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Abstract

This paper investigates the potential trade balance outcomes of the EPA/EBAI policies in the SADC region using the GTAP7 model and database. The analysis of these policies therefore make conclusion on SADC member states' changes in trade balance overall, per commodity groups and on overall welfare outcomes as a result of these policies. The study has found that although the EPA/EBAI initiative policies will potentially result in overall welfare gain in the SADC region this welfare gain will only be 6% of the EU27. Analysis of trade balance outcome reveals that the SADC ACP region will suffer a negative trade balance of US$1596.8 million with the EU on the other hand having a positive trade balance of US$105.61 million. Since a positive trade balance is important for sustainable development of nations, these results once again throw into doubt the potential sustainable economic growth benefits of these policies to ACP countries.

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Key words: Trade Balance, Welfare, EPA/EBAI Policies, Sustainable Development, Sustainable Economic Growth

1. Introduction – The SADC Region and EU future trade protocols

In efforts to comply with the Word Trade Organisation (WTO) trade agreements the European Union (EU) and African, Caribbean and Pacific (ACP) countries have been involved in the Economic Partnership Agreements (EPA) negotiations.[2]

These EPAs are aimed at bilateral liberalization of 'substantially' all trade between EU and ACP member states. In this way they have potential benefits to ACP countries in that increased trade with EU will enhances their export earnings, promote their industrialisation and encourage diversification of their economies. As noted by Perez and Karingi (2007) cuts in domestic tariffs will also benefit of ACP consumers, who will enjoy lower prices, as well as promote the most efficient ACP firms, which may improve their integration in the global supply chain.

However, trade between the EU and Least Developed Countries (LDC) will be guided by the Everything But Arms Initiative (EBAI) policy which gives 49 LDCs duty free access to the EU for all products, except arms and ammunition without the LDCs reciprocating.

The Southern African Development Community (SADC) region, being part of ACP, is one of the regions that will be affected by these EPAs between ACP countries and EU member states. Since the SADC region is made of LDCs as well it will also be subject to the EBAI policies.

[2] The EPAs replace the Lomé and the Cotonou Agreements. The Cotonou Agreement of June 2000 expired in 2008 and was a waiver given to ACP countries by WTO to replace the Lomé scheme. Both agreements were not in line with the WTO Most Favoured Nations (MFN) clause, thus the EPA negotiations which aim to comply with this WTO clause.

As part of ACP region therefore, SADC countries are also expected to benefit from the envisaged positive outcomes of the EPAs that are aimed at promoting development, regional integration and overall poverty reduction.

However, the beneficial outcomes of EPAs have been a controversial issue in as far as ACP countries are concerned. Important as these policies are to ACP countries, empirical literature analysing their deep potential outcomes is still lacking and most studies have focussed on analysing their potential welfare outcomes with conclusions that EPAs will be welfare enhancing for ACP member states. It is well known that a positive trade balance is important for economic growth and sustainable development of nations. This idea has been well elucidated by McCombie and Thirlwall (1994) who noted that if a balance of payment weakness is caused by adverse long run trends in the performance of exports and imports this will have real implications for output and employment in the particular sector of the affected economy. An import penetration from abroad has the effect of worsening the balance of payments. This takes custom away from domestic activity at the same time and overall, negatively affects the functioning of the economy.

However, important as this observation might be, studies analysing the trade balance performance of the EPAs on ACP countries are lacking. A study by Keck and Piermartini (2008), using the GTAP 6 model and database, concluded that an EPA with the EU is welfare-enhancing for SADC ACP countries leading to increase in their real GDP. They estimated gains for the region as a whole to be of the order of US$1.5 billion (in constant 2001 dollars) but found some evidence of trade diversion from the rest of developing countries.

Vollmer et al (2009) used a partial equilibrium approach to analyse the EPAs between EU and ACP countries and also found a positive welfare gains for ACP countries.

Morrissey and Zgovu (2009) also used a partial equilibrium analysis of the EPAs on ACP countries but concentrated on trade in agricultural products. They conclude that ACP countries should not be excessively concerned about the impact of EPAs even when assuming 'immediate' complete elimination of all tariffs on agriculture imports from the EU. When excluding up to 20% of imports as sensitive products they found that over half of ACP countries are likely to experience welfare gains.

However, other studies have questioned the envisaged benefits the EPAs will have on ACP countries, even though some of these studies also found welfare gain outcomes. Perez and Karingi (2007), using the GTAP modeling (with GTAP6 database) simulation concluded that that the EPAs will potentially create highly asymmetrical gains between African and European producers with the former not having much to gain in trade and likely to suffer from significant supply-side constraints.

Perez (2006) also used the GTAP model (with GTAP6 database) and concluded that the EPAs will result in a drop in ACP domestic prices thus boosting consumer welfare but will decrease the market shares of local producers and non-European exporters. This could in turn harm not only the ACP industries but also the regional integration process by substituting European imports to regional exchanges. The paper further concluded that eliminating duties on European goods will lead to fiscal losses for ACP governments as most rely heavily on customs revenues, with the EU being the main exporter to ACP markets.

