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TRADE COMPETITIVENESS AMONG COMESA COUNTRIES IN AGRICULTURAL COMMODITY EXPORTS

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ABSTRACT

This paper uses trade data from the COMESA statistical database covering 19 countries covering the period 1997 to 2013 to analyze the trade competitiveness of selected agricultural commodities traded among COMESA member states using the revealed comparative advantage (RCA) methodology. The computed RCA indices showed that countries in the COMESA region had fluctuating advantages in trade in different food staples over the years. The highest positive RCA indices include; bovine meat and cassava (Kenya and Uganda), live bovine animals (Kenya), maize grain (Uganda), tomatoes (Ethiopia, Madagascar), fish (Eritrea), cassava (Kenya, Ethiopia, Malawi and Uganda) wheat flour (Zambia), Onions (Madagascar) and dry legumes and pulses (Malawi). The results of the study can inform policy discussions on how integration through specialization and trade envisaged in the COMESA Treaty can be realized. The fluctuating RCA indices from year to year reflect weather-dependent agricultural production systems. This means that individual countries' competitiveness fluctuates year to year depending on weather. To address the observed fluctuation in RCA indices countries should invest in production systems that are less weather-dependent, such as irrigated agriculture. Countries also need to promote drought-resistant and drought-tolerant crop varieties and early warning systems.

Keywords: COMESA, trade, agriculture, revealed comparative advantage, competitiveness

JEL Codes: F11, F13, F14, Q17

TRADE COMPETITIVENESS AMONG COMESA COUNTRIES IN AGRICULTURAL COMMODITY EXPORTS

1- INTRODUCTION

Export trade is considered a key driver for achieving robust and sustained economic growth by raising the incomes of smallholder farmers in poor nations (FAO 1995; Brenton and Newfarmer 2007). Additional benefits of increased export trade include integration of countries into the global economy, being a source of productivity gains for firms, and providing an avenue for technology transfer and employment creation (Samen 2010). Therefore, increased export growth can lead to a sustainable and high level of economic growth. In the last decade, for example, the economies of fast-growing nations (those with triple export growth against their world market shares) were fueled by a rise in global export share. At the global scale, the value of export trade has been increasing since 2009 from USD 12.2 to 17.9 million by 2012 (see Table 1). In Africa, the share of traded goods and services in gross domestic product (GDP) rose from 21 to 36.3 percent between 1990 and 2008 against the world average of 25 percent. African nations have also recorded a slight growth in the share of exports. In the world agricultural trade, Africa's share has increased steadily from 1.2 to 3.3 percent between 1996–2000 and 2009–2013 (UNCTAD 2014).

Table 1: Merchandise export in agricultural products (f.o.b.), 2009–2012

Merchandise export (f.o.b.)	2009	2010	2011	2012
World (in USD)	12,177,642	14,850,565	17,816,372	17,930,467
Africa (in USD)	383,940	508,045	594,243	630,009
African share of world trade (%)	3.15	3.42	3.34	3.51

Source: WTO (2015). **Note:** f.o.b. = Free-on-board

However, compared with the rest of the world, African nations still trail in the share of world export markets despite existing unexploited potential. African merchandise trade with the rest of the world (Table 1) depicts only a 3 percent improvement for the 2009–2012 period. This stagnation in growth is attributed partly to existing trade barriers and the associated high trade-related costs that characterize African trade.

In the Common Market for Eastern and Southern Africa (COMESA) region, a substantial decline in the average export share of global merchandise and services was recorded in the 1980s. The low performance was experienced despite preferential access to European Union (EU) and other markets. However, this leveled off in the mid-1990s after which few improvements have been observed (Brenton, Newfarmer, and Hoppe 2008). The unutilized potential for trade is an opportunity to spur the economic growth of the region. As noted by Brenton and Newfarmer (2007), to spur economic growth from export trade the following actions are required: efficient allocation of resources, reducing trade-related costs, and overcoming market and government failures.

In terms of product categories, agricultural products from Africa are also lagging behind the continent's exports (Table 2). However, during the 2009–2012 period, the export value of agricultural products increased substantially from USD 39.1 to 57.4 million, compared with fuels and mining products, which doubled over the same period (Table 2).

Table 2: African exports by product group, 2009–2012 (in million USD)

Product category	2009	2010	2011	2012
Agriculture	39,101	54,820	59,491	57,392
Fuels, mining products	245,748	331,177	382,209	437,719
Manufactured goods	73,794	94,625	110,305	103,410
Agreement on agriculture[1]	31,057	37,763	45,979	45,491
Industrial goods	352,883	470,282	548,264	584,517
Total	**742,583**	**988,667**	**1,146,248**	**1,228,529**

Source: WTO (2015).

In this paper, we analyze the trade competitiveness of selected agricultural commodities traded among COMESA member states. The paper is organized into six sections: section 1 provides a general introduction on the status of Africa's trade in relation to global trade. Section 2 provides an overview of trade in the COMESA region. Section 3 describes the methodology applied in the study while in section 4 and 5 data and results are presented. Section 6 concludes and offers our recommendations based on the study findings.

2 - AN OVERVIEW OF TRADE IN THE COMESA REGION

The COMESA region, with a population of 389 million people in 2019, is a huge market for trade (both import and export). In 2016, the region generated a total of USD 165 billion from exports and incurred an import bill of about USD 71 billion (COMESA 2017). This indicates the existence of a large agricultural trade surplus in the region. The main agricultural trade partner of COMESA members is the EU, which imports about 43 percent of the Eastern and Southern Africa (ESA) agricultural exports. Other partners include Japan, China, and the United States. China is growing as an important export market (Agritrade 2011). Agricultural trade in 2013 between COMESA member states was a mere 7 percent of all trade in the region, compared with the Association of Southeast Asian Nations' 25 percent. Kenya was identified as the main agricultural exporter and importer at 26 percent and 18.3 percent, respectively.

