The Trade and Growth Effects of SADC Free Trade Area on RSA Economy

PSEF Annual Congress

23-25 November 2016

Rustenburg

GAUTENG PROVINCE
ECONOMIC DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

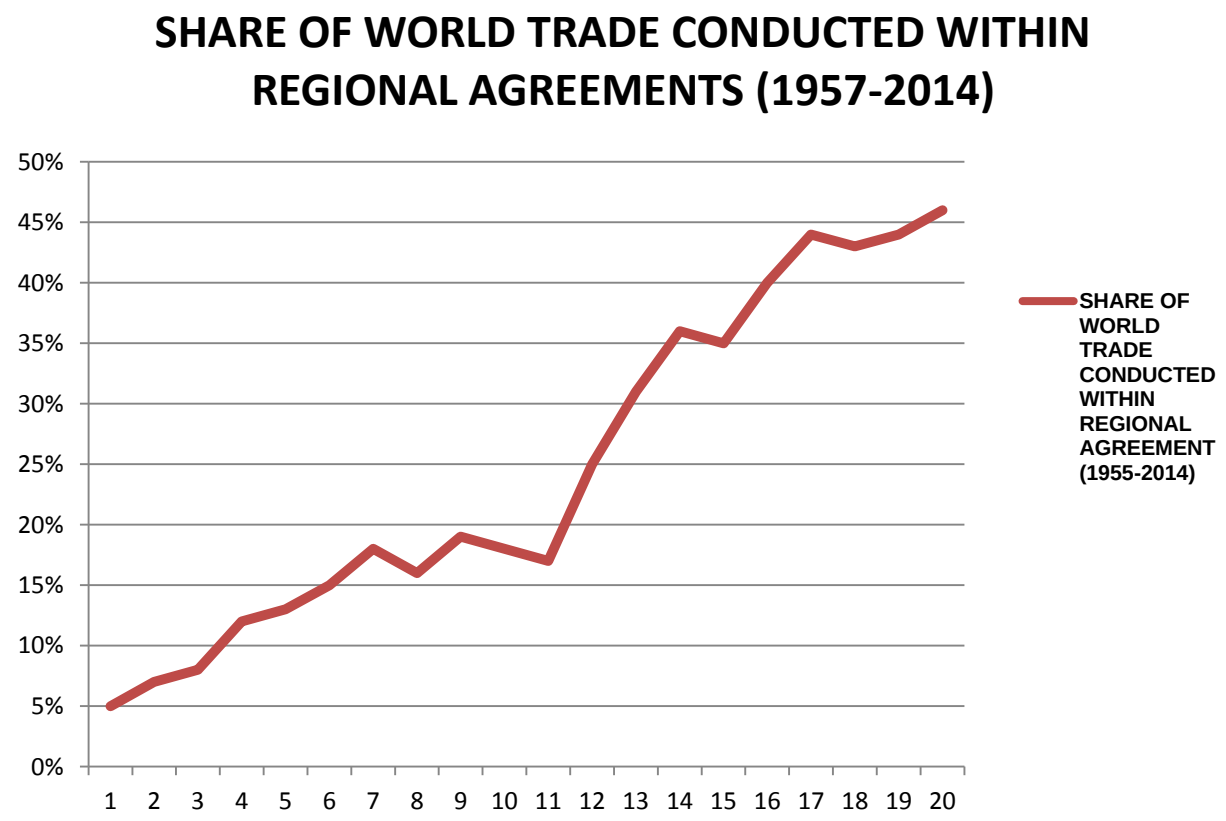
Research Focus

- *The study will focus on the impact of the SADC FTA on trade and growth for south Africa.*
- *In other words, it seeks to investigate whether the SADC FTA has had an impact on export and import growth and the relationship of trade flows to output growth in RSA before and after the Trade Protocol came into force.*
- *The period of analysis chosen caters for South Africa's trade patterns prior to the Trade Protocol, that is, a five years' period from 1995 to 1999, and between 2000 to 2014, when the Protocol is in force.*

