IESE
INSTITUTO DE ESTUDOS SOCIAIS E ECONÓMICOS

Trade Liberalization and Economic Growth in the SADC: *a difference-in-difference alnalysis*

Emílio Dava

Conference Paper nº 08

III CONFERÊNCIA INTERNACIONAL DO IESE

"MOÇAMBIQUE: ACUMULAÇÃO E TRANSFORMAÇÃO EM CONTEXTO DE CRISE INTERNACIONAL"

(4 & 5 de Setembro de 2012)

Trade liberalization and economic growth in the SADC: A difference-in-difference analysis

Emilio Dava

Paper presented at IESE's III Conference

September, 2012

ABSTRACT

Employing the difference-in-difference technique and the Warner and Sachs (1995) criteria to identify liberalization dates and episodes, the study analyzes the effect of trade liberalization on the growth of real GDP on a sample of seven SADC countries using a yearly data set that spans from 1980 to 2008. Fixed-effect results revealed that the mean change in the growth rate of real GDP from the period prior to and after trade liberalization was 4,1 percentage points. As conceptually predicted, the mean growth rates of exports, imports and FDI inflows have also increased. Thereby, the results suggest that, on average and in aggregate, trade liberalization appears to have had a positive and significant impact on the change in the growth rate of the SADC sample countries. Country-specific analysis has revealed differences among the sample countries regarding their growth, exports and imports performances, but it has also found a similar pattern in the effect and dynamics of FDI inflows on growth.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

Abbreviations and acronyms

AGOA	Africa Growth Opportunity Act
CA	Current Account
ECOWAS	Economic Commission of the West African States
EU	European Union
FDI	Foreign Direct Investment
GATT	General Agreement on Tariffs and Trade
GCF	Gross Capital Formation
GDP	Gross Domestic Product
IMF	International Monetary Fund
NAFTA	North American Free Trade Agreement
OECD	Organization for Economic Cooperation and Development
SACU	Southern Africa Customs Union
SADC	Southern Africa Development Community
UNCTAD	United Nations Conference on Trade and Development
WB	World Bank
WTO	World Trade Organization

1 Introduction

The debate on the sources of economic growth has been for many years one of the areas of strong spurge among economists, but still, the debate does not yet have a closure and is seemingly far from reaching it.

In orthodox theories, since the Ricardian era, trade has been seen as having a positive impact on welfare (as it enables consumers to gain access to cheaper commodities) and on efficient resource allocation (as it promotes the exploitation of country's comparative advantages and allows firms to get access to cheaper inputs and expand markets for their outputs) (UNCTAD, 2008; Markusen et al, 1995). Thereby, the freer the trade is, the larger its positive effects will be and the presence of trade barriers (particularly, policy-induced ones such as tariffs) may lead to inefficiency in production and consumption notably if those policies are biased against the implementation and development of any country's comparative advantages. This belief has prevailed for very long time as the main theoretical framework in the analysis and formulation of trade and growth policies.

Nevertheless, following the Great Depression, there was a shift towards a more inwards-oriented economic approach to growth. That has given the government a leading role in promoting growth. In fact, in the late 1960s and mid 1970s, inward-oriented and state-led growth strategies such as import-substitution strategies, flourished, particularly in African, south-east Asian and Latin American economies, but in the early 1980's they somehow faded, with the re-emergency of the neoliberal approach to economics in Europe and United States and imposition of these views to other parts of the world, mostly through loans attached to conditionality programs.

Again, in the late 1980s and early 1990s with the success and emergence of Asian tigers (particularly, the South –Korea and more recently, China) and the failure of the neo-liberal doctrine in many developing economies, the importance of the Developmentalist State, the debate about inward-oriented and import substitution growth strategies, has re-emerged and with that, the theoretical debate about the

relationship between trade and economic growth has also re-emerged as the predictions of the prevailing trade theories – the Herschel-Ohlin and Stolper-Samuelson models – failed to materialize because land and labor-abundant countries were not clearly growing through the exploitation of their most abundant and most intensively used factor of production as those theories predicted.

One reason for this failure was, according to the Prebisch-Singer theorem, the rapid deterioration of the terms of trade in poor countries exporting mostly agricultural commodities whose prices on international markets were more volatile than those of manufactured goods which are mostly produced in richer economies. The failure of the prevailing mainstream trade theories has given rise and ground for structuralist and endogenous growth theories to point out that, industrialization coupled with an outward orientation could be the source and engine of growth. Under this new setting, the focus of the economic debate, research and economic policy formulation was the search for the sources of economic growth under imperfect competition. In fact, models of imperfect competition with homogeneous and heterogeneous firms were conceived (e.g. Krugman, 1987). Nevertheless, they too were still postulating that trade openness and liberalization would be a source of better resource allocation and welfare, as competition among domestic and foreign firms would lead to higher output and lower prices of goods. Furthermore, trade openness would be a source of new skills, technology and capital through Foreign Direct Investment (FDI) that ultimately would spur growth (Markusen et al. 1995; Alvarez and Lopez, 2008; Kemeny, 2007).

Nowadays, the argument for trade liberalization seems to find its drive in political reasons rather than in plane economic theory and reasoning. In fact, institutions such as the World Bank and IMF with their stabilization and structural adjustments programs are know to be leading the way in pushing for trade liberalization (Spanu, 2003). Regional trade agreements such as the NAFTA, GATT and regional trade blocks such as the ECOWAS and the EU also rely on political reasons using economic arguments for doing things. Furthermore, many governments in developing and emerging economies in an attempt to achieve rapid economic growth still shape their entire macroeconomic policies and structure to respond to the needs of a more outward-oriented economy and to receive large inflows of FDI.

The study aims to investigate whether trade liberalization in the SADC region has had a positive effect in altering the rate of growth of real GDP and it contributes to the literature in the following ways: (i) it is a pioneering study for the SADC region employing the difference-in-difference technique; (ii) it provides empirical evidence through the use of both panel and time-series regression techniques on the seven selected SADC countries.

The study has six sections. Section two presents an overview of the major economic, political and social recent features of the SADC. Section three presents conflicting views of the theoretical and empirical literature on the effects of trade liberalization on the growth of real income. Section four, illustrates the methodology used as well as the reason for that choice. This section also describes the nature of the data set and variables used in the study. Section five, presents and discusses the findings of the study. The analysis is structured in such a way to enable the presentation of and discuss the effects of trade and trade liberalization on (i) the growth of real income in all and each country in the sample, (ii) on trade intensities, (iii) on capital formation, (iv) on the balance of payments and (v) on inflows of Foreign Direct Investment. Section six, presents the conclusion and implications of the study.

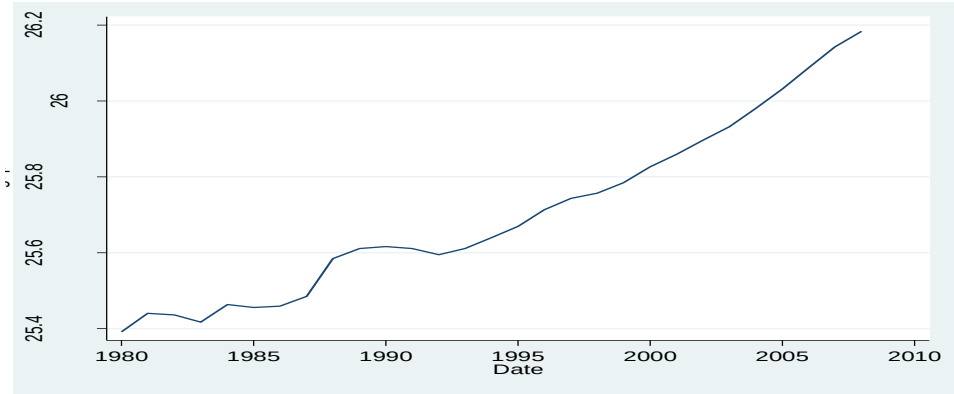
2 Overview of the SADC economy

SADC was created in 1980 with the mission of promoting growth and development among states. Its member countries include Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar (suspended), Malawi, Mozambique, Mauritius, Namibia, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe (SADC, 2010).

The economies of the SADC region are diverse. They vary from oil-rich and producers such as Angola, natural resource abundant such as the Democratic Republic of Congo, Mozambique and Botswana and sector diverse economies such as South Africa.

Figure 1 shows that as of early 1990's the aggregate real GDP of the seven countries used in this study – South Africa, Mozambique, Zambia, Botswana, Mauritius, Tanzania and Madagascar – has been consistently growing at positive rates. The aggregate GDP of these countries in 2008 was 235 billion US Dollars – 80% increase since 1990.

