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Can Intra-Regional Trade Act as a Global Shock Absorber in Africa?

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July 2015

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ABSTRACT

Can Intra-Regional Trade Act as a Global Shock Absorber in Africa?¹

The global financial crisis and the subsequent uneven recovery have underscored the need for Africa's resilience to output and other shocks originated in the rest of the world. A comparison of two regional economic communities – the East African Community (EAC) and the Southern Africa Customs Union (SACU) – suggests that deeper intra-regional, and in particular intra-industry, trade ties have contributed to the EAC's resilience to external output shocks. More broadly, intra-regional and intra-African trade with fast-growing economies, together with geographically diversified trade links, can strengthen the capacity of African countries to absorb global output shocks. Besides helping shield countries from external shocks, intra-regional trade also supports economic diversification and participation in regional value chains.

JEL Classification: E32, F4, F15

Keywords: intra-regional trade, output co-movement, regional economic communities, Africa

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1. Introduction

The global financial crisis and the subsequent uneven recovery have brought about renewed emphasis on the links of African countries with the global economy, both individually and via regional economic communities (RECs). While Africa has exhibited resilience, differences emerged across countries and Africa's RECs, which showed different degrees of output co-movements with the advanced economies. This paper examines the role that intra-regional trade may play in explaining such differences and shielding economies from global shocks. It focuses on the East African Community (EAC) and the Southern Africa Customs Union (SACU) because of markedly different patterns of trade and growth that these RECs exhibited.

Except for South Africa, the output shock transmission from the global economy to Africa and its RECs has been relatively understudied.² This paper contributes to closing this gap by examining the links between output co-movement and intra-regional trade. It is an empirical exercise, where output-trade links are tested by regressing output co-movements on pair-wise trade linkages, including intra-industry trade as in Calderon et al. (2009) and IMF (2013).

The main findings of the paper are that more intense intra-regional, and especially intra-industry, trade in the EAC has raised its resilience to external output shocks. However, the SACU region proved less immune to such shocks, in part due to South Africa's heavy exposure to global shocks also via financial linkages, as evidenced by capital outflows that the country experienced. Hence in regions experiencing fast growth, intra-regional/intra-industry trade ties can help build resilience. However, this is not automatic and other factors, such as sound management of capital flows, need to be in place. Countries and regions also need to diversify their export destinations so as to include fast growing economies, both in Africa and elsewhere.

The rest of the paper is organized as follows: Section 2 presents stylized facts on output co-movement between advanced economies and the two African RECs. Section 3 analyzes the links between trade and growth. Section 4 concludes with policy recommendations.

2. Literature Review

When linking output co-movements with trade intensity and structure, the paper builds on two streams of literature. The first stream is the literature *on output co-movements between the global economy and Africa*, which includes Ndulu and O'Connell (2007), Gurara and Ncube (2013); and Diallo and Tapsoba (2014) among recent papers. Ndulu and O'Connell (2007) showed that 1 percentage increase in growth of real GDP of trading partners leads to 0.4 increase in the domestic real GDP growth. Further, one percentage increase in real GDP growth in Eurozone (BRICs) would lead to 0.34 – 0.6 increase in Africa. Similarly, one percentage increase in real GDP growth in the BRICs would bring about 0.09 – 0.23 percentage point rise in growth in Africa (Gurarara and Ncube, 2013). Finally, Diallo and Tapsoba (2014) demonstrated that sub-Saharan Africa's business cycle has been shifting from EU to BRICs.

The second stream builds on the *literature linking trade and growth* that shows that higher trade integration can lead to more synchronized business cycles in the advanced economies. This stream included Frankel and Rose (1997), Clark and van Wincoop (2001), Gruben et al. (2002), Imbs (2004) and others. Calderon et al. (2007) found impact of the trade intensity on the output shock synchronization also among developing countries, but smaller than that among

² Çakir and Kabundi (2011), de Waal (2013), Ncube and Ndou (2013) studied this transmission to South Africa.

the advanced economies.³ In turn, Tapsoba (2010) showed that trade intensity increased the business cycle synchronization also in Africa, but again less so than in advanced economies.