Contribution to Theory

- Whilst a lot has been done in the literature to measure the traditional gains (the impact of RIA) through the use of gravity model, including studies in Africa and SADC (Lewis, 1999; Kalenga, 2004; Negasi, 2009; Sandrey, 2014), there has not been attempt to study the dynamic impact of RIA in Africa, so this study will be the first.
- Secondly, most of the measurement of traditional effects was based on the aggregated data level and this study will make an attempt to disaggregate the data to sectoral level to understand which sectors can be attributed to the growth in trade and growth between South Africa and selected SADC and non-SADC countries.
- Thirdly, in order to avoid spurious correlation, care will be taken to include comparator countries that are not part of the SADC FTA (Angola and DRC) and non-SADC countries, that is the US, EU, China and Japan.
- This will certainly help to determine whether a growth (non-growth) in RSA trade and output during the review period was a result of SADC FTA or a general increase in RSA trade with all its major trading partners.

Proliferation of RIAs



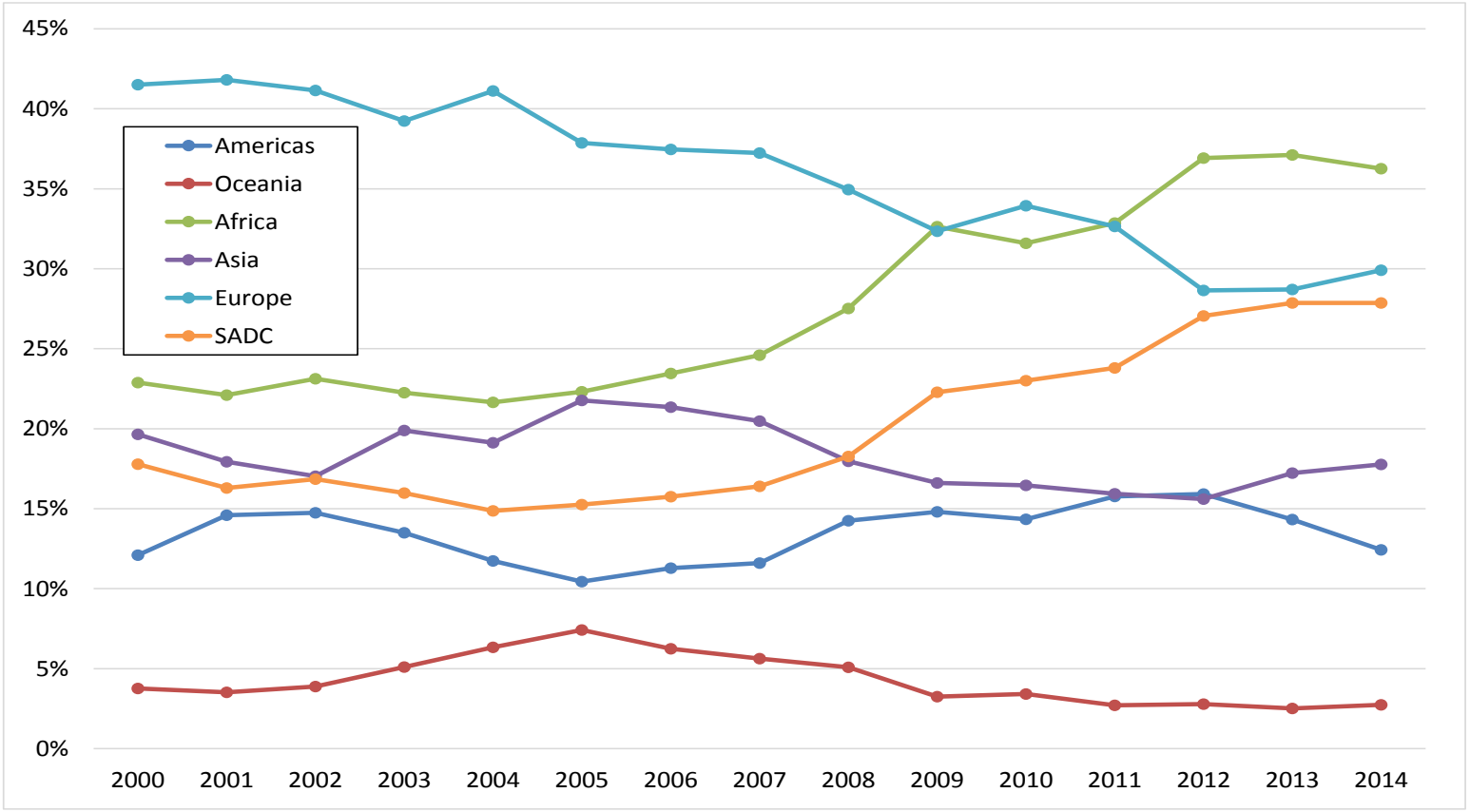
Trade Growth(1980-2014)