Figure 1: Logarithm of aggregate GDP of sample SADC countries

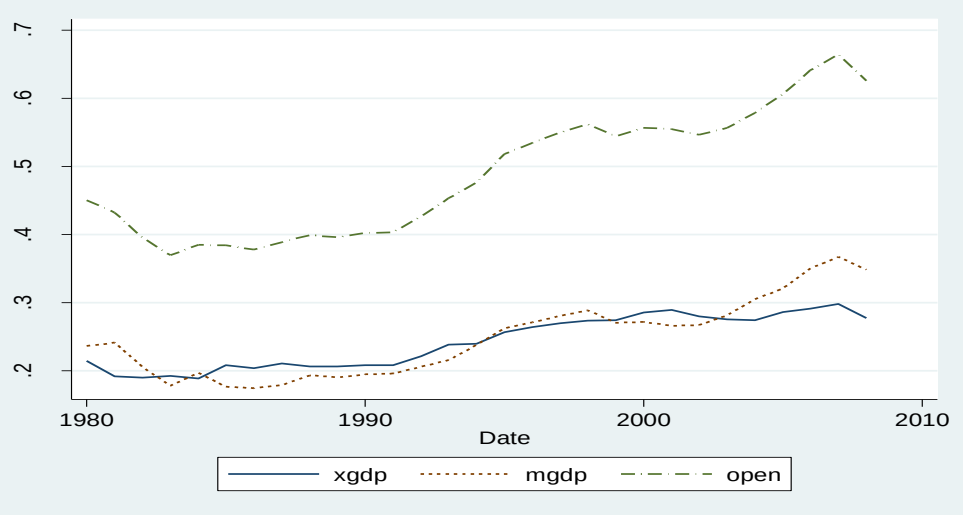


Source: Author's calculations based on the World Bank's 2010 development indicators

Figure 2 shows that total trade (imports plus exports) as percentage of real GDP (here represented by "open") in the SADC sample countries has grown from about 45% in 1980 to 60% in 2008 and in recent years has a tendency to decline, most likely due to the global recent economic and financial crisis. Imports (mgdp) have also increased from about 25% of real GDP to around 30% in 2008, also showing a declining trend

at the end of the series. Exports (xgdp) on the other hand had been growing steadily around 25% of the GDP from the mid 1990's till the middle of 2000. After that, they tended to grow slower than imports. This reflects possible negative effects on the balance of payments. In fact, as identified by UNCTAD (2008), export performance in African countries is poor and that is shown by its deteriorating balance of payments.

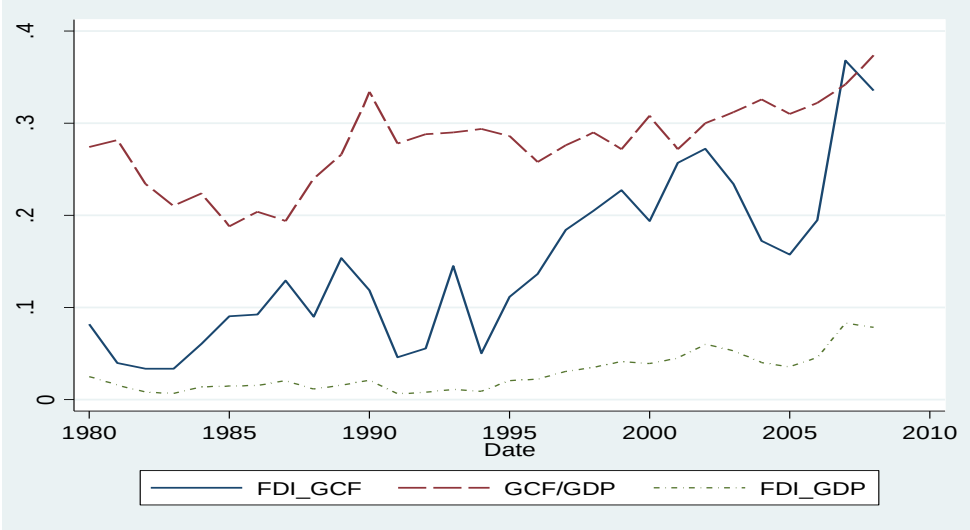
Figure 2: Export, Imports and Openness as percentage of real GDP in sample countries



Source: Author's calculations based on the World Bank's 2010 development indicators

Foreign Direct Investment (FDI) as percentage of real GDP (FDI_GDP in Figure 3) has grown very steadily since 1980 till the end of the series in 2008 where it shows signs of decline, probably due the recent financial crisis as the main and traditional source of investment are countries in the EU and US, that were severely affected. Other countries such as China and India are becoming important source of investment and trade, particularly in the energy and natural resources sectors in resource-rich countries such as Mozambique (coal, natural gas and timber), Angola (oil) and Zambia (copper)

Figure 3: FDI inflows and Gross Capital Formation in the sample countries



Source: Author's calculations based on the World Bank's 2010 development indicators

Figure 3 also shows that as FDI rose steadily throughout the years, Gross Capital Formation (GCF), particularly from the early 1990's, has also risen but more steadily and slowly. As that happened, FDI as percentage of GCF was growing very rapidly and steeply which draws attention into investigating the nature of such FDI inflows and their effect on the destination sectors or the power and dynamics of endogenous sources of growth in the sample countries. This last point is of particular importance given that, FDI inflows (depending on their nature) are often (with a time lag) correlated with (high) GCF rates and this, with high imports and exports. That pattern seems to be present in this sample of SADC countries.

Intra-trade intensity in the SADC is very small and is anchored around South Africa (which is the largest economy in the region and in Africa). For instance, countries such as Mozambique, Zimbabwe, rely heavily on the region for their imports and exports. Other countries such as South Africa, Angola, Zambia, trade pretty much with the rest of world.

In recent years, the SADC region and particularly South Africa, Mozambique and Zimbabwe have turned towards the east, particularly to China for their exports and some of their imports as well. These pattern although may benefit consumers who

may access cheaper consumer goods, it may harm the region as a whole, for, they are all concentrated on the same source for trade – China – which in the event of crisis or economic slowdown, there might be negative spillover and contagion effects to the region. This is similar to the existing dependence of most countries on the South Africa economy for trade. Furthermore, under this scenario, South Africa is likely to be the sole or major gainer in this process as its exports may increase more than proportionately the exports of other countries, and that, will contribute to further dependence of others on South Africa and further income divergence in the SADC, when under the regional integration project, these economies are seeking further macroeconomic convergence.

3 Trade liberalization and economic growth: A literature review

3.1 Theoretical framework

The debate on the impact of trade and trade liberalization on economic growth is growing older, but it still is contentious and far from being settled. The starting point is perhaps the very definition and measurement of trade liberalization. And the second reason for contention is the relevance and linkage between trade liberalization and growth.

Greenaway et al. (1998) and Lee (2005), present a definition of trade liberalization that implies or combines (i) removal of trade barriers and absence of incentives bias between exports and imports and (ii) exchange of a trade distortionary measure (e.g. quotas) for one that is less distortionary (e.g. tariffs).

Identification and tracking of these trade measures, varies substantially, and each measure has its own pitfalls. A common procedure used for identification is reliance upon announced policy changes, for instance, removal of non-tariff barriers, reduction or even elimination of tariffs. The difficulty associated with this measure is the isolation of possible effects (simultaneous or not) of policy changes with an opposite effect to that of the trade reforms. Another procedure often used is the combination of various criteria (e.g. tariff changes and changes in relative prices).

Given this lack of consensus and common measurement procedures for trade liberalization, methodological problems often arise when comparing the conclusions and implications of various studies (Lee, 2003). For instance, it is difficulty to disentangle the effects of trade liberalization from those of other policy reforms that may take place at the same time or in close periods or even those effects from those of shocks (internal or external). Another particularly difficulty issues arises from the fact that most of the analysis on the effect of trade liberalization is done assuming that the situation preceding trade reforms of would have prevailed if liberalization had not taken place. As pointed out by Lee (2003) this is a very unreasonable assumption

because most reforms including (trade reforms) are driven by a pre-existing sub-optimal situation or bad policies currently in place.

The neoclassical theory (assuming perfect competition) postulates that trade liberalization (often defined as the absence or reduction of barriers to trade) maximizes consumer welfare and output volumes due to lower prices of consumer goods and intermediate inputs and efficient allocation of resources that it promotes. The presence of trade barriers (particularly, policy-induced ones such as tariffs) may lead to inefficiency in production and consumption notably if those policies are biased against the implementation of the economies' comparative advantages (Markusen et. al. 1995).

