP have been reducing since 1992, excluding 2002. Despite this, over 50% of investment expenditures are still

¹ The 2000/2001 floods, the raise in oil prices and South African Rand (ZAR) appreciation in 2003, the oil price shock in 2005, the elimination of food and fuel subsidies, the rise in international oil and food prices, the depreciation of the currency against the US dollar (USD) and ZAR, a poor agricultural year and loose monetary policies.

financed by foreign assistance provided by the group of nineteen donors known as Programme Aid Partners (UNDP, 2011).

v) *Gross investment*

Graph 13 illustrates the relationship between gross investment and the current account. This shows clearly that there is a positive relationship between current account deficit and gross investment. This is because the current account tends to increase (decrease) slightly when the investment gets bigger (smaller). In other words, the reduction of the current account deficit is related to the contraction of the economy.

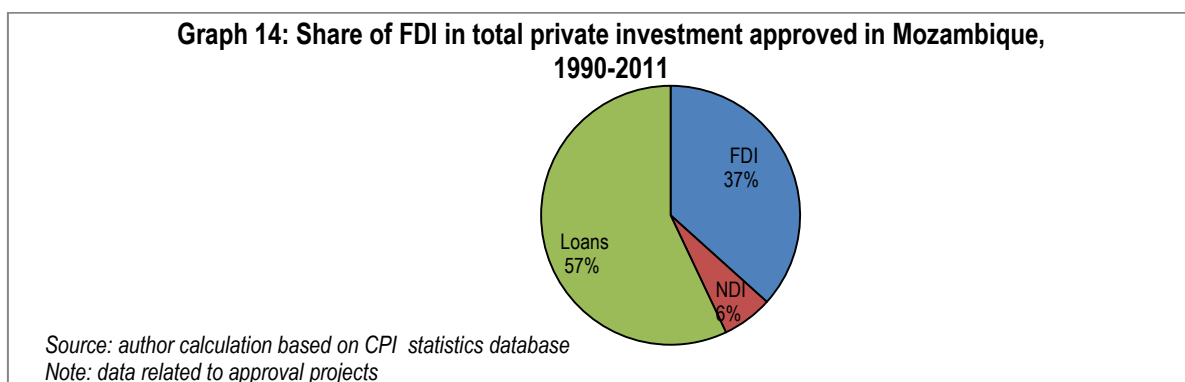


Castel-Branco and Ossemame (2010:6-7) refer to two reasons for this relationship. Firstly, the rigidity of export elasticity of the investment explains this relationship although such rigidity reduced with the entrance of megaprojects in the country.

Secondly, despite the fact that MNEs are exports-intensive, they benefit from free repatriation of capital leading to an enormous magnitude of dividends outflows. However, according to Meijer (2011:6) the current account deficit is largely financed by FDI inflows resulting from the megaprojects. The next section will explore the patterns of private investment with focus on FDI inflows in Mozambique, its distribution and tendencies.

4.2. Dynamics of foreign direct investment in Mozambique²

Private investment in Mozambique is constituted by domestic investment, FDI³ and loans. Loans account for 57% of total private investment approved between 1990 and 2011 followed by FDI with 37% and national direct investment (NDI) with only 6% (see graph 14). According to the central bank 74% of FDI is export-oriented and 26% produce for the domestic market (BdM, 2012).



Additionally, FDI is highly concentrated around few megaprojects⁴ (table 4 and annex table A). Castel-Branco (2004a) stated that the share of FDI in non-megaprojects private investment is just slightly higher than NDI and is not remarkable.

Table 4: Project size distribution of FDI, 2005-2010

Project Size	2005	2006	2007	2008	2009	2010
Megaprojects (USD million)	15	86	220	296	438	580
%of the total	14%	56%	52%	50%	49%	73%
Small and Medium Projects (USD million)	93	67	207	296	454	209
% of the total	86%	44%	48%	50%	51%	26%
Total of FDI	108	154	428	592	893	790

Source: Author's calculations based on balance of payment BdM (2011,2010 and 2009)