Cereals account for 31 percent of all imports into the ESA region while the main exports are tea, coffee, and spices (23.3 percent), tobacco (14 percent), horticultural products (17.1 percent), cotton (4.4 percent), and sugar (6.1 percent) (Agritrade 2011).

Table 3: ESA countries' main sources of agricultural imports and agricultural export markets, 2008–2009 (in million USD)

Main sources of imports	Import value	Share of ESA agricultural imports (%)	Main export markets	Export value	Share of ESA agricultural exports (%)
EU	1,137.861	15.66	EU	8,243.990	42.79
South Africa	1,071.285	14.74	USA	789.109	4.10
USA	582.945	8.02	China	748.524	3.88
Uganda	318.871	4.39	Japan	574.417	2.98
China	249.962	3.44			

Source: Agritrade (2011).

1- The Agreement on Agriculture (AoA) refer to a group of agricultural products according definition refer to HS chapters 1 to 24 (excluding fish and fish products) and several manufactured agricultural products. This definition does not correspond to the definition of agricultural products presented in the breakdown of merchandise trade by main commodity group.

The meaning of the term *competitiveness* is a hotly contested debate. Some economists such as Spence and Karingi (2011) believe that it is ill-defined, conceptually vague, and subject to abuse. Other economists observe that it is experienced at the firm level rather than at the national level, thereby excluding the notion of national competitiveness as an economic research and policy failure. This is because productivity at the firm level is inadequate to support the definition of competitiveness, as exports are influenced by several factors such as tariffs, exchange rates, certification standards, and infrastructure and market systems among others. Therefore, defining competitiveness at the national level contravenes the win-win Ricardian exchange theory from which international trade derives its raison d'*ê*tre, and erroneously implies that the wealth of nations is derived only from international fortunes. In this study, however, competitiveness is defined as the ability of a country to sell goods under free and fair conditions in global markets while maintaining and expanding the real incomes of its people over the long term (OECD 2005). The issue of trade competitiveness has, however, evolved from analyzing exports to export performance. Even in today's world of free trade, the future of food dynamics is determined by competitiveness (ERD 2011). In analyzing competitiveness, the key determinants include export products, export destinations for products, and the nature of challenges countries face in export trade.

According to Lopez-Gonzalez and Cirera (2012), export growth can be analyzed from two dimensions: intensive and extensive margin. Intensive margin refers to the number of exporting firms while intensive margin refer to the average exports per firm. Among ESA nations, export growth is considered an important driver of economic growth. Therefore, promoting export growth is an urgent agenda that requires countries in the ESA region to integrate correctly designed interventions for enhancing trade and trade competitiveness into their core growth strategies. This wide approach requires an understanding of a country's export profile in terms of volume, growth, diversification (products and markets), and sophistication to define its competitiveness. This calls for clarity in understanding the type of products exported and the nature of the challenges countries face in the export trade. Although export growth is a key driver of economic growth, the Alliance for Commodity Trade in Eastern and Southern Africa (ACTESA) has identified the lack of information on competitiveness of various countries in trade for major agricultural commodities as an impediment to designing programs to link farmers to regional and international markets in line with its mandate. ReSAKSS undertook this study to fill this existing knowledge gap as it works with ACTESA to provide a better understanding of trade competitiveness in informing appropriate policy measures necessary in harnessing a nation's economic potential. This study builds on the growing number of analytical studies on trade and a rich intraregional trade dataset ReSAKSS has been developing since 2009.

In this study, we analyze trade in major agricultural food staples—namely, dry legumes and pulses, maize and rice grains, wheat and maize flours, tomatoes, onions, cassava, fish, milk and cream, bovine meat, and live bovine animals—produced in COMESA countries in the 1997–2013 period. To capture the dynamic aspects of competitiveness and degree of country specialization in production and trade, we calculate revealed comparative advantage (RCA) indices for the region's countries. The analysis is of specific products, their destination, main competitiveness constraints and their causes, opportunities for creation of new opportunities, and potential areas of intervention. In addition, the study documents what COMESA member states must do to adopt rationalization of agricultural production with a view to promoting complementarity and specialization. A better understanding of trade competitiveness helps inform policy measures and programming necessary for harnessing a nation's economic potential. From a broader perspective, this will contribute to creating knowledge and information that can be used to promote Article 129 of the COMESA Treaty, which articulates the achievement of regional food security and rational agricultural production within the Common Market.

3 - METHODOLOGY

From a comparative advantage perspective, international trade is premised on Ricardian theory and Heckscher-Ohlin (H-O) theory. While Ricardian theory posits that comparative advantage is attributable to differences in technology across countries, H-O theory assumes technologies are similar across countries and that therefore comparative advantage arises from differences in costs of the factors of production. In all, the two theories are based on relative price determination—that is, the differences in pretrade relative prices across countries underlined by the invisible hands of the market.