Findings from the theoretical literature on the relationship between trade integration and output shock synchronization have been inconclusive. The results vary depending on whether trade impacts output through demand or sectoral channels. The extent of inter vs, inter-industry trade also plays a role. On the one hand, Krugman (1991) posited that asymmetry of shocks rises among integrated economies due to their increased specialization, which then leads to lower structural symmetry in production (discussed below). On the other hand, already Kenen (1969) observed that highly diversified economies with high share of intra-industry trade are less prone to experiencing asymmetric shocks. Specifically, if intra-industry trade dominates, countries are likely to experience similar shocks and their outputs more synchronized (Figure 1).

Figure 1. Trade and Output Co-movement



Source: Adapted from Misztal (2013).

The empirical literature also indicates that the impact of intra-regional trade on output co-movement depends not only on the intensity of trade, but also its structure. Countries with large share of intra-industry trade are likely to experience more symmetric shocks and greater output co-movement than countries in which inter-regional trade dominates (Misztal, 2013; Rana, 2007). Differently put, the varied impact of trade on output shock synchronization can be explained by patterns of output specialization and bilateral trade (Calderon et al., 2007). This literature builds on earlier work of Krugman (1991) who also found that business cycles can be more synchronized among countries with similar production structures. Frankel and Rose (1997) and Fidrmuc (2004) demonstrated that intra-industry trade leads to greater output shock synchronization, while Kose and Yi (2001) demonstrated the role of vertical integration.

The next section explores the patterns of output co-movements as well as intra-regional and intra-industry trade in the two African regional communities, the EAC and the SACU.

3. Analysis of Patterns of Growth, Trade and Their Linkages

3.1 Patterns of Growth⁴

³ The authors use data for 147 developing countries during the period 1960 – 1999.

⁴ Annual GDP data for the period 1980–2011 used in this section were obtained from the IMF WEO database. The data is collected at the country level at constant prices and converted to constant US dollars with fixed exchange rates. Global output is represented by a group of 34 economies classified as “advanced”; SSA’s output is measured by GDP of all SSA countries with available data; and regional outputs of the EAC and the SACU are represented by the total GDP of their member countries; domestic output is captured by GDP of each country.

Longer-term Growth Trends

Since the early 2000s, Africa has posted rapid and broad-based growth. More than 60 percent of countries have grown on average at 4 or more percent a year. Still, substantial differences in prevail across countries and regions. The EAC region weathered well the global financial crisis and still contains some of the fastest growing countries in the world (AfDB et al., 2015). Its growth was both faster and less volatile than that of the SACU region in the past three decades (Table 1). The SACU countries have been also characterized by high unemployment, especially among youth, income inequality, and widespread poverty.

Table 1. Real GDP Growth and Volatility: Africa, EAC, SACU and Advanced Economies

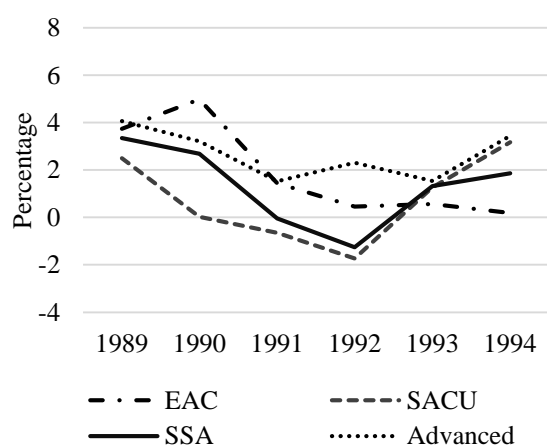
Region	Variable	1981-90	1991-2000	2001-07	2008-10	2011-12
EAC	- Growth	3.9	2.6	6.1	5.5	5.4
	- Relative SD	0.4	0.7	0.2
SACU	- Growth	1.7	2.0	4.4	1.8	3.1
	- Relative SD	1.5	1.0	0.3
SSA	- Growth	2.4	2.0	6.2	4.7	5.2
	- Relative SD	0.9	0.9	0.2
Advanced Ec.	- Growth	3.3	2.9	2.4	-0.1	1.6
	- Relative SD	0.4	0.3	0.3

Source: Authors' calculations based on IMF WEO (April 2015) database. **Note:** Advanced economies are defined as in the IMF WEO database. SD stands for standard deviation. Growth (relative standard deviation) is calculated as average of annual growth rates (annual relative standard deviations) over a given period.