This observation has also been supported by Busee et al (2004) who used a partial equilibrium model to analyse the impact of ACP/EU EPA on Economic Community of West African States (ECOWAS) countries. One of their study conclusions was that Cape Verde and Gambia will be particularly negatively affected by the EPAs with an estimated decline in total government revenue in the mid scenario of 19.8 and 21.9 per cent, respectively.

Milner, Morrissey and McKay (2005) used a partial equilibrium analysis of the effects of the EPAs on East African Cooperation (EAC) countries made up of Kenya, Tanzania and Uganda. They concluded that the EPAs' welfare effects (excluding revenue effects) from a reciprocal agreement with the EU will be small, whether positive or negative, but these ACP countries will experience short-run adjustment costs, especially in the form of revenue losses.

These studies therefore mostly conclude on the positive welfare outcome of EPAs for ACP countries and the potential revenue loss. This is as expected since opening up to trade result in consumers switching to cheaper imports and thus they are likely to experience a welfare gain. Customs revenue will indeed decline and this is potentially a problem for many countries that depend on this income.

However, these studies do not attempt to analyse the trade balance effects of the EPAs. Overall changes in trade profiles and trade balance are an important issue given that they have an important role in GDP growth rates of countries. If the EPAs will negatively affect traditional ACP export industries it is most likely they will result in overall decrease in trade balance for such affected countries and industries. This will in turn negatively affect their economic growth endeavours. As such, the envisaged positive economic developmental outcomes of the EPAs on ACP countries will be further put into question.

Besides the lack of studies analysing the trade balance impacts of EPA policies between the ACP and EU region, existing studies do not attempt to simulate the EBAI policies. This is an anomaly given the fact that some ACP countries are classified under LDCs. Most studies therefore only make conclusions on EPAs outcome instead of the more precise EPA/EBAI policy interaction outcomes. Studies that have analysed the EPA using the GTAP model have used the GTAP 6 data base. This is an older version of the GTAP data base whose base year is 2001. No study has so far analysed the EPA using the GTAP 7 model and database, which is the later version with the data base year being 2004. This later version data base also contains more regions and sectors and is thus a more informative CGE version to analyse policies of global impact like the EPAs/EBAI policies.

This paper therefore aims to address these issues by analysing the potential effects of these policies in the SADC region in terms of changes in commodities trade profile and overall changes in trade balance for the SADC member states by use of the GTAP model and GTAP 7 database. This trade balance outcomes will be compared to welfare outcomes of these policies. In this way, the sectoral aggregation for the study will be guided by the export profile of individual SADC member states. An analysis of changes in commodities trade balance is important in that countries are generally heterogeneous in terms of the products they export which are an indicator of their respective comparative advantage. The significance of such within region heterogeneity is that umbrella policies that are equally applicable to the region as a whole will result in individual member states being affected either positively or negatively by such non discriminatory policies. Depending on the trade outcomes of these policies, some

countries will potentially lose their export base as a direct consequence of these policies. This loss in export base will in turn lead to a negative trade balance which will negatively affect economic development. This deeper analysis of the EPAs outcome in terms of changes in export base and trade balance is lacking in most empirical literature that analyse the EPA between EU and ACP member states. Most of the studies concentrate on the welfare and revenue outcomes and fail to address issues of changes in export base and trade balance, which is vital for economic development of countries. The potential outcome of these trade negotiations in terms of changes in trade balance is a topical concern for most of the SADC member states that are struggling with negative trade balances and increasing foreign debt. This is also more of a concern for SADC member states that derive a lot of revenue from customs duties as is the case with the less developed members of the South African Customs Union (SACU) i.e. Botswana, Lesotho, Namibia and Swaziland (BLNS). The envisaged potential loss of revenue as a direct consequence of the EPAs should ideally be balanced by a positive trade balance and increased exports to the EU. If this is not the case, then the EPAs will further worsen the poverty situation and efforts to stimulate economic growth in the SADC region. South Africa is the strongest economy in the SACU and indeed the whole of the SADC region. It is engaged in the EPAs only as an observer. Its trade agreement with the EU is guided by the Trade and Development Cooperation Agenda (TDCA). However, due to the highly integrated economies of SADC with that of South Africa, it is reasonable to classify the country as an ACP. Because of its economic strength in the SADC region and for the fact that it is engaged in the EPA negotiations as an observer, policy outcome when it does not sign an EPA with the EU is also simulated to compare the trade balance outcomes for the region.

The SADC region will therefore also be disaggregated into SADC ACP and SADC LDC for the sake of EPA/EBAI policy simulation.

The paper is organised as follows: section 2 outlines the ACP regional divisions for the sake of the EPAs negotiations and their regional trade profiles. Section 3 discusses the SADC region as a trading bloc and the SADC region member states' trade profiles. Section 4 introduces the GTAP Model, GTAP 7 database and the EPA/EBAI experimental simulations. Section 5 displays and discusses the results and section 6 is the conclusion.