By H-O theory, for example, a country's comparative advantage would be determined by its relative factor scarcity. It is, however, impracticable to test H-O theory because relative factor prices are unobservable under autarky (Balassa 1989). Consequently, it may be prudent to use "revealed" comparative advantage (RCA), which is based on the observed trade patterns rather than the unobservable pretrade relative prices (Balassa 1965). Ricardian theory, on the other hand, is considered too simple for serious empirical analysis (Leamer and Levinsohn 1996). It ignores factors of production other than labor and is pegged on the unrealistic assumption that countries only specialize in the production of tradable goods. This causes serious difficulties when making essential labor compensations and international comparisons of productivity (Golub and Hsieh 2000). Thus, the index of RCA, refined and popularized by Balassa (1965, 1989), has become widely accepted in analysis of trade data as a tool with which to measure a country's comparative advantage. Given a group of reference countries, the Balassa index measures normalized export shares, where normalization is with respect to the exports of the same sector in the group of the reference countries. In our study, we adopt the same approach to analyze competitiveness of the individual COMESA countries in trade in different commodities. We compute the index as follows:

$$RCA = \left(\frac{X_{ij}}{X_{it}}\right) \div \left(\frac{X_{jn}}{X_{nt}}\right), \qquad (1)$$

where X_{ij} refers to country *i*'s export of commodity *j*; X_{it} refers to country *i*'s total exports; X_{jn} refers to the COMESA export of commodity *j*; and X_{nt} refers to COMESA's total exports. In its original form, the Balassa index has a skewed distribution, with values ranging from zero to infinity. To deal with the skewness, we adopt the normalization proposed by Laursen (1998, 2000). Thus, the ultimate index is computed as

$$RCA_L = \frac{RCA - 1}{RCA + 1} \qquad (2)$$

The RCA_L is an estimation of a log transformation of the *RCA,* which ranges from -1 to +1 and is equal to 0 when $\frac{X_{ij}}{X_{it}} = \frac{X_{nj}}{X_{nt}} = 1$. A country is said to have a Revealed Comparative Advantage in a product when the computed RCA_L lies between zero and one (i.e. when $0 \leq RCA_L \leq 1$), and a Revealed Comparative disadvantage when the computed index is less than zero (i.e. when $-1 \leq RCA_L < 0$).

The RCA methodology has strengths and weaknesses. Its strengths include the following:

- RCA is flexible enough to assess comparative advantage in exporting differentiated products under the same species or the same products to different markets.
- Compared with other methods, such as domestic resource costs, RCA is less data demanding.

RCA is characterized by several weaknesses such as the following:

- RCA may not reveal "true" comparative advantage because real trade patterns may be distorted by government interventions. This may misrepresent the underlying comparative advantage. Our analysis proceeds on the understanding that intraregional trade in food staples in the COMESA region is officially free, although state interventions are often observed with varying degrees of intensity.

- The methodology does not have straightforward policy implications because a positive RCA does not give a clear indication of whether resource allocation is at an optimal level or even excessive.
- Lastly, RCA could also imply "unexploited potential" and hence the need to examine RCA over time rather than at only one point in time. (In this study we covered the 1997–2013 period.)

4 - DATA

The study uses trade statistics from the COMESA statistical database (COMSTAT) covering 1997 through 2013. COMSTAT receives trade statistics regularly from national statistical offices of the member states and compiles regional external trade statistics based on the United Nations General Trade System.

Data from different countries are recorded using product and country nomenclatures and national currencies. However, for comparison and compilation of regional trade statistics, data from member states are harmonized into the recommended standard nomenclatures and codes prescribed by the COMESA Rules and Regulations for Compilation of Merchandise Trade Statistics. For example, the merchandise is classified using HS2012 codes while countries are coded using ISO3166:93 nomenclatures. Values are converted into US dollars. This enables aggregation of data from member states into regional statistics.

Our analysis was confined to countries and products for which data were available. The countries covered are Burundi, the Comoros, Djibouti, Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe. Among the commodities covered are livestock and livestock products (bovine meat, milk and cream, fish, and live bovine animals), roots and tubers (cassava), grains and pulses (dry legumes and pulses, rice grain, maize grain), processed flours (maize and wheat flours), and vegetables (onions and tomatoes).

5 - RESULTS AND DISCUSSION

The computed RCA indices suggest that countries in the region have fluctuating advantages in trade in the different food staples analyzed (see the appendix). Table 4 provides a summary of the average RCA of different COMESA countries in specific food staples between 1997 and 2013.

Table 4: Average RCA of COMESA countries (1997–2013)