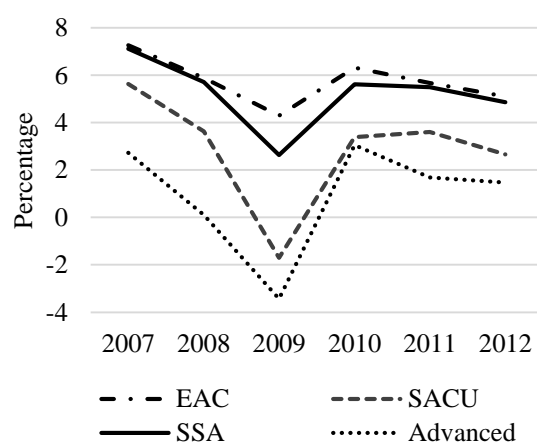
During the global financial crisis, the EAC region's limited financial integration into global markets protected it from direct financial shocks. The impact of indirect financial channels was subdued, as the EAC banks tend to fund their loans from deposits. The crisis was thus transmitted mostly through trade and in some cases also foreign investment, aid, remittances and tourism receipts (Brixiová and Ndikumana, 2013). In contrast, South Africa, which is closely integrated into the global financial system, was impacted through both financial and trade channels (Ncube et al., 2012a and 2012b; Ncube and Ndou, 2013). In turn, the crisis was transmitted to the small SACU members via trade with South Africa and EU.

Figure 2. Real GDP Growth around the Past Two Global Crises

2a. Real GDP growth, 1989-94



2b. Real GDP growth, 2007-12



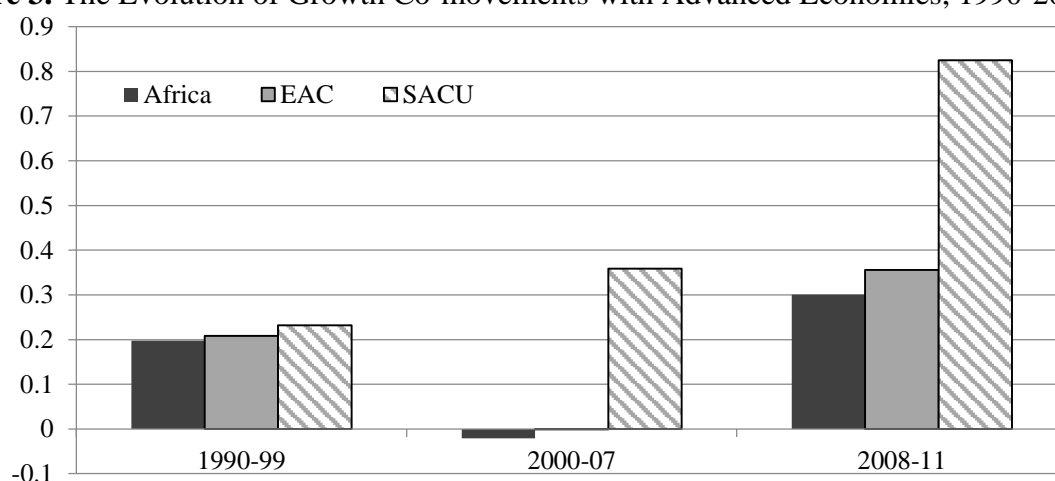
Source: Authors' calculations based on IMF WEO (April 2015) database.