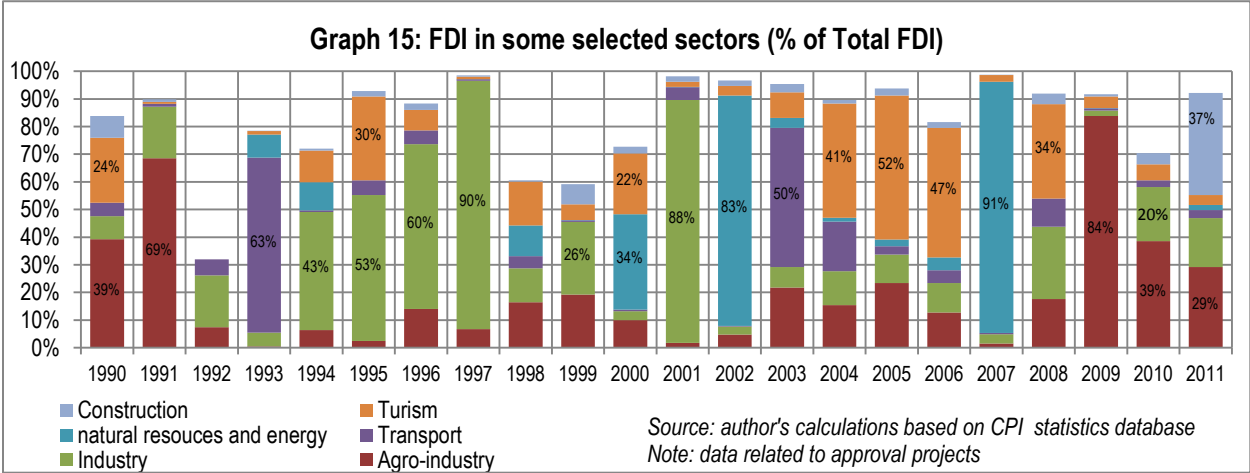
Besides, large volume of FDI to Mozambique is concentrated in some sectors mainly minerals and energy (annex table B) and this tendency has become more evident after 2000. Additionally, graph 15

² For a better understanding of FDI tendencies in Mozambique is necessary to disaggregate the data. Unfortunately, most of the data presented by international institution such as UNCTAD are presented in aggregate figures. For this reason to analyze the pattern of FDI growth, distribution and source, the approval investment data from Investment Promotion Center (CPI) in Mozambique will be used as a proxy of FDI inflow.

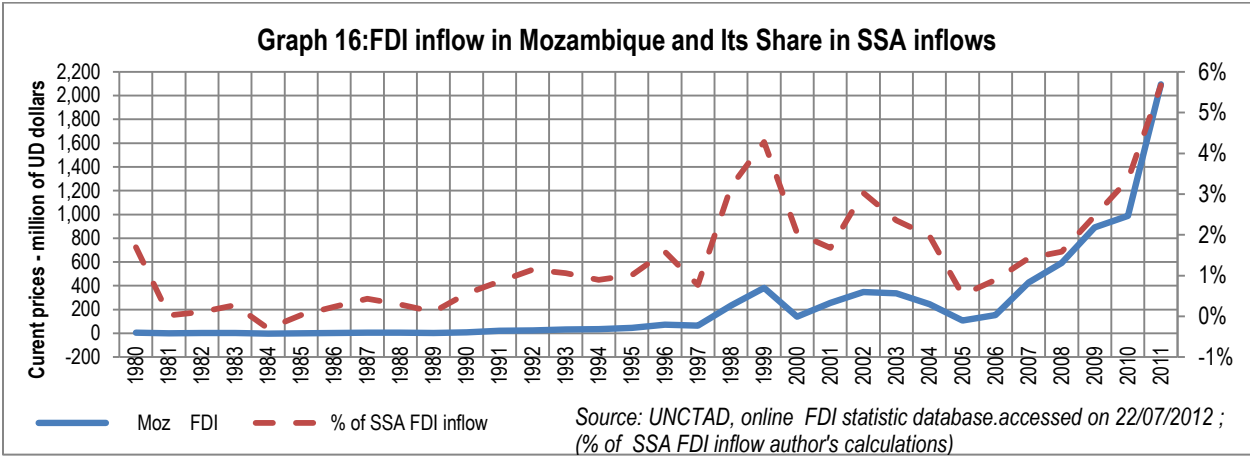
³ FDI in Mozambique is defined in the balance of payment as the transaction between two economic agents where the direct investor (non- resident) hold at least 10% of social capital of the foreign enterprise (resident).