2. ACP Regional division for the sake of EPAs negotiations and their Trade Profile

For purposes of the EPA negotiations ACP countries have been divided into seven regions which are the following:

Southern African Development Community (SADC)

This region is made up of Angola, Botswana, Lesotho, Namibia, Mozambique, Swaziland and South Africa (observer status).

Main exports to the EU: diamonds, oil, fish, beef, sugar, tobacco

Main imports from the EU: machinery, vehicles, chemicals

Eastern and Southern Africa (ESA)

This region is made up of Comoros, Djibouti, Eritrea, Ethiopia, Madagascar, Malawi, Mauritius, Seychelles, Sudan, Zambia and Zimbabwe.

Main exports to the EU: copper, raw cane sugar, textiles, tobacco, processed tuna, coffee

Main imports from the EU: machinery, vehicles, chemicals

East African Community (EAC)

This region is made up of five countries which are Burundi, Kenya, Rwanda, Uganda and Tanzania.

Main exports to the EU: plants, cut flowers, coffee, vegetables, fish, tobacco

Main imports from the EU: machinery, chemicals, vehicles

West Africa

This region is made up of the 15 member states of the Economic Community of West African States (ECOWAS) which are The Republic of Benin, Burkina Faso, Cape Verde, Cote D'Ivoire, The Republic of Gambia, The Republic of Ghana, The Republic of Guinea, The Republic of Guinea Bissau, The Republic of Liberia, The Republic of Mali, The Republic of Niger, The Federal Republic of Nigeria, The Republic of Senegal, The Republic of Sierra Leone, Togolese Republic and Mauritania.

Main exports to the EU: oil, gas, cocoa, iron

Main imports from the EU: machinery, vehicles

Central Africa

This region is made up of all six members of the Economic Community of Central African States (CEMAC) which are Cameroon, Central African Republic, Chad, Republic of Congo, Equatorial Guinea and Gabon plus the Democratic Republic of Congo (DRC) and São Tomé and Príncipe.

Main exports to the EU: oil, wood products, diamonds, cocoa, bananas

Main imports from the EU: machinery, vehicles, chemicals, iron and steel, pharmaceuticals

Pacific Islands Forum (PIF)

This region is made up of Island states which are Fiji, Cook Islands, Micronesia, Niue, Kiribati, Nauru, Samoa, Palau, Papa New Guinea, Marshal Islands, Vanuatu, Solomon Islands, Tonga and Tuvalu.

Main exports to the EU: palm oil, sugar

Main imports from the EU: machinery, transport equipment

Caribbean

This region is made up of the Caribbean Forum of Caribbean States (CARIFORUM). The member states of CARIFORUM are Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago. The UK and Dutch Overseas Country Territory (OCTs) i.e. Anguilla, Aruba, British Virgin Islands, Cayman Islands, Montserrat, Netherlands Antilles, Turks and Caicos Islands have observer status while active co-operation is pursued with the French Overseas Departments (DOMs).

Main exports to the EU: fuel, chemicals, agricultural products (e.g. mangoes, bananas, rice, rum, sugar)

Main imports from the EU: machinery

The export and import structure show that ACP regions are heterogeneous in their trade profile which is an indicator of their regional comparative advantage. Thus the EPAs will affect these regions differently depending on the changes in trade pattern that will result from the implementation of this policy. These outcomes are therefore important for the sake of the EPAs negotiations in an attempt to identify industries that are sensitive and which will need to be protected. However, the focus of the study will be on SADC ACP countries.

3. The SADC AS A REGIONAL TRADING BLOCK

The SADC region is made up of 15 member states which are: Angola (ANG), Botswana (BOT), Democratic Republic of Congo (DRC), Lesotho (LES), Madagascar (MAD), Malawi (MAL), Mauritius (MAU), Mozambique (MOZ), Namibia (NAM), Seychelles (SEY), South Africa (SA), Swaziland (SWA), Tanzania (TAN), Zambia (ZAM) and Zimbabwe (ZIM).

The EPA classification of ACP countries means that some SADC member states are also part of the Eastern and Southern African Region.

The region remains one of the poorest in the world with 45% of the population living on less than a dollar a day and 36.1% of the population undernourished (SADC SECRETARIAT, 2008). It is also one of the regions being hardest hit by HIV/AIDS which reduces the life expectancy for most of the member states.

These alarming figures are despite the fact that the region is rich in natural resources and has favourable climatic conditions for agricultural productivity. Poverty in the region means that most of the member states are classified as LDCs. Out of the 15 SADC member states, 8 are classified as LDCs and these are Angola, Democratic Republic of Congo, Lesotho, Malawi, Madagascar, Mozambique, Tanzania and Zambia. The rest of the SADC member states (with the exception of South Africa) are part of ACP countries and are subject to EPAs with the EU while the LDCs are subject to the EBAIs. Even though the rest of the SADC member states are not classified as LDCs poverty still persist mainly due to poor productivity and export base, this situation being exacerbated by the HIV/AIDS scourge that is putting a strain on most of these countries' economies. A special case is that of Swaziland, which is not classified as LDC but has

69% of the population living below poverty line (which is set at E165 per month or US$ 0.8 per day[3]) and with 37% of the Swazi population income below the extreme poverty line (i.e. E 91 per month or US$ 0.44 per day) (EUROPEAN COMMISSION Report, 2007).