In the Ricardian model (with free trade, 2 goods and 2 countries), trade between nations is a function of their differences in production opportunities costs. Therefore, in the absence of policy-induced barriers comparative advantages determine country's trade patterns and resources and income distribution are presumed to be efficient (Markusen et al. 1995; Ahmed and Sattar, 2004).

In the Herschel-Ohlin model, trade patterns are revealed by relative production factor abundance and their intensity in production. This implies that, for instance, labor abundant countries such as the majority in the SADC whose dominant sector is labor intensive should produce and export agricultural (Markusen et al. 1995).

Models of imperfect competition with homogeneous and heterogeneous firms postulate that trade openness and liberalization may be a source of better resource allocation and welfare. In this framework, competition among domestic and foreign firms leads to higher output and lower prices of goods. Furthermore, competition and opening up to trade may be a source of new skill, technology and capital (FDI) that may spur growth (Markusen et al., 1995; Alvarez and Lopez, 2008; Kemeney, 2007).

In all these theories, the link between trade and growth is implicit through the assertion that trade will lead to better allocation of resources, improvement of the terms of trade, changes in the real income of factors, increase in capital accumulation and increased consumer welfare (Krueger, 1998; Bojona, 2008). No direct channel is

presented, though. In fact, Bojona (2008) stresses out that theoretical studies do not show clearly illustrate how trade liberalization leads to income growth.

Alternative views (e.g. endogenous growth models, structural economists) although do not dispute the potential positive effect of trade on growth, they state that openness and liberalization will increase productivity and growth for the entire world but, reduce it in poor nations producing goods less intensive in research and development (Bojona, 2008) or goods prone to terms of trade volatility – the Prebisch-Singer theorem. Furthermore, they also state that most comparative advantages are not innate and they may be acquired in circumstances contrary to free trade to enable learning-by-doing, knowledge creation and transfer. Therefore, trade policies (e.g. tariffs) as well as industrial policies (e.g. import substitution) and other reforms (e.g. institutional reforms and labor training programs) may be pivotal in shaping and creating a country's competitive advantages and in fostering economic growth.

Although these views acknowledge the importance of trade to growth, they emphasize that liberalization should be a selective and phased process (e.g. the case of selective and time-bound protection of promising infant industries in South Korea and Latin America). As Shafaeddih (2005) argues, liberalization, "the way it is recommended under the Washington Consensus, it is more likely to lead to the destruction of the existing industries, particularly of those that are at their early stages of infancy without necessarily leading to the emergence of new ones". This view gives support to import substitution strategies or to increased imports of capital goods aimed at creating future capacity, but with an outward orientation. This is similar to the effects postulated by the linkages literature and by advocates of the positive spillovers of Foreign Direct Investment. But a simple outward orientation alone does not solve the problem. Exports diversification is necessary to prevent exposure to fluctuations of terms of trade (Hesse, 2008).

From the theoretical perspective, the debate about the meaning, measurement and relationship between trade liberalization is far from being consensual. As Spanu (2003), points out, "some economists believe that liberalization leads to development and other, that development comes ahead of any trade regime". Furthermore, the issue

divides (on ideological and political reasons and special interest groups) developed and poor economies.

3.2 Empirical evidence

In recent times, the research by Wacziarg and Welch (2003) has become seminal empirical evidence against which research on the relationship between trade openness or trade liberalization is deemed, especially with reference to developing and emerging economies. Using a first-difference in growth approach, they researched the effect of liberalization (proxied by a dummy variable) in 141 countries and concluded that on average, liberalization had a positive effect on growth, investment and imports and exports, within countries.

Kneller et al. (2008) also using the first-difference approach and a focus on the variability of measures of openness and economic performance of liberalizers, concluded that trade liberalization appeared to have had a positive impact on growth. Nevertheless, they stressed out that cross-country studies and current measures of liberalization may mask important features surrounding liberalization in any country. Since liberalization is a multidimensional phenomenon as they point out, it cannot be adequately be captured by a single variable such as a binary dummy for liberalization. Furthermore, they single out that study results may be extremely sensitive to selection of countries in the sample and therefore, case-by-case studies may be more informative than cross-country ones.

Slaughter (2001) tried to identify the relationship between trade liberalization and convergence by using a difference-in-differences approach. The conclusion was that liberalization did not promote significant, systematic convergence among liberalizing countries in any of the four cases they analyzed. Liberalization has as matter of fact fostered income divergence among liberalizers. The studies raises the need for caution in reading the results as it points that the approach used – DID – is not free of flaws. For instance, it points out that liberalization may not be isolated from convergence. In fact, countries with similarity may choose to establish free trade agreement among them. This emphasizes the need to pay attention to simultaneous effects of policies or forces rather than seeking and forcing causality among policies, especially from trade

policies to others or from it to changes in economic patterns. In fact, the observation that many countries may choose to have trade agreements with those with whom they share similarities is consistent with the principles underpinning most regional trade blocks such as the euro zone and the ongoing convergence path and the gradual setting up of liberalization schedules among SADC countries.

More skeptical studies on the effects of trade liberalization on growth are the ones by Rodriguez and Rodrik (2000) and Yanikkaya (2002). They state that methodological shortcomings associated with most measures of openness and estimation techniques are poor or suffer from simultaneity effects of other bad policies and that induce to debatable results. After reviewing some studies on the issue, they show little evidence in support of a positive link between economic growth and pro-openness trade policies (proxied by low tariffs and non-tariff barriers to trade).

A study that has actually found a negative relationship between liberalization and growth is by Yanikkaya (2002). After using two groups of openness measures – one based upon trade volumes and the other, upon trade restrictions – they found that liberalization did not have a frictionless and direct straightforward linkage with economic growth. When estimating the effect for indicators of trade volumes they found a positive and significant correlation between openness to trade and economic growth. On the other hand, when estimating the impact of restrictions to trade and average tariff rates, their results revealed a positive and significant correlation between the degree of barriers to trade and economic growth. For them, those results are consistent with the predictions of the theoretical growth literature according to which in some instances, poor and small economies can in fact have benefits from restrictions to trade.

Wu and Zeng (2008) while investigating the effect of trade liberalization on trade balance in a sample of 22 developing countries using the first-difference approach, concluded that countries that liberalization had had a positive effect on both imports and exports. Furthermore, because they also used different measures of liberalization, their finding on the impact of liberalization on the balance of payments was mixed. Using the Wacziarg and Welch (2003) specification of liberalization, they found evidence of negative effects, although the finding was not significant. When using

their own measure of liberalization, they did not significant evidence of negative effects on the overall balance of payments.

Jones (2008) while analyzing the effect of tariff reductions (a common measure of trade liberalization) on imports, using the difference-in-differences techniques for 8 African countries – 5 used as a treatment group and other 3, as a control group – concluded that there is no evidence that imports increased more for the treatment group than they did for the control group.

A study by UNCTAD (2008) on the export performance of African economies after liberalization between the 1980s and 1990s and beyond concluded that the exports had not significantly increased and the balance of payments of had in fact deteriorated after liberalization. The main conclusion is that African economies remained largely producers and exporters of primary good for which demand on international markets is very elastic.

The evidence on the effects of trade liberalization on economic growth is rather mixed. Irrespective of the controversy around the issue, trade seems to have a role to play in development. The question is whether it is a driver or compliment; because it could only be a part of broad array of policies needed to achieve growth and development. In fact, as pointed out by Rodriguez and Rodrik (2000) “no country has developed successfully by turning its back on international trade and no country has developed by simply liberalizing its trade.” This study, thereby, seeks not to produce growth models in which trade takes an essential place, but to use one of the mostly used measures of trade liberalization – the Sachs and Warner method – to assess whether over time, it has been relevant to or associated with higher rates of economic growth compared with the periods prior to it in the selected liberalized countries in the SADC region.

4 Methodology and data

This study follows a definition of trade liberalization as presented in Sachs and Warner (1995). For them a country is liberalized if it has:

a) Average tariff level of 40% or less;
b) Average non-tariff barriers of 40% or less;
c) No parallel exchange rate premium of 20% or more compared with the official exchange rate;
d) No socialist economic and political orientation;
e) No state monopoly on major exports.