Average Trade Growth with RIA	
Regional Integration Arrangement	**Average growth Rate**
European Union	6.50%
NAFTA	8.65
ASEAN	14.18%
MERCOSUR	7.48%
Average Trade growth outside RIA	
Non-RIA countries	3.71%
Africa RIAs	1.5% (estimated)

RIAs in Southern Africa

RIAs	Members	Year Founded
1. Southern Africa Development Community (SADC)	Angola, **Botswana, DRC, Lesotho**, **Madagascar, Malawi, Mauritius**, Mozambique, **Namibia**, Seychelles, **South Africa**, **Swaziland**, **Tanzani**a, **Zambia and Zimbabwe**.	1992
2. East African Community (EAC)	Burundi, Kenya, Rwanda, Tanzania, Uganda and **DRC**	2005
4. The Common Market for East and Southern Africa countries (COMESA)	**Burundi**, Comoros, Djibouti, **DRC**, Egypt, Eritrea, Ethiopia, Kenya, Libya, **Madagascar, Malawi, Mauritius, Rwanda, Seychelles**, Sudan, **Swaziland, Uganda, Zambia, and Zimbabwe**	1994
South African Customs Union	**Botswana**, **Lesotho**, **Namibia, South Africa** and **Swaziland**	1910 and Revised in (1969) and (2002)