It is the SADC development plan to have a fully functional Free Trade Area (FTA) by 2010, a Common Market by 2015 and a Monetary Union by 2016, which was a road map set out in the Regional Indicative Strategic Development Plan (RISDP) and adopted in August 2003 (Network Development Africa, 2007).

With respect to their trade profile, SADC member states also show a within region heterogeneity as shown by their individual top exports. These export profiles are an indication of each member state's comparative advantage. It can be seen from the export profile that most of SADC countries depend on natural resource endowments for their export.

Angola is an important African oil producer and exports mineral fuels and oils, distillation products, pearls, precious stones, metals, coins, sulphur and earth stones, plaster, lime and cement, copper and aluminium.

Botswana exports mainly precious metals, pearls, copper, nickel, articles of apparel, accessories, knit or crochet, Meat and edible meat offal.

DRC exports pearls, precious stones, metals, coins, other base metals, mineral fuels, oils, distillation products, copper and ores.

Lesotho also exports pearls, precious stones, metals, and coins, articles of apparel, accessories, knit or crochet

[3] E represents Emalangeni which is the Swazi currency set at par with the South African Rand (R). Exchange rate used is E6.9=US$1 (20 December 2010 exchange rate)

Madagascar exports articles of apparel, accessories, knit or crochet Fish, crustaceans, molluscs, aquatic invertebrates, and articles of apparel, accessories, not knit or crochet

Malawi exports tobacco and manufactured tobacco substitutes, sugars and sugar confectionery Coffee, tea, mate and spices

Mauritius exports articles of apparel, accessories, knit and crochet, sugars and sugar confectionery, meat, fish and seafood food preparations

Mozambique exports Fish, crustaceans, molluscs, aquatic invertebrates, Sugars and sugar confectionery Tobacco and manufactured tobacco substitutes

Namibia exports pearls, precious stones, metals, coins, zinc, copper, salt, sulphur, earth, stones, plaster, lime and cement, fish, crustaceans, molluscs, aquatic invertebrates

South Africa exports pearls, precious stones, metal, coins, steel, mineral fuels, oils, distillation products.

Swaziland export Sugars and sugar confectionery Beverages, spirits and vinegar Vegetable, fruit, nut, food preparations

Seychelles exports Meat, fish and seafood food preparations, fish, crustaceans, molluscs, aquatic invertebrates

Tanzania exports pearls, precious stones, metals, coins, mineral fuels, oils, distillation products, ores, slag and ash. Tobacco and manufactured tobacco substitutes Coffee, tea, mate and spices Fish, crustaceans, molluscs, aquatic invertebrates

Zambia exports ores, copper, sugars and sugar confectionery, live trees, plants, bulbs, roots, cut flowers

Zimbabwe exports Edible vegetables and certain roots and tubers, Live trees, plants, bulbs, roots, cut flowers etc Printed books, newspapers, pictures etc Tobacco and manufactured tobacco substitutes.

The disparities in the SADC trade and industry profiles mean that individual countries' trade balance outcomes will vary depending on the policy effects on the various industries. As such, multinational policies that affect a region as whole will have different impacts on individual countries because of their within region differences.

It is expected that some industries will have negative trade balance with others having a positive trade balance after the full application of the EPAs. These outcomes will depend on the competitiveness of local industries versus foreign industries once the EPA/EBAI policies have been put into place.

Therefore to analyse the potential trade balance effects of the EPA and EBAI policies between the EU27 and ACP member states we use the GTAP model and GTAP 7 data base.

4. The GTAP Model and Policy Simulation

The model used in this paper is the Standard GTAP model developed by Hertel in 1997.The GTAP model is a widely used static, multi sector, multi region applied general equilibrium model. It is based on a detailed database with a broad coverage of (trade) distortions and explicit statistics on transport margins. Firms use constant-returns-to-scale technologies except for the resource supply sectors with an upward-sloping supply function where a fixed factor is included in the production technology to construct a diminishing-returns-to-scale technology. Import demand is modeled through the Armington assumption of imperfect substitutability between domestic and imported goods and between imported goods from different regions.

Simulation of the Effects of an EPA and EBAI in the SADC Region

Country Aggregation

For the sake of analysing the potential effects of EPA and EBAI on the trade profiles in the SADC region the countries in the GTAP 7 model are aggregated as follows:

- SADC_ACP - ACP countries that are members of the SADC. These are further disaggregated into Zimbabwe (SADC_ZIM), Botswana (SADC_Botsw), South Africa (SADC_RSA), Mauritius (SADC_MUS) and Swaziland; Lesotho; Namibia (SADC_XSC).
- RO_ACP - Rest of ACP countries
- SADC_LDC - LDC that are part of SADC region
- RO_LDC - Rest of the LDC
- EU27 - The EU27 member states
- ROW - Rest of the World

Sector Aggregation

The sectors are classified according to CPC product classification and ISIC3 activity code classification. They are aggregated according to the following categories guided by the top 10 export profile for each SADC member country.