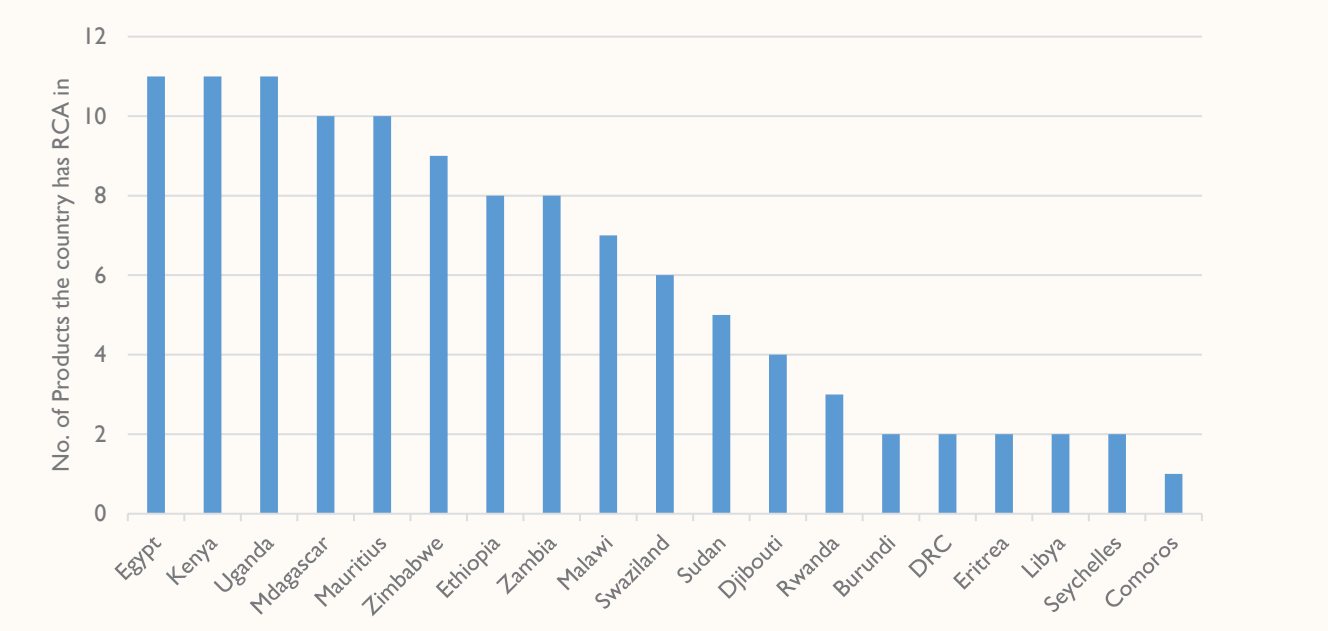
Country	RCA indices on different products											
	Bovine meat	Casava	Dry legumes & pulses	Fish	Live bovine animals	Maize flour	Maize grain	Milk& cream	Onions	Rice grain	Tomatoe	Wheat flour
Burundi	-	-	-	0	-	-	-	-	0	-	-	-
The Comoros	-	0	-	-	-	-	-	-	-	-	-	-
DRC	-	0	-	-	-	-	-	0	-	-	-	-
Djibouti	-	-	0	0	0	-	-	-	-	0	-	-
Egypt	0	+	0	0	-	0	0	0	+	0	+	0
Eritrea	-		0	+	-	-	-	-	-	-	-	-
Ethiopia	0	+	0	0	+	-	0	-	0	-	+	-
Kenya	+	+	0	0	+	0	0	0	0	-	0	0

Libya	-		-	0	-	-	-	-	-	-	0	-
Madagascar	0	+	0	0	0	0	0	-	+	0	+	-
Malawi	-	+	+	0	-	-	0	-	-	0	0	0
Mauritius	0	-	0	0	-	0	0	0	0	0	0	0
Rwanda	0	-	0	-	0	-	-	-	-	-	-	-
Seychelles	-	-	-	0	0	-	-	-	-	-	-	-
Sudan	0	-	-	0	+	-	-	-	0	-	0	-
Swaziland	0	-	-	0	-	0	0	0	-	-	-	0
Uganda	+	+	0	0	0	0	+	0	-	0	0	0
Zambia	+	-	0	-	0	0	0	0	-	-	0	+
Zimbabwe	0	-	0	0	0	0	0	0	0	-	0	-

Source: Authors' computation based on COMSTAT data.
Note: - indicates comparative disadvantage; 0 indicates demarcation point; and + indicates comparative advantage.
DRC = Democratic Republic of the Congo.

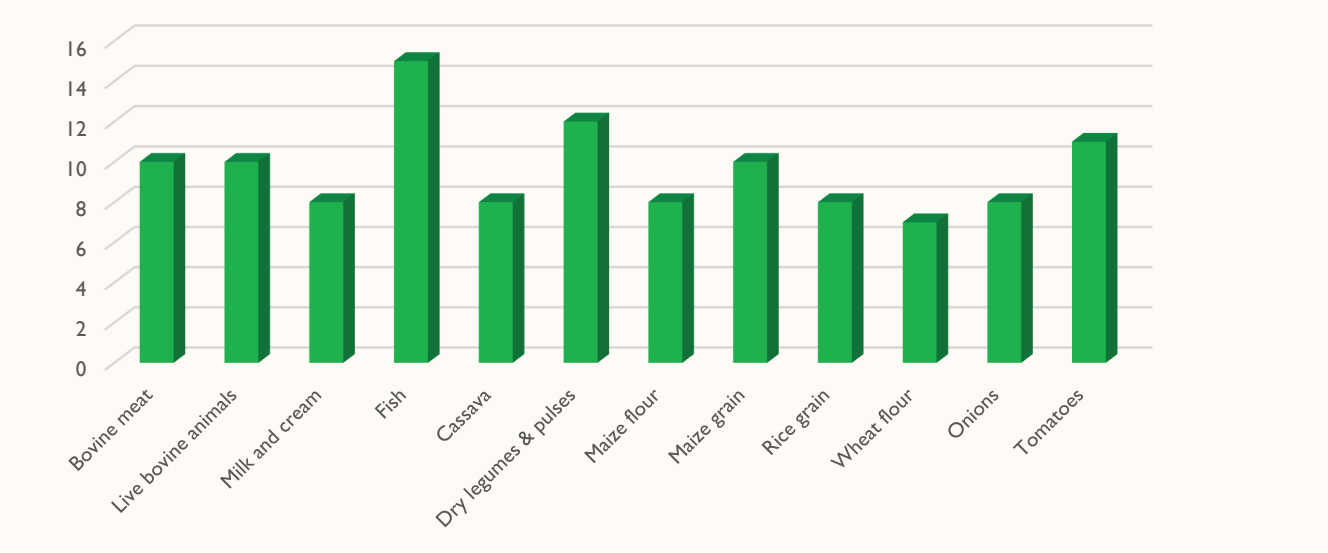
Overall Egypt, Kenya, and Uganda had an RCA in the largest number of products (11 out of the 12 examined). Figure 1 provides a summary of the number of products in which each of the countries had an RCA.