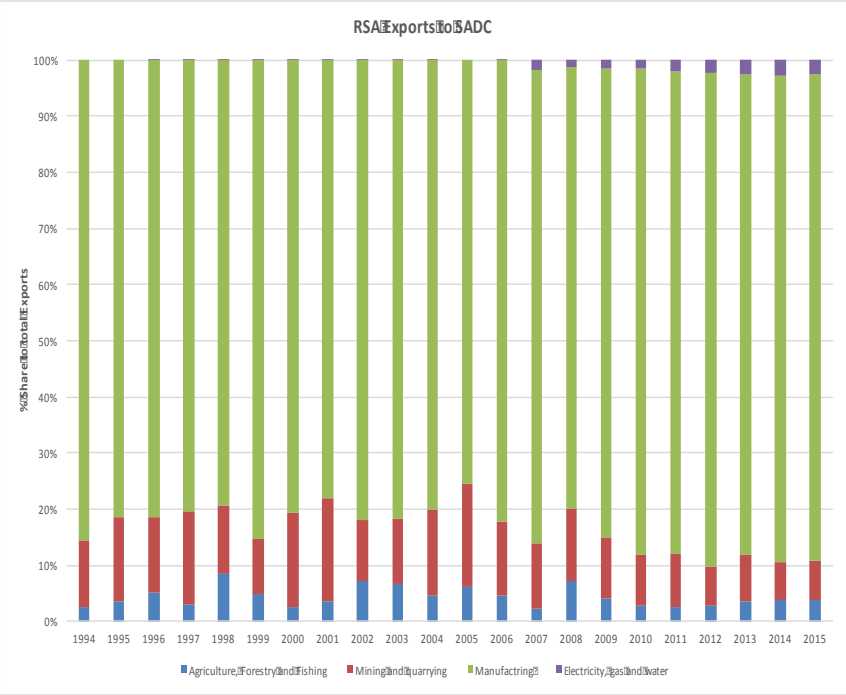
RSA Exports to the World



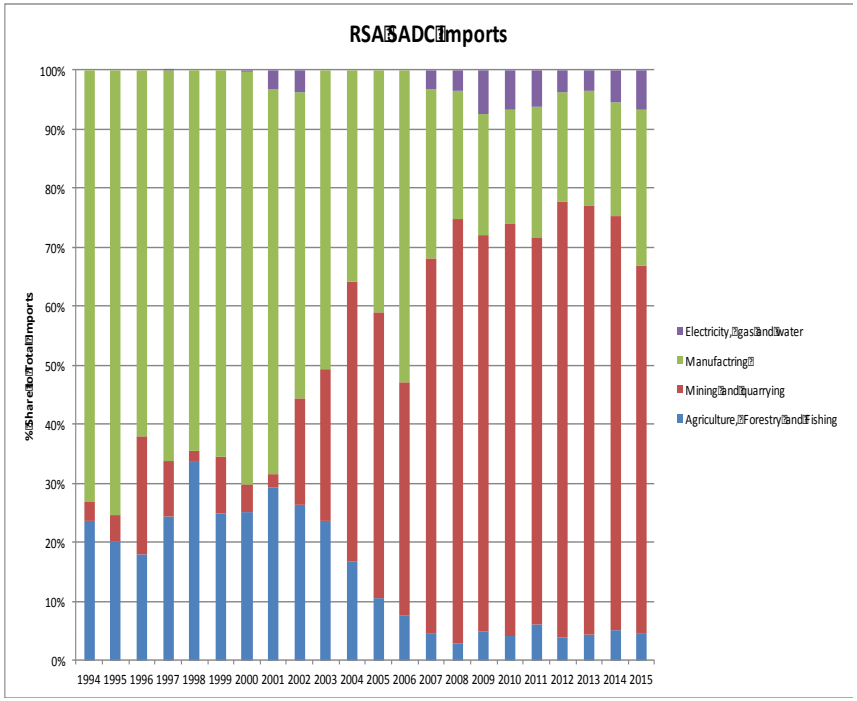
- Source: Comtrade (2015)

RSA Exports and Import to/from SADC

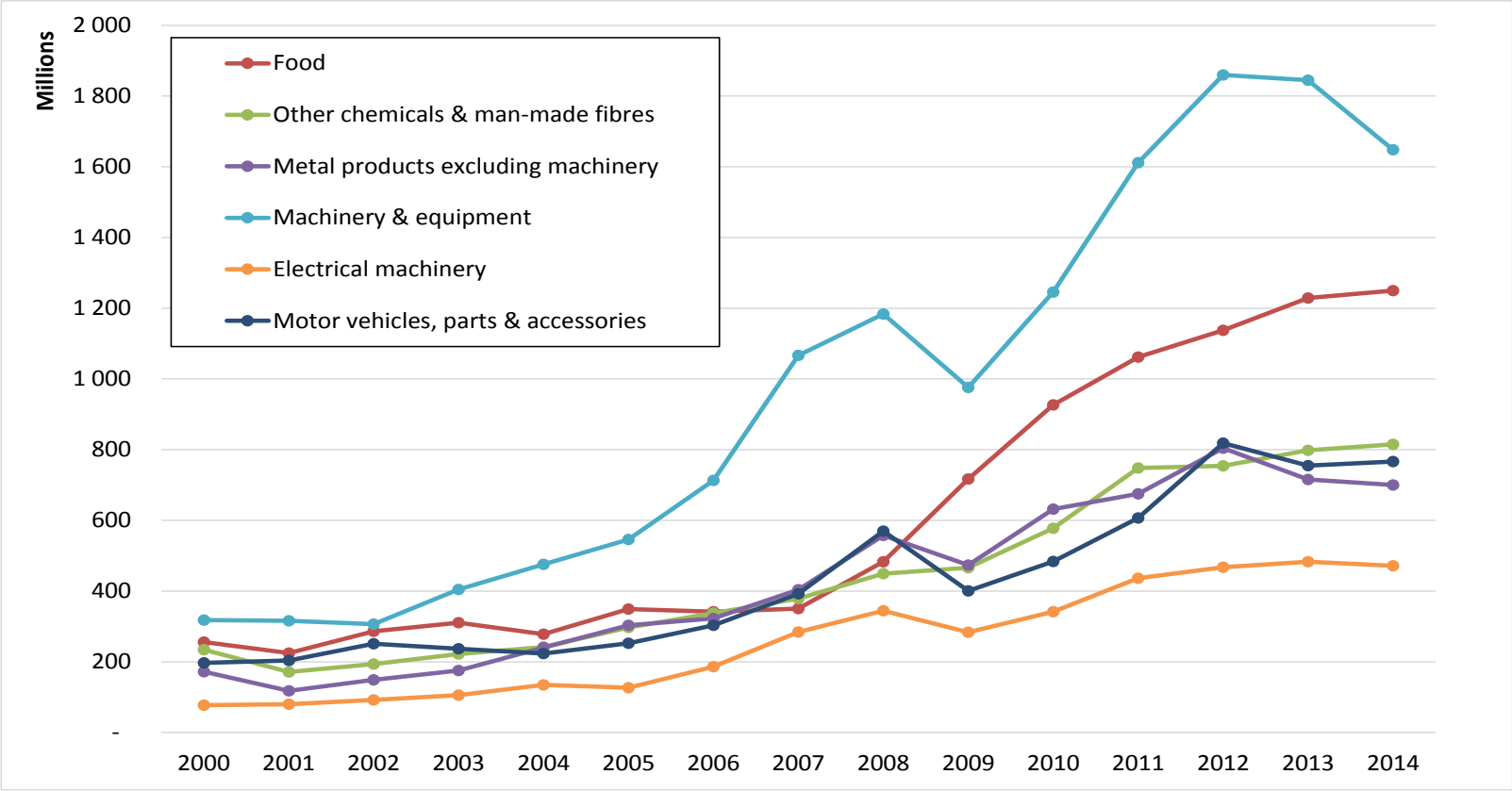
Sectoral Share of RSA Exports to SADC (Source Comtrade 2015)