- Oil and Gas – OilandGas
- Meat and Meat Products – Meat_MeatPr
- Textile and Apparels – Text_App
- Motor vehicles and parts, Electronic Equipments and Machinery – MotEleMach
- Processed Foods - ProcFood
- Paper and Publishing Materials - PaperProduct

- Beverages and Tobacco Products – Bev_Tobacco
- Precious Stones - StoIronSteel
- Fishing - Fishing
- Vegetables, Plants and Flowers - VegPlantFlws
- Crops (paddy rice, wheat, cereals, oil seeds, sugar cane, sugar beet and plant based fibres) - Crops
- Traded Sugar - Sugar
- Livestock and Livestock Products other than Meat and Meat Products - LivestockPro
- Mining and Extraction - Extraction
- Manufacturing - Mnfc
- Utilities and Construction – Util_Cons
- Transport and Communication - TransComm
- Other Services - OthServices

Problems with the Aggregation of Countries

For this study ACP SADC member states include Botswana, Lesotho, Mauritius, Namibia, South Africa, Swaziland and Zimbabwe.

The SADC LDC member states are Angola, Madagascar, Malawi, Mozambique, Tanzania and Zambia.

Lesotho should be classified as a LDC but has been classified as a SADC ACP since it has not been possible to disaggregate this country from Rest of South African Customs Union where it is aggregated in the database together with Botswana, Namibia and Swaziland.

Seychelles has not been aggregated into SADC ACP since it is not possible to disaggregate it from the Rest of Eastern African countries where it is originally aggregated in the GTAP database.

Policy Simulation

To simulate the effects of the EPA/EBAI policies we use the GTAP model and GTAP 7 data base. The GTAP 7 Data Base consists of 57 commodities and 113 regions. The 113 regions are defined as aggregates of 226 countries using the GTAP standard country list. The Alpha-3 codes defined by the International Organization for Standardization (ISO) are used as country codes for the GTAP primary regions.

In the sectoral definitions used in the GTAP 7 Data Base GTAP agricultural and food processing sectors are defined by reference to the Central Product Classification (CPC) and the other GTAP sectors are defined by reference to the International Standard Industry Classification (ISIC) since this is the reference classification point for I-O statistics tables where the GTAP data is sourced. The CPC was developed by the Statistical Office of the United Nations (UN) and serves as a bridge between the ISIC and other sectoral classifications (Narayanan et al 2008).

The aggregation of the data base for the study used the complete GTAPAgg software licensed to the author. Simulation experiments were done using RunGTAP, which is a graphical user environment developed by Mark Horridge of the Centre of Policy Studies at Monash University.

Three experiments are therefore run for this study. The first one involves the full implementation of an EPA between ACP member states and EU27 countries by a reciprocal abolition of all import duties between the two trading partners. For the simulation of the EBAI the EU27 region abolishes all import duties for all product lines from LDCs without the LDC

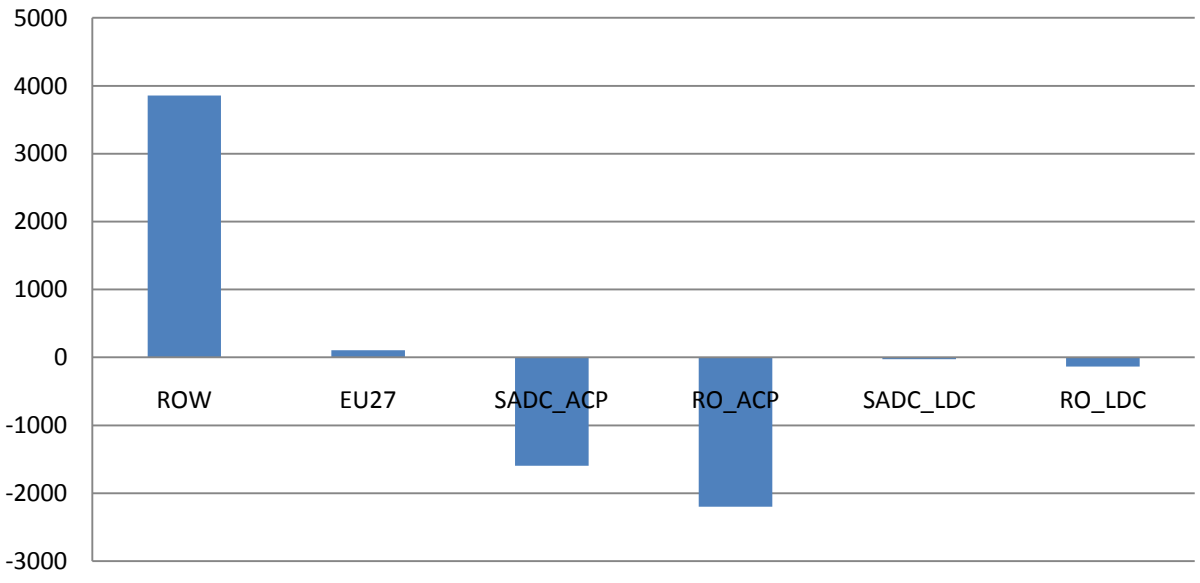
member states reciprocating. This experiment is to analyse overall regional changes in trade balance and overall welfare changes as a result of these policies.