Figure 1: Summary of number of products for which the country has an RCA



Notably, more than 50 percent of the countries had an RCA in more than half of the products considered. Among the countries performing poorly were Djibouti (with an RCA in only four products), Rwanda (with an RCA in three products), Burundi, Democratic Republic of the Congo, Eritrea, Libya, and Seychelles (each with an RCA in two products), and Comoros (with an RCA in only one product). This is not surprising because agriculture's contribution to the GDP of most of these countries is minimal. Libya and Democratic Republic of the Congo, for example, are more dependent on minerals, while Seychelles is more dependent on tourism. Burundi, Rwanda, and the Comoros have small land areas, which may limit mechanized agriculture, and this may explain their poor performance in the regional trade in the agricultural products analyzed. Fortunately, each country demonstrated an RCA in at least one product, which is important for mutual benefits from regional trade.

Figure 2: Summary of number of countries with positive RCA by product



In terms of individual products, fish was the most favored. Of the 19 countries examined, 15 had an RCA in fish production and trade (see Figure 2 above). Other favorable products were dry legumes and pulses, in which 12 countries had an RCA; bovine meat and tomatoes, in which 11 countries had an RCA; and live bovine and maize grain, in which 10 countries had an RCA. For the rest of the products, fewer than 50 percent of the countries recorded an RCA. Rice grain and wheat flour were, however, the worst performers, with only six and seven countries out of the 19 analyzed registering an RCA, respectively.

A trend analysis of the RCAs recorded by countries in different products shows that very few countries consistently registered an RCA in products. Among the countries that showed consistency were Egypt (onions, rice grain, tomatoes, and wheat flour), Ethiopia (dry legumes and pulses, live bovine animals, onions, and tomatoes), Kenya (bovine meat, live bovine animals, fish, and onions), Madagascar (dry legumes and pulses, cassava, and tomatoes), Malawi (dry legumes and pulses and rice grain), Mauritius (wheat flour), Sudan (live bovine animals), and Uganda (dry legumes and pulses, maize flour, and maize grain) (see the appendix for details). Fluctuation in the RCA indices of the countries in the region in different products is most probably underpinned by the nature of production systems. Most countries are weather-dependent in production of most products and may enjoy an RCA or suffer a comparative disadvantage based on weather conditions. That is, a year with good rainfall can lead to a positive RCA and vice versa given that production is rainfed. Thus, switching to less weather-dependent production techniques may stabilize RCA positions of the individual countries. Most important, however, the results have shown products in which countries may devote their investments to take advantage of the regional market.

6 - CONCLUSIONS AND RECOMMENDATIONS

Although Africa's share of world agricultural trade has increased steadily from 1.2 to 3.3 percent between 1996–2000 and 2009–2013, African nations still lag behind in their shares of the world export market despite existing unexploited potential. In this study, we analyzed trade in major agricultural commodities (grains and pulses, processed flours, vegetables, roots and tubers, and livestock and livestock products) produced in the COMESA region.

We computed RCA indices using trade statistics from the COMESA statistical database covering the 1997–2013 period. Findings according to the RCA indices showed that countries in the COMESA region had fluctuating advantages in trade in different food staples.

Among East African Community members, products with the highest positive RCA indices include bovine meat and cassava (Kenya and Uganda), live bovine animals (Kenya), and maize grain (Uganda). Among the Intergovernmental Authority on Development members, products with positive RCA indices include Ethiopian tomatoes, maize grain in Uganda, fish (Eritrea), cassava in Kenya, Ethiopia, and Uganda, bovine meat (Kenya, Uganda), and live bovine animals in Kenya, Ethiopia, and Sudan. However, among Southern African Development Community members, only Zambia had a positive RCA index in wheat flour and bovine meat. Madagascar enjoys a positive RCA index in onions, tomatoes, and cassava while Malawi boasts of a positive RCA index in cassava and dry legumes and pulses.

In the Greater Horn of Africa region, Ethiopia enjoys a positive RCA index in the production of cassava, tomatoes, and live bovine animals while Eritrea dominates fish trade. Among Economic Community of Central African States members, no country enjoys a relatively positive high RCA index. In the whole of the COMESA region, no country enjoys a positive RCA in rice grain, milk and cream, and maize flour. Results further show that countries such as Kenya, Uganda, and Zambia could benefit more from increased investments in the production of bovine meat. Only Eritrea should invest in fisheries development in the COMESA region. Ethiopia, Kenya, and Sudan could invest more in production of bovine animals; Egypt and Madagascar could direct more resources in the production of onions; and Egypt, Ethiopia, and Madagascar should invest in tomatoes production. Finally, only cassava records the highest positive RCA index in Kenya, Uganda, Ethiopia, Egypt, Malawi, and Madagascar, while rice grain, milk and cream, and maize flour recorded the least number of positive RCA indices other than zero values.

Based on the study findings, our recommendations are as follows:

- Regional economic communities and member states should use the results of the study to inform trade policies in the region. For instance, the COMESA Treaty envisages regional integration through specialization in production and trade. The results of the study can inform discussions on how such specialization and trade patterns can be realized.
- The fluctuating RCA indices from year to year reflect weather-dependent agricultural production systems. This means that individual countries' competitiveness fluctuates year to year depending on weather. To address the observed fluctuation in RCA indices countries should invest in production systems that are less weather-dependent, such as irrigated agriculture. Countries also need to promote drought-resistant and drought-tolerant crop varieties and early warning systems.