⁴ Megaprojects are defined in this paper as projects with investments above 500million dollars.

demonstrates that the share of manufacturing in total FDI has been declining. The economy is becoming more concentrated in commodities such as aluminum and coal increasing its vulnerability relatively to the volatility of the commodity prices.



It is imperative to diversify the economy. This requires a strategy and policies that use mineral resource exploitation to generate fiscal revenues necessary to finance social, economic and environmental development as well as to create productive capacities in the country (Castel-Branco, 2010 and Muianga, 2012). However, the most problematic issue in Mozambique is that most of these megaprojects have benefited from huge fiscal incentives and reinvest very little in the country (annex table C).



Graph 16 shows an upward trend of the share of FDI inflows to Mozambique in total inflows to SSA (represented by the dash line). In aggregate terms, the inflows of FDI to Mozambique started increasing after 1990, such as observed in the SSA FDI inflows.

5. ASSESSING THE SPILLOVER EFFECTS OF FOREIGN DIRECT INVESTMENT IN MOZAMBIQUE

5.1. Minor spillover effects of foreign direct investment

The imitation, competitiveness, exports, human capital and allocative efficiency effects seem to have minor importance in the case of Mozambique.

The Global Competitiveness Report for 2012-2013 ranked Mozambique as 138 out of 144 countries (Schwab, 2012), five ranks above the previous year (annex table D). One of the problems pointed out by the report is that the industry in Mozambique is dominated by some megaprojects that are concentrated in the mining, energy, and forest sectors. Additionally, the bulk of industrial firms are constituted by micro enterprises doing small scale production (Wide, 2010).

According to Wide (2010), the level of competitiveness in the country can be determined by its degree of industrialization and production diversification. This is because it tends to reduce vulnerability to price fluctuation hence increasing advantages in export opportunities. Nonetheless, "Mozambique is competitive in primary products but is poorly diversified beyond that" (Wide, 2010:ii) and megaprojects accounted in 2011 for 72% of total export in the country (annex table E). Exports excluding megaprojects are relatively static (USAID, 2002 and Castel-Branco, 2010).

For instance, the manufacturing industry is concentrated in aluminum production lead by one megaproject of FDI, Mozal. Aluminum alone comprises 48% of total manufacturing output, 8% of value added and more than 70% of manufacturing exports (Castel-Branco, 2004a). Additionally, more than 50% of imports in Mozambique are linked to few megaprojects and financed by FDI (ibid). This is because local enterprises cannot provide the inputs needed by MNEs.

One would expect that positive effects of FDI to be evident in the country in terms of job creation, not in quantitative terms as these megaprojects do not employ a large amount of workers, but in qualitative terms as they offer training to their staff. Despite this, the results of Warren-Rodriguez's (2010) study shows that FDI did not play an important role in the formation and accumulation of technical capabilities and skills in the Mozambican light chemical and metalworking sector.

Warren-Rodriguez (2010) explained that this limitation was because the proportion of Mozambican and expatriated managers, that attended university, secondary and technical education, and that could speak foreign languages as well as travelled frequently abroad for business purposes, was quite the same (annex

table F). Furthermore, the level of education and skills of the labor force in the country are very low as the wage levels (Wide, 2010).

5.2. The potential of linkage effects

In an attempt to attract FDI and also benefit from technology transfer, Mozambique's government created the Export Processing Zone (EPZ), known as Beluluane Industrial Park (BIP) in Maputo. The main argument is that agglomeration improves competitiveness as it can spillover information and industry specific knowledge as well as create more competition pressure and access to market. In 2007, the BIP had 16 free zone projects employing 2.771 people with one of these companies being the big FDI aluminum smelter Mozal (Wide, 2010:37).

Developing linkages with megaprojects will possibly be the key strategy to support industries and create productive capacity in Mozambique. Nonetheless, a study by CPI in 1998 and 1999, when tried to identify the potential linkages with 370 local enterprises, concluded that the majority of enterprises had serious problems of quality, standard, finance, management and organizational competence, training of labor force and operated with outdated technology and equipment, and lacked attitude in marketing and business (Castel-Branco, 2002 and Castel-Branco and Goldin, 2003).