Sectoral Share of RSA Imports to SADC (Source Comtrade 2015)



RSA Manufactured Export to SADC



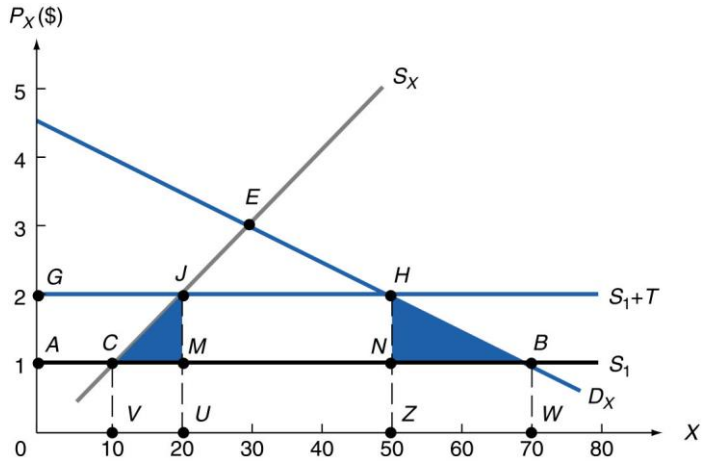
- Source: Comtrade (2015)

Measuring the Static and Dynamic Effects of SADC FTA on RSA Economy

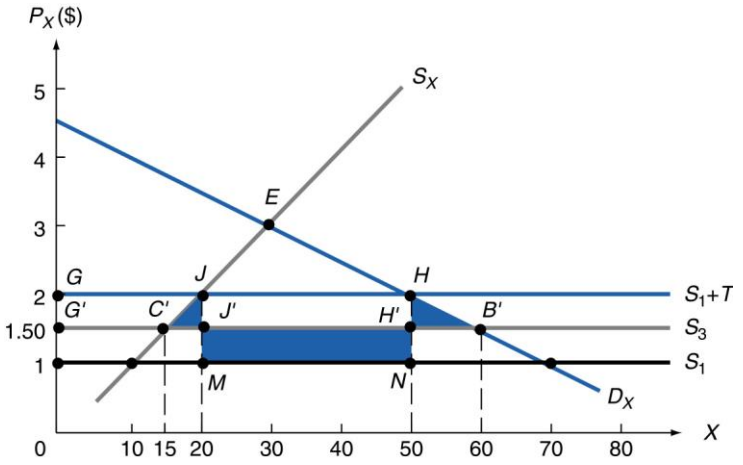
THROUGH THE GRAVITY MODEL

Static Effects of RIA-Example

Trade Creation-RSA, Zambia and RoW on maize trade



Trade Diversion-RSA, Zambia and RoW on Maize Trade



Modelling the Static Effects of SADC FTA on RSA Economy

- The equation is expressed in log formation as follows:

- $\ln X_{(i,j)} = \alpha + \alpha \ln Y_i + \alpha \ln Y_j + \alpha \ln PerCapita_{(i,j)} \alpha \ln POP_{(i,j)} + \alpha \ln D + \alpha \ln Opennes_{(i,,j)} + \alpha \ln ImportTarrif_{(,j)} + \alpha \ln ExchangeRate_{(i,,j)} + \alpha \ln TransportCosts_{(i,,j)} + \alpha \ln Custom_{(j)} + \alpha \ln SSTE_{(i,,j)} + \alpha \ln SADC_{FTA} + \alpha \ln RCA_{(I,j)} + \alpha \ln A + + + u$, where

  - *X ij* is exports of goods from county *i (South Africa*) to country *j (the study group of Angola, Mozambique, DRC, Zambia, Zimbabwe, the EU, China, USA and Japan)* and is the dependent variable. The explanatory variables are as follows:
  - **α** is a constant;
  - *Yi* and *Y j* are the GDP of the South Africa and the study group. An increase in in the income of South Africa and the country in the study group is expected to lead an increase in exports and imports;
  - Per Capita represent the purchasing power (wealth of a country) of South Africa and the other nine countries. As it is with the income, an increase in the wealth/purchasing power of citizenry for both countries will lead to more exports and import;
  - *POP* and *POP* are the populations of the exporter and importer. An increase in population is expected to lead to more production within the exporting country and more imports for the the other countries;
  - *D* is the distance in kilometers between South Africa the other nine countries, which is proxied on the distances between the major cities of the countries under the study. Distance is seen as an impediment and contribute to less trade in that an increase in the distance between two trading partners will lead to a decrease in the exports and imports;
  - Openness of a country to trade is represented by the country's trade ratio to the GDP. The higher the import/export ratio is positively correlated to the expansion in trade;
  - Exchange rate represented the transaction costs of goods when the local currency is exchanges to US Dollar (on purchasing power parity). An appreciating currency will lead to the reduction in exports for the exporting country but a similar appreciation to the importer country will lead to more imports.
  - Import Tariff will be represented by the tariff imposed on traded good or average tariff; are an impediment to trade and as such an increase in tariff level will reduce trade between nations;
  - Transport costs represent an actual transport costs of a container on the road/shipping as most of trade between RSA and SADC countries is done. is inversely correlated to the expansion in trade in that an increase in transport costs will will lead to a reduction in trade
  - Custom represent the Customs environment consists of two indicators namely the burden of custom procedures and prevalence of trade barriers. This indicates a measure of indirect customs costs and administrative transparency excluding the tariff barriers. This was adopted from Jordaan (2014) on the measurement of trade facilitation. Customs procedure is inversely correlated to the expansion of trade;
  - SSTE represent the sector share of total export, that is Machinery and Equipment, Food and Beverages and Automotive and Parts share of South Africa exports. This is done to incorporate the sectoral dimension of export. The higher the SSTE, reflect more trade and vice versa;
  - $SADC_{FTA}$ represent the dummy for SADC FTA, where membership of the FTA is assigned 1 and non-membership is assigned 0. This dummy is meant to measure the impact of the FTA on the pattern of trade;
  - $RCA_{I,j}$ represents the revealed comparative advantage (RCA) for both the exporting countries on the most trade goods. A higher RCA reveals that such a country will export more of the traded product:
  - *Aij* represents any other factor that influence the flow of trade, in particular, Adjacency and common language and ;
  - and *uij* is the error term.