The negative impact of the global financial crisis on growth was notable in both the EAC and the SACU regions in 2009, but both sub-regions have recovered fast. In the EAC region, the strong fundamentals and buffers established prior to the crisis facilitated, through counter-cyclical policies and public investment, this fast growth revival. High growth and timely recovery during this global recession is in sharp contrast with the 1991 crisis, when the EAC region grew less than the world economy and recovered with significant delay (Figure 1).

Output Co-movements

Output co-movement between the advanced economies and Africa's RECs and countries reflects the degree of shock synchronization. The co-movement could be induced either by large common (global) shocks affecting simultaneously advanced and African countries or spill-overs of country specific shocks in advanced economies to Africa (IMF, 2013). As in other developing countries, the co-movement of the EAC and the SACU regions with advanced economies rose during the financial crisis, but more so in the SACU than the EAC (Figure 3).

Figure 3. The Evolution of Growth Co-movements with Advanced Economies, 1990-2011



Source: Authors' calculations based on IMF WEO (April 2015) database. **Note:** The co-movement is measured by correlations of growth rates, as in IMF (2013).

Growth rates of the individual EAC members were correlated with growth of the EAC region. The real GDP growth rates of Kenya, Rwanda, Tanzania, Uganda and the EAC exhibited also co-movements with those of Africa. With the exception of the crisis period, the co-movements of the growth rates of the EAC countries with those of the global economy are weak and in some cases negative, suggesting overall low shock synchronization between the advanced economies and the EAC (Table A1, Annex I).

Except for South Africa which accounts for most of the SACU's output, the co-movements of growth of the SACU members with the SACU region are weaker than in the EAC. The SACU is highly correlated with Africa, reflecting the important economic role played by South Africa on the continent. In turn, growth rates of the SACU countries are associated more closely than EAC's growth rates with those of advanced economies (Table A2, Annex I).

Structural Similarity of Output

Shocks in RECs may not be synchronized due to asymmetric, country-specific shocks and/or differences in the transmission mechanisms of common shocks. Structural similarity reduces

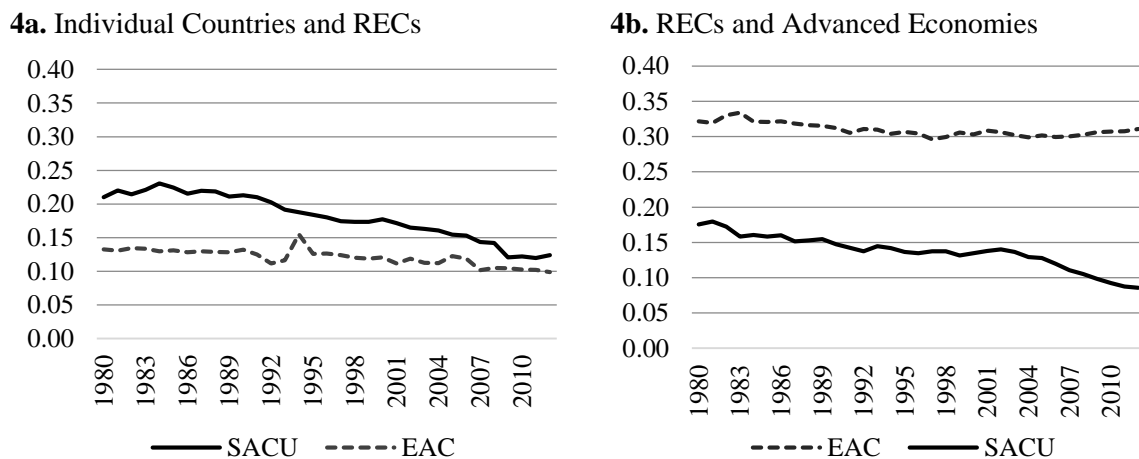
the impact of these factors as it facilitates shock synchronization (co-movement), i.e. common shocks would impact countries with similar output structures similarly ways. This section examines the degree of structural similarity between the EAC and the SACU regions and advanced economies, as well as that between individual member countries and their RECs.