This measure and definition of liberalization has been subject of criticism, especially by Rodriguez and Rodrik (2000) as they state that this measure of liberalization embodies difficulties associated with measuring openness, simultaneous effects of protectionist policies and other less effective policies and sensitiveness of statistical specifications (Wackziarg and Welch, 2003). Despite the Rodriguez and Rodrik critique and lack of better alternatives approaches to defining liberalization, the Sachs and Warner (1995) definition remains the one most widely used in the literature as pointed out by UNCTAD (2008).

Using the first-difference or difference-in-difference approach (DID), the study uses a sample of 7 SADC countries[1] to analyze the relationship between trade liberalization and economic growth, before and after trade liberalization, using liberalization episodes and dates presented in UNCTAD (2008) which follows the methodology used by Sachs and Warner (1995), Wacziarg and Welch (2003) and Wu and Zeng (2008) to define trade liberalization episodes and dates in each of the countries in the sample.

The DID approach (in this study) regresses the growth rate of real Gross Domestic Product (GDP) on trade liberalization dates. In equation (1) $\log y_{it}$ represents the logarithm of real GDP (y) for country *i* (I=1,2,3,...,7*)* in year *t* (T=1980,1981,…,2008) whilst $\log y_{i,t-1}$ is the first-lagged value of real GDP. lib_dates is the dummy variable

[1] The choice of countries in the SADC was determined by availability of data on liberalization dates and episodes according to the Warner and Sachs (1995) criteria.

for liberalization dates of individual countries and takes on the value of 1 for the liberalization period and 0, before it. a_i is the country-specific effects; b is the coefficient for the liberalization date variable. e_{it} is the error term.

$$\log y_{it} - \log y_{i,t-1} = \alpha_i + \beta lib\_dates_{it} + \varepsilon_{it} \quad (1)$$

The lib_dates variable does not come without its flaws. Being used here as a binary (0,1) variable, it may be good for comparing the changes in the growth rates of growth, imports, exports and capital formation before and after trade liberalization, but it fails to establish an acceptable degree of causation, between trade reforms and growth as it does not allow to disentangle the effects of trade from those of other policies. Nevertheless, it is used here because possibly it shows, individually or in an aggregate with other policies, the effect that trade reforms may have on growth.

The study uses the fixed-effects technique to analyze the effect of liberalization on the growth of real GDP for all countries through equation (1). Analysis for individual countries is referred to as “country analysis”.

The study further uses the growth rates of real exports; real imports and gross capital formation; Foreign Direct Investment (FDI) and current account, all as percentage of real GDP, one at a time to regress on the lib_dates to assess whether the average growth rate of these variables has been different before and after trade liberalization or not.

Data on real GDP, real imports, real exports and real gross capital formation were obtained from the World Bank’s 2010 Development Indicators. The values were calculated at 2000 constant US Dollar prices. On the other hand, data on liberalization dates and episodes were obtained from UNCTAD (2008), which is an extension of Wacziarg and Welch (2003) work, which in turn is an extension of Sachs and Warner (1995) work. Data on the balance of the current account, FDI and Gross Capital Formation were obtained from the UNCTAD’s Dstats.

Following the same methodology as the Wacziarg and Welch (2003), the study has identified seven countries in the SADC for which liberalization dates and episodes were available until 2006 (Table 1).

Table 1: Liberalization dates

Country	Liberalization year
Botswana	1979
Madagascar	1996
Mauritius	1969
Mozambique	1995
South Africa	1991
Tanzania	1995
Zambia	1993

Source: UNCTAD (2008)

Of these countries, two (Botswana and Mauritius) liberalized in the late 1960's and 1970's respectively. The remaining countries have liberalized in the early to mid 1990's. Therefore, most countries in the sample have liberalized more than a decade ago, which gives enough data to compare their performances before and after the liberalization year.

5 Results and discussion

This section presents and discusses the results of the analysis of the effect of trade liberalization on economic growth as well as on growth in GCF, imports and exports in the SADC. The analysis is split between results from cross-country analysis (provided by fixed effects regressions) and country-specific analysis (provided by cross-sectional regressions).

5.1 Liberalization and economic growth

Results from the estimation of equation (1) reveal a positive effect of liberalization on the change in the growth of real GDP for the sample of countries used. Fixed-effects estimates (in Table 2) show that on average, real GDP grew by 4,1 percentage points from the period prior to and after liberalization (1980-2008). In fact, for all countries in the sample[2], the change in the growth rate of real income in the period before liberalization is smaller than in the period prior after it as shown in Table 3.

Table 2: Liberalization and changes in the growth of real GDP from 1980-2008

Item	Fixed-effects	Country analysis						
		Botswana #	Madagascar	Mauritius #	Mozambique	South Africa	Tanzania	Zambia
Growth difference	0.041*	0.069	0.035**	0.049	0.061*	0.013	0.03*	0.024**
t-statistics	(4.01)		(1.94)		(2.69)	(1.50)	(3.51)	(1.66)

Unconditional mean
* Significant at 5% level; ** Significant at 10% level
Absolute value of t-statistics in parentheses
_ negative value

Country specific-results reveal that four out of seven countries in the sample have had positive and significant reactions of the real income growth difference to trade liberalization. Mozambique, Madagascar and Tanzania had the highest positive and significant responses of difference in growth to trade liberalization with 6; 3,5 and 3,0 percentage points respectively (Table 2).

[2] Note that Botswana and Mauritius that were liberalized before the start of the series have not been included in this sample calculation.

Table 3: Sample change in growth of real income before and after liberalization

Country	Lib_dates	% change in growth before lib_date	% change in growth after lib_date	Difference/ before and after lib_date
Madagascar	1996	0,24	3,81	-3,57
Mozambique	1995	1,13	7,62	-6,49
South Africa	1991	1,49	3,07	-1,58
Tanzania	1995	2,64	5,82	-3,18
Zambia	1993	0,71	2,86	-2,15

Source: Own's calculations based on the data set used

When accounting for the reform and transition from a socialist to a market based economy in 1983, the reaction of changes in the growth of real income in Mozambique is of 4,7 percentage points. Botswana and Mauritius were already liberalized economies before the start of the series – 1980 - and their unconditional mean differences in growth are positive and high. This may be due to the fact that (with other things equal) they had a longer period for the benefits of openness to consolidate or to implement other reforms that would enhance the preexisting benefits. Therefore, any comparison with other countries is potentially misleading. The reaction of South Africa was positive but insignificant, suggesting that liberalization may not have contributed to substantially change and improve the growth pattern and speed of the economy. Again, caution is required as this may accrue from a simultaneous effect of other policies and reforms that did not produce good results as discussed in section 5.8.

5.2 Liberalization and exports and imports performances

Fixed effects results (from equation 2) in Table 4 reveal a positive response of exports to trade liberalization. The average growth of exports (x_{it}) as percentage of real GDP (y_{it}) between the period prior and after liberalization was 9,2% and this rate was significant. A trend was included in this and the equations used to estimate the mean growth of exports, imports, openness and current account.

$$\frac{x_{it}}{y_{it}} = a_i + b lib\_dates + e_{it} \qquad (2)$$

Table 4: Liberalization and external sector performance from 1980-2008

Item	Fixed-effects	Country analysis						
		Botswana #	Madagascar	Mauritius #	Mozambique	South Africa	Tanzania	Zambia
Openness rate	0.16*	0.99	0.12	1.16	0.072	0.020	(_0.062)*	(_0.33)**
t-statistics	(3.37)		(1.48)		(1.16)	(0.76)	(_3.07)	(_1.78)
Exports/GDP rate	0.092*	0.572	(_0.008)	0.57	0.014	0.024*	0.011	(_0.17)**
t-statistics	(3.81)		(_0.29)		(0.32)	(2.53)	(1.27)	(_1.94)
Imports/GDP rate	0.071*	0.421	0.13**	0.58	0.057*	(_0.004)	(_0.074)*	(_0.16)
t-statistics	(2.44)		(1.95)		(2.15)	(_0.16)	(_4.03)	(_1.57)
CA/GDP rate	_0.015	0.052	-0.016	(_0.026)	0.045	0.0097	0.092*	(0.0274)
t-statistics	(_0.95)		(-0.69)		(1.36)	(0.44)	(3.69)	(0.59)

Unconditional mean
* Significant at 5% level; ** Significant at 10% level
Absolute value of t-statistics in parentheses
_ negative value

Country-specific data derived from equation (2) reveals that five out of seven countries in the sample had a positive exports reaction to trade liberalization and two had a negative mean growth of exports in reaction to liberalization.