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APPENDIX: REVEALED COMPARATIVE ADVANTAGES OF COMESA COUNTRIES

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	
Burundi																		
Bovine meat	-1	-1	-1	1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Cassava	-1	-1	-1	-1	-1	-1				-1	-1	1		-1	-1	-1	0	-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	0	-1	-1	-1
Fish	0	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0	0
Live bovine animals		-1		-1					-1	-1	-1		-1	-1	-1	-1	-1	-1
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	0	-1	0	-1
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	0	-1	0	-1
Milk and cream	-1	-1	-1	-1	-1	0	-1	-1	0	0	-1	-1	-1	-1	-1	-1	-1	-1
Onions		-1	-1	-1	-1				1	1	-1	-1	-1	-1	0	-1	0	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	0	-1	-1	-1	0	-1	0	-1
Tomatoes				-1							-1	-1		-1	-1	-1	1	-1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
The Comoros																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Cassava				1		-1			-1				1	1				0
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Fish	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1
Live bovine animals	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1		-1
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1
Onions	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Tomatoes			-1		-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Democratic Republic of the Congo																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Cassava		1	1	1	-1	-1	1	1	1		-1	-1	1	1	0	-1	-1	0
Dry legumes & pulses	-1	-1	-1	1	-1	-1	-1	1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1
Fish	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	0	-1	-1	-1	-1
Live bovine animals	-1		-1			-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	0	-1	-1	-1	-1	-1	-1	-1
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	0	-1	-1	-1
Milk and cream	-1	-1	-1	-1	-1	0	-1	0	0	-1	-1	-1	-1	-1	-1	-1	-1	0
Onions		-1	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	0	-1	-1	-1
Tomatoes		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-1	-1	-1

Djibouti																		
Bovine meat	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1		-1
Cassava					-1		-1		-1		-1					-1		-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	0	0	1	-1	0	0
Fish	-1	1	1	1	1	1	-1	-1	0	0	1	1	0	0	0	0	-1	0
Live bovine animals	-1	-1	-1	-1	-1		-1	-1	-1	1	1	-1		1	-1	-1		0
Maize flour		1							-1	0		-1	-1	-1	0			-1
Maize grain	-1	-1	-1	-1	0	-1	-1	1	-1	-1	-1	-1	-1	-1	0	-1		-1
Milk and cream	1	1		1	1	-1	-1	-1	-1	0	-1	0	0	0	-1	-1	0	-1
Onions	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Rice grain	1	1	1	1	1	-1	-1	-1	-1	0	-1	0	0	1	0	-1	0	0
Tomatoes	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1	-1	-1
Wheat flour	1	1	1			-1	-1	-1	-1	-1	-1	1	-1	0	0	-1	-1	-1
Egypt																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	1	-1	-1	-1	0	0
Cassava	-1	-1	-1		-1	-1					1	1	1	1	1	1	1	1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	1	0	0	-1	0
Fish	1	-1	0	-1	1	-1	-1	-1	-1	0	0	0	-1	-1	0	-1	0	0
Live bovine animals	-1	-1	-1	-1	-1	-1	-1		-1	-1	-1	0	0	-1	-1	-1	0	-1
Maize flour			1			-1	1	1	0	-1	-1	-1	0	1	-1	-1	0	0
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	0	0	-1	-1	1	0
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	1	0	-1	0	0
Onions	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1
Rice grain	1	1	1	1	1	1	1	1	1	0	1	-1	0	0	0	0	0	0
Tomatoes	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	1	1	1
Wheat flour	-1	-1	0	0	0	0	1	0	1	0	0	0	1	1	1	1	1	0
Eritrea																		
Bovine meat				-1		1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Dry legumes & pulses						-1	-1	-1	-1	1	-1	-1	-1	1	1	-1	-1	-1
Fish	1	1	1			1	-1	-1	0	1	-1	0	1	1	0	1	-1	0
Live bovine animals										1	1	1						1
Maize flour						-1		-1	-1	-1	-1	-1			-1		-1	-1
Maize grain		1				-1	-1		1	0	-1	-1	-1	-1	-1	-1	-1	-1
Milk and cream		-1	-1			-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Onions		1					-1	1	-1	-1	-1	-1	-1		-1	1		-1
Rice grain						-1	-1	-1	-1	-1	1	-1	-1	-1	-1		-1	-1
Tomatoes							-1			-1	-1	-1	-1	1	-1		-1	-1
Wheat flour		-1				-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Ethiopia																		
Bovine meat	1	0	-1	0	0	0	1	-1	0	0	0	-1	0	0	1	1	0	0
Cassava					1		1		1		1			1		-1	1	1
Dry legumes & pulses	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	0
Fish	-1	-1	-1	0	-1	-1	-1	-1	0	0	-1	0	0	0	0	0	0	0