Explanation of variables of Estimation

Variables	Data Sources	Indicator	Sign of Coefficient
X ij	UN Comtrade	Export on Sectors (Machinery and Equipment, Food and Beverages and Automotive and parts)	
Y (GDP)$_{ij}$	UN Development Indicators	GDP (PPP)	-
POP $_{(i,j)}$	UN Development Indicators	Average population	+
D	Online Distance Calculator-MACPROW	The distance in kilometers between two main cities	-
Openness	UN Comtrade	The ratio of exports and imports to GDP	+
ImportTarrif $_{(,j)}$	SADC Website	Tariff level/band on specific sector or average industrial tariff	-
ExchangeRate $_{(i,j)}$	SARB, UN Development Indicators	US Dollar Expression of local currency	-
TransportCost $_{(i,j)}$	UNECA, Transnet	The total cost for the Container of goods	-
Custom $_{(j}$	IMF Direction of Trade, UNECA	Administrative costs of export at the border point (in terms of number of document/ procedure and other delays	-
lnSVA $_{i,}$	SARS, UN Comtrade	To capture the sectoral disaggregation, this is the value addition of for the exporter countries	+
RCA	World Bank	Advantage in the production of a good (index)	+
$SADC_{FTA}$	SADC website	Membership of the SADC FTA	+
SSTE	Calculated from Comtrade Data	% share of sectoral export to the total exports of a country	+
A- Unobserved	SADC Website, National Statistics	Country specific, will differ from country to	-,+

Measuring the Dynamic Effects of RIA

- The dynamic effects of RIA to the economy are long-term and can continue to impact on the economy even after withdrawing from RIA

- This study will be the first attempt to measure (model) the dynamic effects as a whole:
  - Competitive and Economies of Scale;
  - Technology Diffusion and Learning Effects;
  - Agglomeration Effects
- Literature on the measurement of Dynamic Effects is almost non-existence, but there are several studies that have looked at the correlation between RIA and the following:
  - FDI, e.g. ASEAN
  - Total Factor Productivity (Learning Effects), eg. NAFTA
  - Growth, e.g. COMESA

Measurement of the Dynamic Effects of SADC FTA

Dynamic effect measure	Measure	Source of data	Literature
Competitive effect	Market size (measured as volumes produced) Herfindahl- Hirchman Index (4 firm concentration ratio and the 8 firm concentration ratio) Rosenbluth index	1. Annual Reports of Dominant firms in the sectors that are a focus of analysis and this will be used to measure the Market share of companies by revenue. 2. Who Owns Who to gauge the ownership patterns. 3. The Competition Commission on the mergers and acquisition 4. South Africa Competitiveness Report	1. Baldwin (1994); 2. Schiff & Winters (1993) 3.Baldwin and Venables (1995) 4. Limao & Venables (2001) 6. Roberts, Vilakazi, et al (2014) 7.Krugman and Venables (1990 and 1996)
Technological diffusion and learning effects	Labour market efficiency (L/TP) Company spending on R&D Patent applications University-industry collaborations (by sector) Firm level technology absorption Internationally recognized quality certification	-Industry bodies -Annual reports -SABS/CSIR -Universities (Engineering departments and applied sciences -The dti on patent and copyright registration	1 Romer (1990) 2. Lucas (1988) 3. Grossman and Helpman (1991)
Investment effects	Number of multinationals present by sector Access to venture capital	-Reserve Bank on the annual investment report to trace the value and the nature of new investment - Global Investment Intelligence Report that traces country investment by city, sector, project, value and employment contribution	1. Krugman and Venables (1996) 2. Hanson (1993) 3. Kindleberger (1966) 4. Roberts, Vilakazi et al, (2014)
Agglomeration effect **(Basically measuring concentration of industry in one area)**	Economies of scale EG Index (Ellison Glaeser index – similar to the HHI) Continuous index (paper attached) Transportation costs between suppliers (value chain analysis (?)	-The dti incentive report on the new investment - The Municipalities investment application. High levels of spatial concentration and agglomeration	1. Ellison-Glaser (1997) 2. Maurel and Sedillot (1999) 3. Mori et al (2005) 4. Guillain and Le Gallo (2007)

Conclusion/way Forward

- Modelling the static Effects of SADC FTA on RSA economy;
- Consolidating data for the Dynamic Effects Measure
- To be completed by June 2017

==== Thank you ====