Mozambique and Tanzania had a similar (almost 1% each) positive, though, statistically not different from zero reaction of their exports growth rates tto liberalization. Zambia on the other hand, had a negative and significant reaction of 17%. This result is inconsistent with UNCTAD (2008) in mineral-rich countries other oil-rich economies had a strong post liberalization export performance. South Africa had a mild positive (2,4%) but significantly different from zero response of its exports growth rate. Madagascar had a negative and close to zero response (-0.8%). On the hand, Mauritius and Botswana that were liberalized economies during the sample period had positive reactions (57,2% and 57% respectively) in their unconditional mean difference in growth of exports.

Table 4 also reveals a significant and strong surge in imports (m_{it}), represented by equation (3) in response to liberalization. The conditional mean growth in imports from 1980 to 2008 was 7,1%. This finding is stark contrast with other cross-country studies such as UNCTAD (2008) that have included the countries used in this sample and other African countries. Eventually the difference lies in the aggregation factor and time-span differences.

$$\frac{m_{it}}{y_{it}} = a_i + blib\_dates + e_{it} \quad (3)$$

Fixed-effects results reveal that on average, the countries in the sample had a positive and significant reaction of their imports growth rates to liberalization. The mean growth of imports from the within-country regression is 7,1% from 1980 to 2008.

At the individual country level results, Madagascar and Mozambique had the strongest and significant reactions to liberalization with 13% and 5,7% increase in their imports growth rate, respectively. Tanzania had a negative (7%) and significant reaction of its rate of growth of imports. Botswana and Mauritius (already liberalizers at the beginning of the sample) also experienced a positive growth in their unconditional mean growth rate of imports with 42% and 58%, respectively. Unlike its exports reaction, South Africa's imports reacted mildly and insignificantly to liberalization with 0.4% decline in the growth rate of imports. This finding is consistent with Thurlow (2006) who found that in the period following liberalization, South Africa did experience a rise in both imports and exports and that the latter may have been stimulated by the real depreciation of the local currency – the Rand - in tandem with trade reforms. Whilst the real depreciation of the Rand might have been favorable for exports, it acted adversely against imports as suggest here.

5.3 Liberalization and trade openness

Equation (4) which also includes a trend to account for increasing effect of openness over time irrespective of whether a country liberalizers or not (Wacziarg and Welch, 2003) analyses the effect of trade liberalization on trade openness (imports plus exports) in the sample of countries used. Within-country analysis has revealed a positive and significant average effect of trade liberalization on the degree of openness for all countries. The mean growth rate of openness between from 1980 to 2008 was 16%. This implies that on average trade intensities have increased for the sampled countries due to more exposure to the rest of the world. In fact, Table 4 shows that the rise in the openness is most likely to have been driven by the growth in imports as percentage of real GDP, given the negative mean growth in the current account. This finding is consistent with UNCTACD (2008), which states that

liberalization has had a negative impact on the trade balance of many African economies including some of those included in this sample.

$$\frac{x_{it} + m_{it}}{y_{it}} = a_i + b lib\_dates + e_{it} \qquad (4)$$

At the specific-country level, trade liberalization has significantly decreased openness for only two countries in the sample – Tanzania and Zambia – whilst for the rest of the countries; the rise was not significantly different from zero. A possible implication of this result is that, since most countries in the sample are net importers of consumer goods and that the nature exports did not change much over the time, the rise in this ratio is likely to have been driven by the growth in imports of consumer goods.

5.4 Liberalization and capital formation

Most of the trade literature in favor of liberalization predicts an increase in weights of exports and imports on real income and this trend is often correlated with an increased share of investment or gross capital formation in the real income as well. This study's fixed effects results in Table 6, derived from equation (5), do not firmly confirm this hypothesis for the sample of SADC countries used, though, the mean growth of rate gross capital formation (GCF/GDP) as percentage of real GDP is positive (2,2%), this finding is not statistically different from zero.

$$\frac{gcf_{it}}{y_{it}} = a_i + b lib\_dates + e_{it} \qquad (5)$$

For South Africa, Tanzania and Zambia the reaction of capital formation growth rate (GCF/GDP) as percentage of GDP was negative, with -5%, -11% and -0,64%, respectively. For the first two countries, the results are significant. For, the remainder of the countries, the reaction was positive and of those countries, only Madagascar had (a 2,5% significant) growth rate reaction. This finding may explain the identified trend according to which the average reaction of exports (as presented in Table 4) has been slightly higher than that of imports (2,1 percentage points higher), and this may suggest that on average the countries in the sample have either diversify their exports or their export prices have gone up in the period of analysis. As matter of fact, exports concentration ratios from 1995-2006 in Table 5 seem to confirm this observation as,

on average and excluding Botswana for which data is not available, they decreased by 3 percentage points from 1995 to 2006 for the sample of countries used in this study.

Table 5: Export concentration index from 1995 to 2006

Country	Export concentration index		
	1995	2006	1995-2006
Botswana		0,73	
Madagascar	0,28	0,2	0,08
Mauritius	0,36	0,28	0,08
Mozambique	0,45	0,57	-0,12
South Africa	0,27	0,16	0,11
Tanzania	0,25	0,36	-0,11
Zambia	0,83	0,68	0,15
Average	0,41	0,38	0,03

Source: UNCTAD (2008)

Further country-specific analysis reveals that more than half of the countries in the sample – four out of six – did reduce their export concentration indexes and these results should be reflected in greater export performance for at least those countries. For instance, Madagascar had a positive conditional mean reaction of imports and capital formation to liberalization, but a negative exports reaction. This suggests that given that its export concentration declined, then the rise in imports may be associated with the rise in the inflows of FDI. Mozambique follows the same pattern with the exception that its exports growth rate was positive. Its imports and gross capital formation, both as percentage of GDP, also increased and the results are statistically significant. FDI-related exports expansion seems to account for the increase in the mean exports growth rate and the (cyclical) growth in imports (typically of machinery and equipment) that often follows the inflows of capital-intensive FDI-based projects (Castel-Branco, 2004 and Sonne-Schmidt et al., 2009). Therefore, increased reliance on exports of FDI-based projects that export a number of different must have certainly contributed to the rise in the exports concentration of Mozambique by 12 percentage points.

South Africa did experience a negative growth in the conditional mean of capital formation and that was statistically significant. On the other hand its imports declined and exports have grown mildly, while at the same time capital formation went up. This trend again, suggests that the source of growth in exports must have been a diversified FDI (Thurlow, 2006). This is also consistent with the decline in the country's export concentration index by 11 percentage points from 1995 to 2006.

The truly interesting country in the data set is Zambia (a mineral-rich country) that has had a massive decline in the imports (16%), in exports (17%) as well as in capital formation. The country's export concentration declined dramatically from 0.83 to 0.68 from 1995 to 2006. This pattern of trade seems to suggest (with other things equal) that either Zambia's export revenues must have fallen for some time due conditions on international markets or that its currency depreciated leading to a drop in imports. This pattern also suggests that the source of GDP might have been other policy reforms that lead to larger inflows of FDI has discussed below.

5.5 Liberalization and Foreign Direct Investment (FDI)

Standard orthodox trade theory predicts that with liberalization, net FDI inflows tend to increase over time. To test this theory in the SADC region, this section analyzes the impact of liberalization on the growth rate of FDI as percentage of gross capital formation (in equation 6) and real income (in equation 7), represented by real GDP.

$$\frac{fdi_{it}}{gcf_{it}} = a_i + b lib\_dates + e_{it} \qquad (6)$$

Within-country analysis (in Table 6) has revealed that net FDI inflows as percentage of Gross Capital Formation, was on average, 2,6 % across the period prior to liberalization through the period after liberalization. The implication of this result is that on average, capital-intensive FDI seems to be responsible for the growth in the accumulation of physical capital more than the domestic private and government investment combined (as state in the section 5.4) and it also seems to explain the growth in exports and real income more than the changes in the physical capital stock domestically produced.

$$\frac{fdi_{it}}{y_{it}} = a_i + b lib\_dates + e_{it} \qquad (7)$$

This finding is supported by the fact that the growth of capital formation as percentage of GDP (2,2%) was 0.4 percentage points smaller than that of FDI as percentage of GDP (2,6%). Since, capital formation did not increase that much, then, it is very plausible that this increase might have been triggered by the astonishing rise FDI as percentage of Capital formation (11,5%).