In this context some projects, for example the MOZLINK project in 2003, were created to help small and medium enterprises (SMEs) to link with large companies such as Mozal (Mucavel, 2010:37). Despite this, because of the nature of Mozal's operation and sophistication, most of the enterprises that were linked to the project became very specialized to provide goods and services to this company. Consequently, the spillover results from these linkages were mixed.

Unlike the Agro-Alfa company, that succeeded from the program by acquiring technological capacities, experience and diversifying its portfolio, KANES, after finishing their contract with Mozal, incurred large losses in terms of equipment invested that could not be used elsewhere in the economy (Mucavel, 2010:48-50). Other industries have also lost their old clients.

As Castel-Branco and Goldin (2003) argued firms like Mozal may provide opportunities to develop linkages but it is naive to assume that local firms will always benefit from them. Therefore, productive linkages should be encouraged in the case of Mozambique (Castel-Branco and Mandlate, 2012:136). These

linkages known as “parallel linkages” would allow megaprojects to be a potential source of demand or supply of raw material in domestic market or to finance parallel activities leading to diversification of the productive capacity (ibid). In this process spillover effects would be more likely to happen.

Furthermore, most strategies and policies for SMEs tend to target issues such as how to improve and increase volume of investment and business environment without a deep analysis on the specific industrial issues and/or the potential linkages with the existing productive capacities and how to foster the one that exists or build additional productive capacities (*author translation from Castel-Branco, 2011 and 2010; Castel-Branco and Mandlate, 2012; Muianga, 2012*).

5.3. Theoretical consequences of linkage effects

Theoretically, the potential linkage effects could lead to greater productivity, efficiency and competitiveness. In Mozambique, the industrial technology development primarily relies on foreign technology as the economy faces a low degree of industrialization and capital to finance research and development (Biggs et al., 1999). However, given the nature of FDI which comprises mainly megaprojects of minerals and natural resources, some practical issues regarding long-run sustainability arise.

First, these linkages require very sophisticated technologies and techniques that are not used elsewhere in the economy. Consequently, local firms may end up in a business trap. For example, in 2003, most of the firms which had a contract with Mozal reported efficiency gains, although not a lot due to the length of the contracts that were short (Castel-Branco and Goldin, 2003). Therefore, most of the equipment acquired, knowledge and skills became underutilized as no other industries demanded the same standards and/or services.

Second, there are few national enterprises that can benefit and use this technology. A great number of national companies are still using outdated technology and precarious methods of operation from the colonial era which delay the delivery of goods and services. In this case, the productivity and efficiency gains are not absorbed by the economy, creating therefore a big constraint to what could be the spillover effect derived from this interaction.

Third, while it is important to recognize that MNEs create jobs and the workers employed benefit from skills and training, it is also imperative to think what will happen to those workers whom acquire a lot of

knowledge when the few megaprojects close as there are few companies that are able to absorb them. The main problem is that the Mozambican economy does not have the capacity to absorb these trained workers.

Finally, many studies evaluate spillover effects by measuring efficiency, productivity and competitiveness of local firms. Nonetheless, none of these concepts are simple to measure or assess. As Blyth (1963) noted, all these concepts are influenced by different factors surrounding the industries. For instance, the efficiency of an industry will depend upon factors such as the type of technology used, the labor, the raw material as well as the productivity of labor will depend upon the type of machinery, organization and management of the workers, working conditions, inputs, experience and skill of labor (Blyth, 1963:176-177).

Hence, measuring output per labor (productivity) does not show what happens with several other inputs that might also affect and be affected by its performance (ibid). On this basis, it can be inferred that the spillover effects of FDI do not only depend on what is being produced by foreign and local industries but also matters how this is being produced. As Castel-Branco (2004b:13) noted, the dynamic bases of FDI alone are not enough to address issues of production, efficiency and competition.

6. CONCLUSION

The spillover effects of FDI happen when local enterprises have gains of productivity, efficiency and competitiveness resulting from technology and skill transfer from those enterprises. However, this transfer of technology is not automatic. It depends on different social, economic and political factors that can affect and be affected by the spillover effects.