Live bovine animals	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0	1
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	0	-1	0	-1	-1	-1	-1
Maize grain	1	0	0	0	0	0	-1	0	0	-1	1	-1	-1	1	1	-1	-1	0
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	0	0	-1	-1	-1	0	-1
Onions	1	1	1	1	1	1	1	1	1	0	1	0	0	0	1	0	0	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1
Tomatoes	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	0	-1	-1	-1	-1	-1	0	-1
Kenya																		
Bovine meat	1	1	1	0	1	1	1	0	0	0	1	0	1	1	1	1	0	1
Cassava	-1	1	1	-1	1	1	1	1	1	1	1	0	-1	1	-1	-1	0	1
Dry legumes & pulses	-1	0	-1	-1	1	1	0	0	0	1	0	0	-1	0	-1	-1	0	0
Fish	1	1	-1	1	1	1	1	0	0	0	0	0	1	1	1	1	0	0
Live bovine animals	1	1	-1	1	1	1	0	0	1	0	0	1	1	1	1	1	1	1
Maize flour	-1	1	1	-1	1	1	1	-1	-1	0	1	0	1	1	0	0	1	0
Maize grain	-1	-1	0	-1	-1	1	-1	0	0	0	-1	-1	-1	-1	-1	-1	0	0
Milk and cream	0	-1	-1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Onions	1	0	1	1	1	1	1	0	1	0	0	0	-1	0	1	0	0	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	0	0	-1	0	0	-1	-1	-1	-1	0	-1
Tomatoes	1	0	1	1	1	1	1	1	0	1	1	-1	0	-1	-1	0	0	0
Wheat flour	1	1	1	0	-1	-1	-1	-1	0	0	0	1	-1	-1	-1	-1	1	0
Libya																		
Bovine meat	-1					-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1
Cassava		-1																
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	1	-1	-1	-1	-1	-1
Fish	1	1		-1	-1	1	0	0	-1	0	-1	-1	-1	-1	-1	0	0	0
Live bovine animals						-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize flour								-1	-1	-1		-1	-1	-1	-1	-1	-1	-1
Maize grain	-1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1
Milk and cream		-1		-1	-1	-1	-1	-1	-1	0	-1	-1	0	-1	-1	-1	-1	-1
Onions	-1	-1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Tomatoes						0	1		0	-1	-1	-1	-1	0	-1	-1	-1	0
Wheat flour						-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1
Madagascar																		
Bovine meat	1	1	1	1			-1		1	-1	-1		0	-1	-1	-1	1	0
Cassava	1		1			1	1	1	1	1	0	1	-1		1	1	1	1
Dry legumes & pulses	1	1	1	1	-1	1	1	0	0	1	1	0	0	1	1	1	1	0
Fish	1	1	1	1	0	-1	1	0	1	-1	0	0	0	0	-1	0	0	0
Live bovine animals		1	1	1		1			-1	-1						1		0
Maize flour	-1		-1	-1	-1	-1	-1	0	0	-1	0	0	-1	-1	-1	-1	1	0
Maize grain	1	0	0	1	-1	1	-1	-1	0	0	1	1	1	-1	-1	-1	0	0
Milk and cream	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	0	-1	-1	-1	-1	0	-1

Onions	1	1	1	1	1	1	1	0	1	0	0	1	0	1	1	1	1	1
Rice grain	-1	-1	-1	-1	0	-1	-1	0	0	1	0	0	-1	-1	-1	-1	0	0
Tomatoes	1		1		1	1	1	0	1	1	1	1	-1	1	1	1	1	1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	-1	-1	-1	-1	-1	-1
Malawi																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Cassava	1	1	1	1		1										-1		1
Dry legumes & pulses	1	1	1	1	1	1	0	0	0	0	1	1	0	1	1	1	1	1
Fish	-1	0	0	-1	-1	-1	0	-1	0	0	0	-1	0	-1	-1	0	-1	0
Live bovine animals	1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize flour	1	-1	-1	1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize grain	-1	-1	-1	1	0	-1	0	1	0	0	1	1	0	0	1	0	-1	0
Milk and cream	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	0	-1	0	0	-1	-1
Onions	-1	-1	-1	-1	-1	-1	-1	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Rice grain	1	1	1	0	1	0	-1	0	0	0	1	0	0	1	1	0	1	0
Tomatoes	-1	0	-1	-1	-1	0	0	1	-1	1	-1		-1	-1	-1	-1	-1	0
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	0	0	-1	0	1	0	-1	0
Mauritius																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	-1	-1	-1	0
Cassava	-1		-1	-1	-1	-1	-1	-1		-1	-1					1	1	-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	1	0	0	-1	-1	0	0
Fish	-1	1	-1	-1	-1	0	0	-1	1	0	0	1	0	0	-1	-1	0	0
Live bovine animals	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	1	0	1	0	-1	1	0
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	1	0	0	0	0	0	-1	-1	0	0
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	-1	-1	0	0
Onions	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	0	-1	0	-1	-1	0	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	0	0	-1	-1	0	0
Tomatoes	-1		1	1	1			1	1	1	-1	1	0	0	-1	-1	-1	0
Wheat flour	1	0	1	1	0	1	1	0	1	0	0	0	1	0	0	1	1	0
Rwanda																		
Bovine meat	-1		-1	-1	-1	-1	-1		-1	-1	-1	0	1	1	1	0	1	0
Cassava	1				1					-1	-1	-1	-1	-1	-1	-1	-1	-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	1	0	0	0	0	1	0
Fish	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	-1	0	-1	-1	-1	-1
Live bovine animals		1				-1	-1	-1			0	0	0	0	0	0	1	0
Maize flour	-1	-1	-1	-1	-1	-1		-1	-1	-1	-1	0	-1	-1	-1	0	1	-1
Maize grain	1	0	-1	-1	-1	-1	1	-1	0	0	-1	-1	-1	-1	-1	-1	-1	-1
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	1	-1
Onions	-1									-1	0	-1	-1	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	0	-1	-1
Tomatoes									-1		-1	1	-1	-1	-1	-1	-1	-1
Wheat flour	-1	-1	-1	-1	-1	-1	-1	0	0	-1	0	-1	-1	-1	1	1	1	-1