Table 6: Liberalization, FDI and capital formation from 1980-2008

Item	Fixed-effects	Country analysis						
		Botswana #	Madagascar	Mauritius #	Mozambique	South Africa	Tanzania	Zambia
GCF/GDP rate	0.022	2.81	0.025*	0.254	0.0114	(_0.0522)*	(_0.1111)*	(_0.0064)
t-statistics	(1.51)		(2.04)		(0.28)	(_2.05)	(_2.27)	(_0.21)
FDI/GDP rate	0.026*	0.029	0.0319*	0.011	0.0417*	0.0125*	0.0293*	0.0383*
t-statistics	(4.91)		(3.39)		(6.38)	(2.67)	(11.07)	(4.42)
FDI/GCF rate	0.115*	0.11	0.123*	0.046	0.2015*	0.0756*	0.1449*	0.1346*
t-statistics	(4.22)		(4.21)		(6.14)	(2.60)	(8.90)	(1.95)

Unconditional mean
* Significant at 5% level; ** Significant at 10% level
Absolute value of t-statistics in parentheses
_ negative value

At the country-specific level, the countries with the highest growth rates of real income show the same pattern observed in the within-country analysis. For instance, in Mozambique, Tanzania and Madagascar there was a positive and significant reaction (4,17%, 2,93% and 3,19%, respectively) of FDI inflows, greater than that of capital accumulation and most of the changes in the latter were due to the increased inflows of physical capital associated with FDI projects.

5.6 Current account balance and trade liberalization

The current account balance's (Table 4) average reaction to trade liberalization was negative, but mild and insignificant (-1,5%). Nonetheless, the trade account balance was positive given that the reaction of exports as percentage of GDP (9,2%) was positive and higher than that of imports (7,1%) and that the average exports concentration index has fallen by 3 percentage points, the negative balance of the current account is puzzling and may be due to the fact that in most countries, current transfers were negative due to the repatriation of profits of foreign owned firms associated with most of the FDI inflows that took place in the countries studied.

$$\frac{x_{it} - m_{it}}{y_{it}} = a_i + b lib\_dates + e_{it} \qquad (8)$$

Countries that have managed to diversify their exports (e.g. Zambia from diamonds to copper and coal) experienced mild but sustained improvements in their current account's balance (about 2,74%). Others, on the other hand that had their exports concentrated on a small number of high value commodities (e.g. Mozambique on aluminum) also experienced mild improvements in their current account balances

after liberalization (about 4,5%), but changes in the balance seem to follow a seasonal behavior. That is, whenever there is a sizeable inflow of capital-intensive FDI, imports go up and thereby, exports too after firms reach full capacity and the trade balance improves mildly, but the current account deteriorates after some time due partly to the repatriation of profits by FDI-based projects (Castel-Branco, 2004).

5.7 Timing of trade policy reforms' effects

Following a similar approach to that in Wacziarg and Welch (2003), the study attempts to analyze the timing of the effects by using dummy variables representing different stages of the change in the mean growth of real income around a "common" liberalization year. The mean difference in real GDP growth, exports, imports, openness and FDI are run (using fixed-effects) on those dummies. The basic specification is expressed in equation (9).

$$\log y_{it} - \log y_{i,t-1} = a_i + j_1 d_{1it} + j_2 d_{2it} + j_3 d_{3it} + j_4 d_{4it} + e_{it} \qquad (9)$$

Dummy variable number 1 (d_{1it} and its coefficient j_1) represent the three years before the common liberalization year (1993), implying that d_{1it} runs from 1989 to 1992. The second dummy (d_{2it}) runs from 1994 to 1996; d_{3it}, runs from 1997 to 1999 and d_{4it}, from 2000 to 2008.

Table 7: Timing of policy effects

Item	Variables						
	Growth difference	Exports growth	Imports growth	Opennes growth	FDI/GDP growth	FDI/GCF growth	GCF/GDP growth
Dummy1	_0,009	_0,008	_0,021	_0,029	_0,003	0,006	0,024
t-statistic	_1,01	_0,38	_0,85	_0,69	_0,67	0,23	1,97
Dummy2	_0,002	0,009	_0,022	_0,013	_0,001	0,018	0,009
t-statistic	_0,25	0,43	_0,91	_0,32	_0,23	0,75	0,8
Dummy3	0,007	0,01	0,012	0,021	0,008	0,057	0,004
t-statistic	0,84	0,5	0,5	0,55	1,67	2,5	0,36
Dummy4	0,016	0,083	0,073	0,155	0,025	0,106	0,035
t-statistic	2,25	5,21	3,91	4,94	6,92	5,87	3,78

Source: Author's calculations based on the data set used

Fixed-effects results in Table 7 confirm that, on average, the pattern identified from previous specifications attempting to capture the effect of trade on growth. In the

three years before trade (1989-1992) represented by the dummy1 the mean growth difference of real income was negative (-0,9 percentage points), but insignificant. In the two years after it, dummy2 also reveals a negative mean difference growth (-0,2 percentage points). In the four years after liberalization the mean change in growth was positive (0,7 percentage points), but still insignificant. Seven years after liberalization, the mean change in growth (dummy4) became positive and significant (1,6 percentage points). The upward trend in the change of growth rates is observed for the rest of variables (exports, imports, openness, FDI and GCF) where growth is significant and positive for the most after four and seven years of liberalization. Note that, though, the results might be influenced by the choice of the "common" liberalization year, any other specification using the same approach, would yield the same trend.

5.8 Country-specific analysis of policy reforms

To assess whether the positive effects are a sole result of trade policy changes or an outcome of combined effect of policy reforms undertaken before or at the same time as trade policy reforms, particularly liberalization in the sense of Sachs and Warner (1995), an analysis of policy reforms for each country in the SADC as well as their possible and effectively recorded outcome is presented below.

Tanzania

After experiencing an economic decline in the late 1970s, Tanzania has implemented a massive reform program in 1986 that culminated in good macroeconomic stability and wider range of reforms being implemented. Inflation declined from 30% in the 1980s to single digits in late 1990s. Institutions improved and so did the investment environment and FDI flows increased creating more jobs. Nontraditional exports pushed up export earnings and an increased flow of donor assistance allowed the country's balance of payments to improve substantially (US Department of State, n.d. and Wik, 2007).In fact, the study has found that while the manufacturing sector's value added remained constant at 9% of the GDP, manufactures exports as percentage of total merchandise exports consistently has risen after trade liberalization (1995), reflecting the possible role played by non-traditional exports (Annex 1). This

indicates a significant change in the country's trade orientation (it become more outward oriented) and little output structure transformation.

Mozambique

Mozambique was for some time cited as a successful example of fast growth after a long war. The country has implemented a series of policy reforms - trade, industrial, macroeconomic and institutional - that have lead it into becoming a preferred destination for foreign investment as well as international aid.. In fact, the government implemented massive privatization programs since the start of the 1990's. Telecommunications, financial sector and ports and railways services, together with the removal of hurdles for the growth of the private sector, are examples of the areas and sectors where reforms took place. The result was that between 1995 and 2000 the country enjoyed one of the fastest growth rates in world (OECD, 2004). The WTO (2001b) trade policy review for the country, stated that its economic standing was impressive and that the good performance had been a result of privatizations, reductions of export barriers, easing on foreign exchange controls and simplification of the customs tariffs. Nevertheless, not every reform translated into success and growth. For instance, the cashew nut sector that was privatized with pressure from the World Bank resulted in income losses for the poor farmers and massive unemployment among them and of course, in the closing down of many factors around the country (MacMillan, Rodrik and Welch, 2002). Therefore, the growth success in Mozambique is likely to be attributed to a simultaneous effect of various policy reforms rather to trade liberalization alone. After all, Mozambique's export concentration has gone up, manufactures' exports as percentage of total merchandise exports have remained steady (7%) indicating very little change in trade orientation, but a significant output sectoral composition since the weight of the manufacturing sector has soared after liberalization (Annex 1).

Zambia

For very long time, Zambia was labeled as non-reformer. From 1976 up to 1991, the country has implemented 7 donor-supported structural adjustment programs with the aim of reducing the countries imbalances (both internal and external) to ultimately

achieve sustainable economic growth. Nevertheless, these reforms were abandoned, leading the country to reduced growth (McPherson, n.d.). Today, Zambia is carrying out economic diversification to minimize its reliance on copper and exploit other resources in different areas such as agriculture, tourism, gemstone mining, and hydropower. Although, copper and cobalt remain the country's most important export products; non-traditional exports are increasingly gaining relevance to the Zambian economy. Non-traditional exports grew by 9.2% from 2006 to 2007 and by 12.2% from 2007 to 2008 (Zambia Development Agency, n.d.). In fact, the country's export concentration index has declined significantly form 0.83 to 0.26 from 1995 to 2006 (UNCTAD, 2008).