Theoretically, FDI spillover effects should be evident in the recipient countries. Nevertheless, in the case of SSA countries most of FDI is concentrated in mineral resources making difficult for these countries to benefit from FDI spillover effects. The case of Mozambique elucidates some of the problems surrounding spillover effects of FDI.

Further productivity, efficiency and competitiveness gains are constrained due to: (i) the limitation of the local enterprises in providing goods and services of quality and on time; (ii) the lack of absorption capacity by local firms to benefit from skilled workers; and (iii) lack of government strategy to articulate this dynamic of FDI and create the necessary synergy and linkages for development.

This paper does not intend to be conclusive but open debate on the importance of SSA countries (particularly Mozambique) to think about the role of FDI for industrialization. Some issues as the role of the state were not addressed by the paper. Nonetheless, it is recognized that the government has an imperative role in this process, and must create more specific policies regarding FDI. A question for future works is how and in what governments should intervene to improve the spillover effects of FDI in the host country.

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ANNEX

Table A: Megaprojects of FDI in Mozambique

Project	Location	Sector	Employment	Investment (million of USD)
Mozal I & II (aluminium)	Maputo	Industry	1000	2,340
SASOL (gas and pipeline project)	Inhambane	Mining	238	1,200
Kenmare (Titanium and heavy sands)	Nampula	Mining	425	500
LCS (heavy sand)	Xai-Xai	Mining	800	7,930
Vale Mocambique (coal)	Tete	Mining	1500	1,535
Rio Tinto/ex-Riversdale (Coal)*	Tete	Mining	n.a	800
Portucel (forest-wood)	Zambezia	Agriculture	2000	2,311
Anadarko (petroleum)	Nampula	Mining	470	5,000
Lurio Green Resources (forest-wood)	Nampula	Agriculture	7500	2,209

Source: Adapted by the author based on CPI database, Castel-Branco and Cavadias (2009) and
*http://www.tabj.co.za/africa_in_action/april10_aia/riversdale_mining_poised_to_succeed_in_2010.html

Table B: Sectorial distribution of FDI, 1990-2000 and 2001-2011

Sector	1990-2000	2001-2011	1990-2000 % of Total	2001-2011 % of Total
Agro-industry	171,648,912	2,294,236,915	11%	20%
Fishing	32,172,960	59,444,957	2%	1%
Industry	739,556,865	1,529,864,922	46%	13%
Transports and communication	56,497,534	258,674,355	4%	2%
Mineral Resources and energy	146,009,601	5,697,201,051	9%	50%
Tourism	164,436,178	666,423,166	10%	6%
Construction	25,612,408	466,098,593	2%	4%
Banks	220,674,609	72,224,021	14%	1%
Others	53,610,289	454,297,645	3%	4%
Total	1,610,219,356	11,498,465,624		

Source: Author's calculations based on CPI statistics database

Note: data related to approval projects

Table C: Reinvested profits (millions of USD)

Sector	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Agriculture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fishing	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extractive industries	0.0	0.0	0.0	0.0	0.0	77.2	24.1	0.0	0.0	1.2	44.8
Manufacturing industries	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.3	19.5	49.5	122.8
Electricity, gas and water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Commerce	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0
Tourism	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0
Transport and communication	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	7.8	0.0
Banks	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.5	0.0
Others	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	77.2	24.1	123.8	19.5	134.3	167.5
Megaprojects reinvested profits	0.0	0.0	0.0	0.0	0.0	77.2	24.1	121.3	19.5	1.6	157.4

Source: Department of Economic Studies and Statistics (DEE) of BdM

Table D: Global Competitiveness Index - Mozambique rank

Global Competitiveness Index (years)	Number of countries evaluated in the index	score	rank
2012-2013	144	3.17	138
2011-2012	142	3.31	133
2010-2011	139	3.32	131
2009-2010	133	3.22	129
2008-2009	134	3.15	130
2007-2008	131	3.02	128
2006-2007	125	2.94	121
2005-2006	117	3.19	91
2004-2005	104	3.17	92