The second experiment involve repeat of the first experiment above but with disaggregated SADC ACP countries. This second experiment is to analyse individual SADC ACP member countries' trade balance changes overall and per commodity groupings. Finally the last experiment is similar to the second experiment but with South Africa not forming part of the EPA agreement and maintaining the current trade arrangement with the EU.

5. Selected Results and Discussion

Results of the overall regional changes in trade balance for the first experiment are summarised in figure 1 below.

Figure 1: Regional Changes in Trade Balance from an EPA/EBAI policy between EU and ACP countries



The graph shows that overall SADC ACP countries will suffer negative trade balance of US$1596.8 million while SADC LDCs suffer a negative trade balance of US$27.79 million as a

result of full application of the EPA/EBAI policies. The EU on the other hand has a positive trade balance of US$105.61 million while the rest of the world also has a positive trade balance of US$3854.78 million. The rest of LDCs experience a trade balance loss of US$135.52 million. These results are surprising for LDCs since it is expected that their duty free access to the EU market should promote their exports thus resulting in a positive trade balance.

These trade balance outcomes for the ACP regions are a concern since they will counteract developmental endeavours of the regions. Another surprising outcome is the positive trade balance for the rest of the world member states which are not involved in these trade policies.

Changes in trade balance outcomes for the second and third experiment are summarised in table 1 below.

Table 1: Changes in Trade Balance (US$ Millions) from an EPA/ABAI Policy between EU27 and ACP/LDCs

	With SA EPA	Without SA EPA
ROW	3804.15	2593.27
EU27	73.84	-75.97
SADC_MUS	-99.84	-100.39
SADC_Botsw	1.25	4.95
SADC_RSA	-1332.33	56.19
SADC_XSC	-35.62	-35.7
SADC_ZIM	-36.97	-37.63
RO_ACP	-2204.08	-2220.53
SADC_LDC	-31.58	-30.4
RO_LDC	-138.83	-153.79

The results above show that with South Africa engaging in the EPAs together with the rest of ACP countries all the SADC ACP countries will have negative trade balance except Botswana which experiences a positive trade balance of only US$1.25 million. However, the EU27 experience a positive trade balance of US$73.84 million. The trade balance depends on the size of the economies aggregated but for South Africa engaging in the EPA result in the country

having substantial negative trade balance of US$1332.33 million. Mauritius also suffers a significant negative trade balance of US$99.84 million. This is a large figure for a small economy like Mauritius considering the fact that Lesotho, Namibia and Swaziland combined only experience a trade balance loss of US$35.62 million.

However if South Africa, the dominant economy in the SADC region, does not sign an EPA the trade balance shows a marked difference for South Africa and the EU. In this case, South Africa now experiences a positive trade balance of US$56.19 million while now the EU27 experience a negative trade balance of US$75.97 million. Botswana's trade balance increase by about 300% from US$1.25 million to US$4.95 million. The rest of the SADC region's trade balance is not much changed with or without a South African EPA.

Next we analyse the possible industry sources of the observed trend in the trade balance changes using the sector or industry trade profile outcomes as a result of these policies. The results of the changes in trade balance by commodity are shown in table 2 below with a South African EPA and table 3 without a South African EPA.

Table 2: Changes in Trade Balance (US$ Million) by Commodity and by Region following an EPA/EBAI between EU and ACP/LDC with a South African EPA

DTBALi	ROW	EU27	SADC_MUS	SADC_Botsw	SADC_RSA	SADC_XSC	SADC_ZIM	SADC_LDC
OilandGas	43.54	-162.15	-3.06	0	35.94	-1.7	0	-19.84
Crops	175.89	3.27	-5.95	-3.2	7.66	-9.34	-31.35	-5.28
Meat_MeatPr	-69.5	-277.85	-3.62	148.09	72.67	181.56	0.79	-3.14
LivestockPro	-81.7	211.61	-18.44	-5.84	15.6	-5.55	-2.2	-2.52
Fishing	-3.62	-5.49	-0.18	0	10.19	0.23	-0.03	-0.22
ProcFood	-190.59	173.99	-17.83	-2.24	137.44	-32.32	-2.79	-9.41
Text_App	182.78	13.64	-43.87	-2.95	-113.85	-63.4	-11.98	-18.77
Extraction	28.73	277.69	-9.91	1.6	-91.51	-3.63	-4.64	-3.39
Sugar	-463.86	-1651.92	357.02	-0.46	16.42	202.77	112.19	162.1
StoIronSteel	552.08	20.76	-21.02	-75.83	-40.96	-45.68	-18.59	-31.56
Mnfc	-350.41	1910.23	-36.65	-7.52	-259.93	-85.76	-26.38	-23.02
VegPlantFlws	-3.62	-639.54	-16.27	-2.01	56.86	-31.76	-19.73	-20.38
Util_Cons	95.5	-71.9	-0.12	-0.6	-0.72	-0.55	-0.34	-5.45
PaperProduct	124.08	63.23	-13.42	-0.39	-56.25	-21.07	-5.92	-2.79
TransComm	1310.7	-581.98	-60.67	-8.09	-7.73	-10.4	-1.67	-11.81
Bev_Tobacco	-81.36	80.14	-6.42	-0.74	102.04	-5.1	-0.95	-1.57
MotEleMach	804.76	1907.79	-151.24	-27.32	-1203.99	-75.09	-18.63	-19.69