South Africa

South Africa is the largest economy in Africa and in the SADC, but it did experience an economic decline for around 30 years – from 1960 to 1990. After this period the situation improved. Nevertheless, it is uncertain, whether this improvement is owed to a rational usage of the pre-existing production capacity or it is attributable to the outcomes of the major structural reform that the country underwent over the years. The main reason to cast these doubts is the steady growth of the investment production capacity, reflected by the also steady growth rate of the country's capital formation, which in the year 2000 (when expressed as a percentage of GDP), stood at 14,9% - exactly the same value it had in 1993 and that was the lowest value it had achieved in 15 years (Calitz, 2002). In fact, although the country has improved its macroeconomic conditions and despite its reasonably sizable domestic market, foreign investors did not reveal much interest in acquiring or joint venturing with local firms. As a matter of fact, FDI inflows into South Africa amounted to about 2.5% of GDP in 1997, but averaged just below 1% of GDP between 1994 and 2001, which was way below the average of countries with similar development level (Calitz, 2002). Domestic investment was also low because of the low savings rate.

With the signing of the Global Agreement on Tariffs and Trade in 1994, tariffs drawdown and rationalization and the lifting of the trade embargo in place during the Apartheid; exchange rate policy reforms, South African exports became more competitive. Free trade agreements and preferential market access (to China,

European Union, USA, Latin America and the SADC) helped the country to further improve its trade performance. (South Africa, info, n.d.).

Botswana

Botswana has experienced an impressive economic growth path since its independence, though it decelerated recently due to the global crisis. From 1967 to 2006 it grew by 9% a year, on average and declined by just 3 % from 2007 and 2008, before falling to a negative rate of 3,7% in 2009, as the demand for its prime export commodity – diamonds – declined on global markets.

For long, the country has been (and still is) regarded as model of good governance, transparence and the country that strives to have a more equitable growth. It just 30 years it moved from a least developed economy to a middle-income economy with somehow equitable income distribution.

The country's extreme reliance on diamond is a threat to the country's future economic stability. In fact, the country's export concentration has gone up, meaning that Botswana has not managed to diversify its exports (US. Department of State, n.d; OECD, 2010).

Mauritius

Mauritius has implemented economic reform programs aimed at reducing the country's heavy reliance on trade preferences as a source of growth and becoming a globally competitive economy. Good macroeconomic reforms together with exports diversification and institutional changes have improved the ease of doing business and helped mobilize and attracting foreign capital and foreign expertise (WTO, 2001).

With one of the highest per capita incomes in Africa – USD 7,420 - the economy of Mauritius is based on tourism, textiles, sugar and financial services. The government has tried in recent years to diversify the economy and with that endeavor, telecommunications, medical services, educational services, renewable resources and

energy have become important sectors and the efforts have resulted in increased domestic and foreign investment (WTO, 2001c and Export.gov, n.d.).

As preferential trade agreements in the textiles and sugar sectors were gradually scrapped, the economy of Mauritius showed signs of decline, as those sectors used to be the basis of growth. As the government implement reforms since 2005 the outcome was an accelerated growth rate, decline in unemployment, and accelerated diversification of the economy through the implementation of improvements of new sectors. Although the government policy is to run the economy according to free market principles, it still controls important sectors (e.g. management of waste water, electricity services, water provision, mail services and TV services). The government also controls the imports of strategic products such as rice, wheat flour, derivatives of oil products and cement (US Department of State, n.d.). According to WTO (2008) further macroeconomic and trade reforms implemented since 2003 have helped the country to growth at an average of 5 % a year till 2008. This average growth rate is consistent with the one found by this study (4,9% from 1980 to 2008).

Pre-closing remarks

The main finding of the above analysis is that trade liberalization and trade reforms seemed to have had, on average, a positive and significant impact on the growth rate of real income, exports and imports in the SADC. Nevertheless, a country-by-country analysis reveals that most liberalizers have indeed implemented, either before or at the same time other major macroeconomic, social, political and institutional reforms and the observed positive effect of trade can easily be confounded with the effect other policy or vice-versa if one is simply focused on trying to establish policy causality. This is generally true, as in some of the liberalizers (e.g. South Africa) where the growth rate of real income did not change significantly. Therefore, trade policy and trade reforms can only be effective under certain circumstances (e.g. when other good policies are in place).

The results also reveal that, the trade liberalization variable does not or may not be fully capturing the relevance of trade reforms on the growth of real income or changes in trade intensities in the sample countries. In fact, Wu and Zeng (2008) had the same

finding. Nevertheless, the importance of using this variable and the DID approach in explaining changes in growth patterns before and after liberalization is not discarded.

6 Conclusion

Having used the difference-in-difference approach, the study has analyzed the effect of trade liberalization on the growth of real income, before and after trade policy reforms were implemented in seven SADC countries – South Africa, Mozambique, Madagascar, Zambia, Tanzania, Botswana and the Mauritius – and defined trade liberalization as a reduction and elimination of barriers to trade as measured by the Sachs and Warner (1995) criteria to identify liberalization episodes and dates.

The study has also used the fixed-effects regression technique to estimate within-country variations in the growth of real income and cross-section regressions to estimate that relationship for each of the seven countries. The finding is that, on average, within-country analysis reveals that trade liberalization had a positive and significant effect on the growth of real income. In fact, the conditional mean difference in the growth rate of real GDP is 4,1 percentage points. Furthermore, in the three years before the period when most countries liberalized – 1989-1992 – the conditional mean difference in the growth rate of GDP was negative, but as from the second year of liberalization (1994-1996) up to the seventh year (2000) the change in the growth rate increased and became positive and significant (about 1,6 percentage points from 2000 to 2008).

Cross-section analysis reveals a more complex and mixed result. Of the seven countries studied, in 4 of them – Mozambique, Tanzania, Zambia and Madagascar - the effect of trade liberalization was positive and significant. In one – South Africa - was positive and insignificant. In the remaining two – Mauritius and Botswana – that liberalized before the start of the series, the unconditional mean growth was also positive.

Because trade theory (both orthodox and heterodox) postulates that liberalization leads to higher imports, exports and capital formation ratios as percentage of real income, a within-country and a cross-section analysis was also performed on those variables. This allowed testing the idea that countries that trade more or are more open tend to growth faster than those that have a more inward and closed orientation.

Within-country analysis revealed that, on average, liberalization appeared to have had a positive and significant effect on imports, exports and capital formation. The mean growth rate of exports was 9,2%; 7,1% for imports and 2,2% for capital formation. Nevertheless, for capital formation the finding was statistically insignificant.

Cross-section analysis, however, reveals different and conflicting patterns regarding the effect of liberalization on trade intensities and capital formation. In countries such as Mozambique, Tanzania and Madagascar where the positive effect of liberalization on the growth of real income was highest, the patterns of trade and investment intensities unevenly conform to the prediction of trade liberalization theories (orthodox and heterodox) which state that those intensities go up after liberalization, although, without ever saying how much time later that would happen. For instance, in Mozambique the conditional mean growth rate of exports and capital formation was positive and insignificant, but significant for imports. The export concentration ratio has also gone up. Madagascar had a positive reaction in its capital formation and imports, but had an insignificant rise in its exports. Zambia on the other, reduced its export concentration significantly (from 0.83 to 0.63 in 10 years), improved its current account (both exports and imports fell) and insignificantly reduced its capital formation, which suggests that most of the imports were of consumer goods. In South Africa, imports declined and exports reacted positively but mildly to trade liberalization, whilst capital formation declined significantly.

Country-specific analysis of policy reforms revealed a possibility of simultaneous effects between trade reforms and other macroeconomic, institutional and socio-political reforms, which is a finding consistent with the fact that trade reforms often take place either at the same time as or before or after other policies have taken place, making it difficult to disentangle the individual policy effects or to assign causality to individual policies. As a matter of fact, in all countries in the sample, trade reforms took place along side other policy reforms, but the extent and depth of reforms and the success of those reforms varies a lot among them.

The limitation of the study is intrinsically associated with the methodology used – the difference-in-difference – and the dummy trade liberalization variable used because it

fails to establish an acceptable degree of causation and disentangle the effects of trade reforms from those of other policies.

In the face of the research gaps identified, the study recommends further research not on the attempts to disentangle effects of trade reforms on growth or trying to assign causation to it, but on the identification of which reforms (whether trade reforms or other reforms) work better in specific social, economic and political settings and how researchers and policy-makers can learn from them in producing a better sequencing of policy reforms.

Bibliography

Ahmed, S and Sattar, Z. (2004). Trade liberalization, growth and poverty reduction: The case of Bangladesh.