Source: Adapted by the author based on World Economic Forum (various years)

Table E: Export and Import of Goods with and without megaprojects

	2005	2006	2007	2008	2009	2010	2011
Export of goods	100%	100%	100%	100%	100%	100%	100%
1.General Commodities	87%	87%	88%	87%	79%	89%	88%
1.1 Prawns	4%	4%	3%	2%	3%	2%	1%
1.2 Almond Cashew	0%	1%	0%	1%	1%	0%	1%
1.3 Cotton	3%	2%	2%	2%	1%	1%	1%
1.4 Sugar	2%	3%	3%	3%	3%	4%	3%
1.5 Tobacco	2%	5%	2%	7%	8%	7%	6%
1.6 crayfish	0%	0%	0%	0%	0%	0%	0%
1.7 Wood	2%	1%	1%	1%	2%	3%	2%
1.8 Cashew nut	1%	1%	0%	1%	1%	1%	1%
1.9 Electricity	8%	7%	10%	8%	13%	12%	11%
1.10 Gas	6%	5%	5%	6%	6%	6%	6%
1.11 Alluminium	58%	59%	61%	55%	40%	50%	49%
1.12 Illuminite	0%	0%	0%	1%	2%	4%	6%
1.13 Coal	na	na	na	na	na	0%	1%
1.2 Goods acquired in the port	1%	1%	1%	1%	1%	1%	1%
1.3 Re-export	1%	1%	1%	1%	0%	1%	1%
1.4 Non-monetary Gold	0%	0%	0%	0%	0%	0%	0%
1.5 Others	11%	10%	10%	11%	20%	10%	10%
Exports excl. megaprojects	28%	29%	24%	30%	39%	29%	28%
Megaprojects exports	72%	71%	76%	70%	61%	71%	72%
Imports of goods	100%	100%	100%	100%	100%	100%	100%
1. Consumer Goods	15%	15%	15%	15%	17%	15%	12%
1.1 Cereals	7%	8%	6%	6%	7%	5%	3%

1.2 Sugar	0%	0%	0%	0%	0%	0%	0%
1.3 beer	0%	0%	0%	0%	0%	0%	0%
1.4 Medicines	1%	1%	2%	1%	1%	2%	2%
1.5 Cars	6%	6%	7%	7%	9%	8%	7%
2. Raw material and intermediate goods	14%	15%	17%	19%	13%	18%	24%
2.1 oil	11%	12%	13%	16%	9%	14%	21%
2.2 Electricity	3%	3%	4%	3%	3%	4%	15%
3. Capital Goods	14%	14%	14%	13%	16%	14%	4%
4. Other	40%	33%	32%	34%	31%	27%	2%
5. megaprojects	17%	24%	22%	19%	23%	26%	4%
5.1 Mozal	na	na	na	na	na	16%	14%
5.2 Sasol	na	na	na	na	na	0%	15%
5.3 Kenmare	na	na	na	na	na	1%	0%
5.4 VALE	na	na	na	na	na	9%	34%
Imports excluding megaprojects	83%	76%	78%	81%	77%	74%	66%
Imports from Mega projects	17%	24%	22%	19%	23%	26%	34%

Source: author's calculations BdM (various) annual reports

Table F: Managerial skill in metalworking and light chemical industries

	Mozambican Managers	Foreign Managers	Mozambican firms (> 50%)	Foreign Firms (≤50%)
<i>% of managers:</i>				
University studies	52.1	61.9	56.1	57.1
Secondary studies	10.4	9.5	26.8	38.8
<i>Technical studies:</i>				
Studied abroad	33.3	78.6	36.6	71.4
Mozambican	100	0.0	15.6	22.2
<i>Average work experience:</i>				
In total	24.4	30.2	26.8	27.3
In sector	13.5	19.3	15.8	16.4
In company	9.4	11.8	10.1	10.9
As manager in sector	12.7	14.8	14.4	13.0
As manager - total	17.6	20.1	20.8	17.8
abroad	3.9	17.5	3.5	13.2
Speak foreign language(%)	70.8	76.2	68.3	77.6
Regular travel for business (%)	79.2	85.7	80.5	83.7

Source: Warren-Rodriguez (2010)