OthServices	1730.77	-1197.68	-48.19	-11.24	-12.21	-28.84	-4.76	-14.83

The table above shows that Botswana experiences a positive trade balance of US$148.9 million in meat and meat products. Botswana is a traditional exporter of meat and meat products. The fact that the EU27 and the rest of the world also experience a negative trade balance in meat products means Botswana is likely to benefit from an EPA by promoting their meat industries in which they have a relative comparative advantage. Even though all the other sectors experience a negative trade balance in Botswana, the trade balance difference is not large. For example it experiences a negative trade balance of only US$2.24 million in the processed food sector compared to negative trade balance of US$17.83 million for Mauritius and US$32.32 million for Namibia, Lesotho and Swaziland (XSC). The country experiences a modest positive trade balance of US$1.6 million in extraction. Even though the precious stone, iron and steel sector show a negative trade balance of US$75 million, it is likely that Botswana diamond industry will continues being a strong export sector contributing positively to the trade balance. For this reason, in the SADC region, only Botswana is likely to benefit from full EPA/EBAI agreements with EU since these policy outcomes will not have adverse effects on their traditional export industries and their negative trade balance outcome in the other sectors will be large. Thus overall Botswana will experience a positive, even though modest trade balance outcomes from these policies.

All the SADC ACP countries including Mauritius, Swaziland, Namibia, Zimbabwe and Lesotho will experience negative trade balance in all commodities except sugar industries. Indeed the SADC sugar industry has a positive trade balance associated with a corresponding negative trade balance in sugar from EU27 and the rest of the world. The meat industries also show a positive

trade balance for SADC countries except for Mauritius with a negative trade balance of US$3.62 million. South Africa, by signing an EPA with the EU will experience an overall negative trade balance even though most industries show a positive trade balance. Industries that will contribute most to this negative trade balance are mainly the textile industries (Text_App); manufactured products comprised of wood products, petroleum and coal products, chemical, rubber, plastic products and electricity (Mnfc); and Motor vehicles and parts, Electronic Equipments and Machinery (MotEleMach).

The results of the changes in trade balance by commodity and by region from these policies without South Africa taking part in the EPAs are shown below in table 3.

Table 3: Changes in Trade Balance (US$ Million) by Commodity and by Region following an EPA/EBAI between EU and ACP/LDC without a South African EPA

DTBALi	ROW	EU27	SADC_MUS	SADC_Botsw	SADC_RSA	SADC_XSC	SADC_ZIM	SADC_LDC
OilandGas	87.23	-172.37	-3.06	0	2.38	-2.31	0	-19.96
Crops	165.09	12.22	-5.96	-3.41	13.67	-9.84	-32.04	-6.22
Meat_MeatPr	-76.28	-215.61	-3.65	147.84	20.31	181.76	0.84	-3.2
LivestockPro	-59.94	201.57	-18.47	-5.16	3.75	-4.08	-1.96	-2.13
Fishing	-2.8	6.39	-0.18	0	-0.19	-0.01	-0.02	-0.24
ProcFood	-188.06	313.79	-17.83	-1.74	11.49	-32.55	-2.9	-8.99
Text_App	96.07	6.76	-44.16	-2.16	0.43	-65.09	-11.14	-17.5
Extraction	-19.2	244.65	-9.93	-0.93	-0.88	-4.17	-3.45	-3.19
Sugar	-463.89	-1635.07	357.61	-0.47	2.2	200.21	112.21	162.31
StoIronSteel	315.97	205.93	-21.11	-88.04	43.05	-60.63	-20.27	-30.78
Mnfc	-748.47	2068.58	-36.72	-8.88	-5.5	-73.17	-26.41	-22.18
VegPlantFlws	-14.96	-566.05	-16.32	-2.41	14.09	-32.98	-20.71	-20.48
Util_Cons	74.91	-51.46	-0.12	-0.68	0.28	-0.68	-0.39	-5.53
PaperProduct	77.99	52.87	-13.42	-0.75	-4.74	-13.03	-4.01	-2.57
TransComm	983.64	-417.54	-61.26	-9.43	13.43	-12.96	-2.34	-12.7
Bev_Tobacco	-77.96	183.14	-6.41	-0.72	-0.35	-4.01	-0.99	-1.55
MotEleMach	1080.83	518.76	-150.87	-4.62	-71.1	-63.72	-18.33	-19.9
OthServices	1363.08	-832.54	-48.53	-13.48	13.86	-38.43	-5.71	-15.59