Seychelles																		
Bovine meat	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1
Cassava	-1	-1	-1	-1	-1	-1				-1		-1	-1	-1	-1	-1		-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
Fish	0	-1	-1	-1	1	1	-1	-1	0	0	-1	0	0	1	-1	-1	0	0
Live bovine animals		-1	-1			-1	1			1	-1	0	-1	-1	1	1		0
Maize flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
Onions	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1
Tomatoes	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1
Wheat flour	-1	-1	-1	1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1
Sudan																		
Bovine meat	1	1	1	1	1	1	1	1	1		-1	-1	-1	0	1	1	1	0
Cassava									-1	-1								-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Fish	1	1	1	-1	-1	-1	-1	1	0	0	-1	0	-1	-1	-1	-1	-1	0
Live bovine animals	1	1	1	-1		1			1		1	1	1	1	1	1	1	1
Maize flour	1	-1	1	-1		-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		1	-1
Maize grain	-1	0	-1	-1	-1	1	-1	0	-1	-1	-1	0	-1	-1	-1	1	0	-1
Milk and cream	-1	-1	-1	-1	-1	-1	-1	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1
Onions		1	1		1	1	-1	1	-1	0		-1		1	1	1	1	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Tomatoes	-1	-1	1	-1	-1	-1	-1	1	-1		-1		-1	1	-1	-1		0
Wheat flour	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Swaziland																		
Bovine meat	-1	0	0	1	-1	-1	0	-1	0	-1	0	0	0	-1	-1	-1	0	0
Cassava		-1	-1	0	1	-1	-1	-1	0	0	-1	-1	0	-1	0	-1	-1	-1
Dry legumes & pulses	0	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	0	-1	-1	-1	-1	-1
Fish	-1	-1	-1	0	-1	0	-1	0	-1	0	0	0	0	-1	-1	-1	-1	0
Live bovine animals	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	-1	-1	-1	0	-1
Maize flour	-1	-1	-1	-1	-1	0	-1	-1	-1	0	0	0	-1	-1	0	-1	-1	0
Maize grain	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	1	-1	-1	-1	-1	0
Milk and cream	0	-1	-1	-1	0	0	0	-1	-1	0	-1	0	0	-1	-1	-1	-1	0
Onions	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	-1	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	1	-1	-1	-1	-1	-1
Tomatoes	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	0	-1	-1	-1	-1	-1
Wheat flour	0	0	-1	-1	-1	-1	0	0	1	0	0	0	0	-1	0	-1	-1	0

Uganda																		
Bovine meat	1	0	-1	-1	0	-1	0	1	1	1	0	1	1	1	1	0	1	1
Cassava	1	1	1	-1	0	1		1	1	1	1	1	-1	1	1	-1	1	1
Dry legumes & pulses	1	1	1	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0
Fish	1	-1	1	-1	1	-1	1	-1	0	0	1	1	1	1	1	1	1	0
Live bovine animals	1	1	1		-1	-1	-1	-1	-1	-1	1	1	1	1	1	0	1	0
Maize flour	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	1	1	0
Maize grain	0	0	-1	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1
Milk and cream	0	0	0	-1	-1	-1	0	-1	0	-1	-1	0	0	1	1	1	1	0
Onions	0	-1	1	-1	-1	1	-1	-1	0	-1	-1	-1	-1	-1	0	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	0	0	-1	-1	0
Tomatoes	-1	1	1	-1	-1	-1	1	0	-1	1	1	0	1	-1	-1	0	-1	0
Wheat flour	-1	-1	-1	-1	-1	0	0	0	0	1	1	1	0	0	0	1	1	0
Zambia																		
Bovine meat	1	1	1	1	1	1	1	1	1	0	0	1	1	0	-1	-1	0	1
Cassava	1	-1	-1	-1	0	1	-1	-1	-1	-1	-1	-1	-1	-1	-1	1	1	-1
Dry legumes & pulses	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	0	0	0	-1	0	0	0
Fish	-1	-1	-1	0	0	-1	-1	0	0	0	-1	0	-1	-1	-1	-1	-1	-1
Live bovine animals	-1	0	-1	-1	0	0	1	1	0	1	0	1	-1	0	-1	0	-1	0
Maize flour	1	-1	0	1	0	-1	0	1	1	-1	1	1	1	1	1	1	0	0
Maize grain	0	-1	0	1	0	-1	-1	1	1	-1	1	1	0	1	1	1	1	0
Milk and cream	-1	-1	-1	-1	0	0	0	-1	0	0	0	-1	0	-1	-1	-1	-1	0
Onions	-1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	1	0	-1	-1	-1	-1
Rice grain	-1	-1	-1	-1	-1	-1	-1	-1	-1	0	0	-1	-1	-1	-1	-1	-1	-1
Tomatoes	0	1	0	0	0	1	1	-1	-1	1	0	1	0	0	-1	-1	-1	0
Wheat flour	-1	1	1	0	-1	0	1	1	1	-1	1	1	1	1	1	1	1	1
Zimbabwe																		
Bovine meat	1	1	1	1	0	1	1	0	1	-1	-1	0	-1	-1	0	-1	-1	0
Cassava						-1										-1	-1	-1
Dry legumes & pulses	1	0	0	0	-1	-1	-1	0	0	0	0	1	0	-1	-1	-1	-1	0
Fish	-1	-1	-1	-1	-1	0	1	0	0	0	0	0	0	-1	0	0	0	0
Live bovine animals	0	1	1	1	1	1	1	0	-1	-1	-1	-1	-1	1	-1	-1	-1	0
Maize flour	-1	1	1	1	-1	-1	-1	0	-1	1	0	0	-1	-1	-1	0	-1	0
Maize grain	1	1	0	1	0	-1	-1	0	0	0	1	0	-1	-1	-1	-1	-1	0
Milk and cream	1	1	1	1	0	0	0	0	0	-1	0	0	-1	-1	-1	-1	-1	0
Onions	0	0	0	-1	-1	0	-1	0	1	0	-1	0	-1	-1	-1	-1	-1	0
Rice grain	-1	-1	-1	-1	-1	-1	-1	0	-1	0	0	-1	-1	-1	-1	-1	-1	-1
Tomatoes	-1	0	1	-1	-1	1	1	0	1	0	0	0	1	-1	-1	-1	-1	0
Wheat flour	1	1	1	1	0	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1

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