Alvarez, R and Lopez, R. (2008). Trade liberalization and industry dynamics: A difference in difference approach. Chile: Central Bank of Chile. Working paper N 40.

Bajona, C., Gibson, M. and Ruhl, K. (2008). Trade liberalization, growth and productivity. Available at http://www.indiana.edu/~econdept/workshops/Fall_2008_Papers/kehoe.pdf. [Accessed 10 August 2011].

Calitz, e. 2002. structural economic reform in south africa:some international comparisons. The South African Journal of Economics. Vol. 70: 3

Chirwa, E. 2005. Macroeconomic policies and poverty reduction in Malawi: Can we infer from panel data. Malawi: University of Malawi. Available at http://www.oocities.org/echirwa/pubwpm.htm [Accesses 13 Agust 2011].

D. Greenaway, W. Morgan and P. Wright. 1998. Trade reform, adjustment and growth: what does the evidence tell us? The Economics Journal no. 108 (September), pp. 1547-61.

Hesse, H. (2008). Export diversification and economic growth. Washington: World Bank. Working paper N 21.

Jones, C. and Morrisey, O. (2008). Import response tariff reductions in an African sample. Available at www.csae.ox.ac.uk/conferences/2009-EDiA/papers/207-Morrissey.pdf. [Accessed 13 August 2011].

Kemeney, T. (2010). Does foreign direct investment drive technological upgrading? Elsevier. World Development, 38 (11), 1543–1554.

Kneller, R., Morgan, C. and Kanchanahatakij, S. (2008). Trade liberalization and economic growth. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1136499. [Accessed 13 August 2011].

Krueger, A. (1998). Why trade liberalization is good for growth. The Economic Journal, Vol. 108, No. 450. (Sep., 1998), pp. 1513-1522.

Lee, E. (2005). Trade Liberalization and employment. New York: United Nations. Available at www.un.org/esa/desa/papers/2005/wp5_2005.pdf. [Accessed 09 August 2011].

MacMillan, M., Rodrik, D. and Welch, K. (2002). When economic reform goes wrong: Cashews in Mozambique. MA: National Bureau of Economic Research. Available at http://www.nber.org/papers/w9117. [Accessed 13 August 2011].

Markusen, J., Melvin, J., Kaempfer, W. and Maskus, K. (1995). International trade theory and evidence. McGrawHill.

McPherson, M. n.d. The sequence of economic reforms: Lessons from Zambia. Available at http://www.cid.harvard.edu/hiid/516.pdf. [accessed 13 August 2011].

OECD, 2010. African economic outlook. Botswana. Available at http://www.africaneconomicoutlook.org/en/countries/southern-africa/botswana/. [Accesses 13 August 2011].

OECD. 2004. African economic outlook 2004. Chapter on Mozambique. Available at http://www.oecd.org/dataoecd/24/23/32430193.pdf. [Accesses 13 Agugust 2011].

Rodriguez and Rodrik (2000). Trade policy and economic growth: A skeptic's guide to the cross-national evidence. Available at www.hks.harvard.edu/fs/drodrik/Research%20papers/skepti1299.pdf . [Accessed 13 August 2011].

Shafaeddih, S. (2005). Trade liberalization and economic reform in developing countries: Structural change of de-industrialization? Geneva: UNCTAD. Discussion paper No 179.

Slaughter, M. (2001). Trade liberalization and per capita income convergence: A difference-in-difference analysis. Journal of International Economics, 55 (2001), 203–228.

Sonne-Schmidt, C., Arndt, C. and Magaua, M. (2009). Contribution of Mega-projects to GDP in Mozambique. Available at www.iese.ac.mz/.../Contribuicao_megaprojectos_pib_C.Sonne_Scmidt_et_a. [Accessed 13 August 2011].

SouthAfrica.info, n.d. South Africa: Open for business. Available at http://www.southafrica.info/business/investing/open.htm. [Accessed 13 August 2011].

Spanu,V. (2003). Liberalization of the international trade and economic growth: Implications for both developed and developing countries. MA: Harvard University. Jonh F. Kennedy School of Governance.

Thurlow, J. (2006). Trade liberalization and pro-poor growth in South Africa. University of Cape Town. Available at www.tips.org.za/files/trade_thurlow.pdf. [Accessed 13 August 2011].

UNCTAD. (2008). Export performance following trade liberalization: some patterns and policy perspectives. New York and Geneva: United Nations.

US Department of State. N.d. Background note: Tanzania. Available at http://www.state.gov/r/pa/ei/bgn/2843.htm. [Accessed 19 July 2011].

US. Department of State. n.d. Background note: Botswana. Available at http://www.state.gov/r/pa/ei/bgn/1830.htm. [Accessed 13 Agust 2011].

US. Department of State. n.d. Background note: Mauritius. Available at http://www.state.gov/r/pa/ei/bgn/1830.htm. [Accessed 13 Agust 2011].

Wacziarg, R. and Welch, K. (2003). Trade liberalization and growth: New evidence. http://www.fut.edu.ge/uploads/trade_liberalization_and_growth_new_evidence.pdf . [Accessed 13 August 2011].

Wik, I. (2007). Trade liberalization: The right engine of growth? A quantitative analysis.

WTO, n.d. Trade Policy Review: South Africa. Available at www.wto.org/english/tratop_e/**tpr**_e/**s114**-4_e. [Accesses 13 August 2011].

WTO. 2000. WTO Trade policy review – Tanzania. Available http://www.wto.org/english/tratop_e/tpr_e/tp128_e.htm [Accessed 15 August 2011].

WTO. 2001a. WTO Trade policy review – Madagascar. Available http://www.wto.org/english/tratop_e/tpr_e/tp156_e.htm. [Accessed 13 August 2011].

WTO. 2001b. WTO Trade policy review – Mozambique. Available http://www.wto.org/english/tratop_e/tpr_e/tp154_e.htm . [Accessed 15 August 2011].

WTO. 2001c. WTO Trade policy review – Mauritius. Available http://www.wto.org/english/tratop_e/tpr_e/tp176_e.htm . [Accessed 15 August 2011].

WTO. 2006. WTO Trade policy review – Kenya, Tanzania and Uganda. Available http://www.wto.org/english/tratop_e/tpr_e/tp272_e.htm . [Accessed 15 August 2011].

WTO. 2008. WTO Trade policy review – Madagascar. Available http://www.wto.org/english/tratop_e/tpr_e/tp297_e.htm [Accessed 15 August 2011].

WTO. 2009. WTO Trade policy review – Mozambique. Available http://www.wto.org/english/tratop_e/tpr_e/tp309_e.htm . [Accessed 15 August 2011].

Wu, Y. and Zeng, L. (2008). The impact of trade liberalization on the trade balance in developing countries. IMF. WP/08/14.

Yanikakaya, H. (2002). Trade openness and economic growth: A cross-country empirical investigation. Journal of Development economics, 72 92003), 57-89.

Zambia Development Agency. N.d. Available at http://www.zda.org.zm/81-zambia-profile. [Accessed 13 August 2011].

Annex 1

Botswana

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980	5		
1985	5		
1990	5		
1995	5		
2000	5	90	75
2005	4	85	65
2008	4	76	67

Madagascar

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980		6	73
1985	11	10	65
1990	11	14	69
1995	8	14	65
2000	12	52	63
2005	14	47	65
2008	14	67	75

Mauritius

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980	16		
1985	21		
1990	24	66	76
1995	23	70	72
2000	23	81	70
2005	20	57	64
2008	19	57	54

Mozambique

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980			
1985			
1990	10		
1995	8	13	62
2000	12	7	68
2005	15	7	51
2008	14	6	47

South Africa

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980	22	18	62
1985	22		70
1990	24		
1995	21	44	78
2000	19	54	69
2005	18	57	70
2008	17	52	62

Zambia

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980	18		
1985	25		
1990	36		
1995	11	7	72
2000	11	11	73
2005	12	9	78
2008	10	7	64

Tanzania

Time	Mfg. value added as % of GDP	Mfg. exports as % of merchandise exports	Mfg. imports % of merchandise imports
1980		14	63
1985			
1990	9		
1995	7		84
2000	9	20	63
2005	9	14	66
2008	9	31	60

Source: All data comes from the World Bank 2010 Development Indicators

IESE
INSTITUTO DE ESTUDOS SOCIAIS E ECONÓMICOS

Av. Patrice Lumumba, 178 - Maputo
MOÇAMBIQUE

Tel. + 258 21 328894
Fax + 258 21 328895
www.iese.ac.mz