As show in table 1 above, South Africa experience a positive trade balance by not engaging in the EPA negotiations. Comparing results of table 2 and 3 it can be seen that the industries that contributed to a negative trade balance when South Africa signed an EPA have a lower or even positive trade balance without a South African EPA. The textile industry (Text_App) contributed a negative trade balance of US$113.85 million with a South African EPA and this value changed to a positive trade balance of US$0.43 million without a South African EPA. The manufactured products sector (Mnfc) changed from a negative trade balance of US$259.93 million to a less negative trade balance of US$5.5 million when South Africa does not sign the EPA. The motor industry, machinery and electronic equipment sectors (MotElMach) changed from a negative trade balance of US$1203.99 million when South Africa engages in the EPA to a less negative trade balance of US$71.1million without a South African EPA. These outcomes mean South Africa need to protect these sector groups more when it engages in trade liberalisation agreements with the EU.

By not signing the EPA with the EU South Africa also reduce the negative trade balance of the motor vehicle, machinery and electronic equipment industries of Botswana which goes down from negative US$27.32 million to only US$4.62 million. This sector trend in Botswana mainly contributes to the observed overall increase in trade balance of that country when South Africa does not engage in the EPA with the EU.

The motor industry, machinery and electronic equipment sectors' positive trade balance for the EU on the other hand goes down by about 73% from US$1907.79 million with a South African EPA to just US$518.76 million without a South African EPA. The textile and apparels sector

trade balance for the EU also goes down by about 50% from US$13.64 to US$6.76 million. Overall the EU has a negative trade balance without a South African EPA as mentioned.

These results highlight the importance of trade balance analysis in the EPA/EBAI policies since they give deep insights into the possible outcomes of these policies. The analysis has also shown the role that South Africa potentially plays in these negotiations.

Results from changes in equivalent variation outcomes show that regions that engage in EPAs/EBAI policies all experience a positive welfare outcome as table 3 below show.

Table 4: Welfare Changes (US$ Millions) from an EPA/ABAI Policy between EU27 and ACP/LDC

	Without SA EPA	Without SA EPA
ROW	-2334.42	-1768.01
EU27	6947.04	6185.81
SADC_MUS	179.65	180.49
SADC_Botsw	37.14	36.8
SADC_RSA	167.54	-67.27
SADC_XSC	59.3	69.7
SADC_ZIM	32.28	34.64
RO_ACP	431.98	439.41
SADC_LDC	14.94	13.73
RO_LDC	295.82	304.05

The above table show that all regions except the rest of the world regions which do not take part in the EPA/EBAI policies have positive welfare outcomes from these policies as the first column results of table 4 above show. However, the EU27 countries enjoy a substantial welfare outcome of US$6947.04 million with a South African EPA and US$6185.81 million without a South African EPA. This EU welfare gain is about 15 times higher than that of SADC ACP countries with a South African EPA and about 24 times higher without a South African EPA. South Africa, by engaging in an EPA with the EU, experiences a welfare gain of US$167.54

million. On the other hand, without engaging in an EPA with EU South Africa experiences a welfare loss of US$67.27 million.

The results show that engaging in an EPA will be beneficial for SADC ACP countries in terms of welfare outcome. However, deeper analysis of the outcome of these trade negotiations shows that in fact most of the ACP regions will experience a negative trade balance. This negative trade balance will be counterproductive to developmental endeavours of these countries. This analysis therefore shows that making conclusions on the welfare outcomes alone of the EPAs hides a minefield of information that the EPA could potentially have on ACP trade balance and industries. For the SADC region, this analysis has also shown the important role that South Africa plays in these negotiations.

In summary therefore, most industries in this region experience a negative trade balance due to these policies. Industries that show a positive trade balance are mainly the sugar and meat industries such that states that produce these commodities are likely to benefit more from these policies. Only Botswana in the SADC region shows an overall positive trade balance outcome from these policies. If South Africa does not engage in the EPA with the EU, it experiences an overall positive trade balance, the trade balance of Botswana improves and that of the EU goes down. The fact that the trade balance of South Africa move from being negative if they sign the EPAs to being positive if that country does not means these trade negotiations should be viewed with suspicion. If at all, certain industries need to be protected by ACP countries to ensure a win-win outcome from these policies. Welfare outcomes are in line with those from previous studies even though it is noted that the EU stands to benefit a larger share of these positive welfare gain than ACP regions.

6. Conclusion

GTAP simulation using the GTAP 7 database suggest that the economic benefits of the EPA/EBAI policies between EU and SADC countries are questionable when one considers the trade balance changes rather than welfare outcomes. Trade balance analysis reveals that EPA/EBAI policies will not be beneficial for SADC countries since overall, engaging in these trade negotiations results in most of the region experiencing negative trade balances. This outcome does not augur well with the economic developmental endeavours of the region. Such adverse outcomes therefore need to be considered when ACP countries engage in the EPA trade negotiations with the EU.

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