The structural similarity of output, that is closeness of members' output to the structure of the regional economic block, can be measured by the Bray-Curtis index, which takes values between 0 and 1. It is a distance metric where lower values indicate a greater structural similarity. Denoting x_{ijt} to be the share of sector i in the total value added of country j in year t , X_{it} to be the share of sector i in the total value added of the regional bloc, and N as the total number of sectors, the index (d_{jkt}) is described as:⁵

$$(1) \quad d_{jkt} = \frac{\sum_{i=1}^N |x_{ijt} - X_{it}|}{\sum_{i=1}^N (x_{ijt} + X_{it})}$$

The index indicates that the EAC countries have output structures closer to their bloc than the SACU countries. In the SACU, South Africa economically dominates the region. The other economies are less developed and have different structures. In both RECs, countries' output structures have been converging to that of the group (Figure 4a). As the SACU, which consists of middle income countries, is more developed than the EAC, its output structure is closer to that of the advanced economies (Figure 4b). The distance between the EAC's output structure and that of the advanced economies has stayed mostly unchanged over the past three decades.

Figure 4. Bray-Curtis Structural Similarity Index for Output, 1980-2012



Source: Authors' calculations based on the UN national accounts database.

⁵ Alternatively, x_{ijt} can be interpreted as the share of sector i in the total value added of the regional bloc and X_{it} as the share of sector i in the total value added of the SSA or the group of advanced economies. For comparing the structural similarity of the EAC and SACU blocs with that of the advanced economies, x_{ijt} can be interpreted as the share of sector i in the total value added of the regional bloc and X_{it} as the share of sector i in the total value added of the group of advanced economies.

3.2 Patterns of Trade

Intra-Regional Trade

The average share of intra-African exports in total exports during 2000-2012 was only 11 percent, well below 25 percent in Latin America and 51 percent in Asia. Africa's regional trade is thus remains low compared to other world regions (Freemantle, 2013; Ancharaz et al. 2011; Longo and Sekkat, 2004). Differences exist among Africa's sub-regions, with the intra-regional trade accounting for the largest – and increasing – share of total trade in the EAC. The available data (from 2001 on) indicates that the trade integration in the SACU is low (Table 2).

Table 2. Shares of Intra-regional and Intra-African Trade (% of total exports)

EAC	2001-2007	2008-2012
EAC total exports (million US\$)	5,225	10,022
Intra-EAC exports	19.6%	19.8%
Exports to rest of Africa	12.4%	14.0%
Total exports to Africa	32.0%	33.8%
Exports to advanced economies	41.5%	35.5%

SACU	2001-2007	2008-2012
SACU total exports (million US\$)	48,196	85,435
Intra-SACU exports	3.2%	2.9%
South Africa total exports (million US\$)	58,617	78,916
Exports to Africa	13.9%	16.7%
Exports to advanced economies	62.2%	54.4%

Source: Authors' calculations based on the trade data from the IMF DOTS database.

The more intensive intra-regional trade integration in the EAC has contributed to less pronounced fall during the global crisis than in the SACU countries. Differently put, the EAC countries were shielded from a major drop in import demand in advanced economies that impacted the SACU countries. Another distinctive feature of the EAC members is their greater degree of trade diversification than in most of their peers in terms of export products. In Kenya, Uganda and Tanzania, the top three products account for less than 40 percent of total exports, well below levels in the SACU. Necessities, especially food, accounted for most of the EAC's exports (total and to the rest of Africa), making the EAC less vulnerable to global slump. Most of the manufacturing goods, for which the demand in advanced economies fell during the crisis, are exported to the East Africa, including through informal channels.⁶

The SACU countries were less resilient to the global shock caused by the financial crisis, as they have close trade ties with South Africa, while having minimal trade ties with each other or the rest of Africa. The link with South Africa, which was heavily impacted through both financial and trade ties, made the small SACU countries vulnerable to the impact of the crisis.

⁶ Uganda's informal exports to its five neighbouring countries accounted for about half and one third of its total exports to these countries in 2009 and 2010, respectively. Main commodities traded through the informal trade in East Africa are food and manufacturing (Afrika and Ajumbo, 2012; Lesser and Moisé-Leeman, 2009).

Intra-Industry Trade

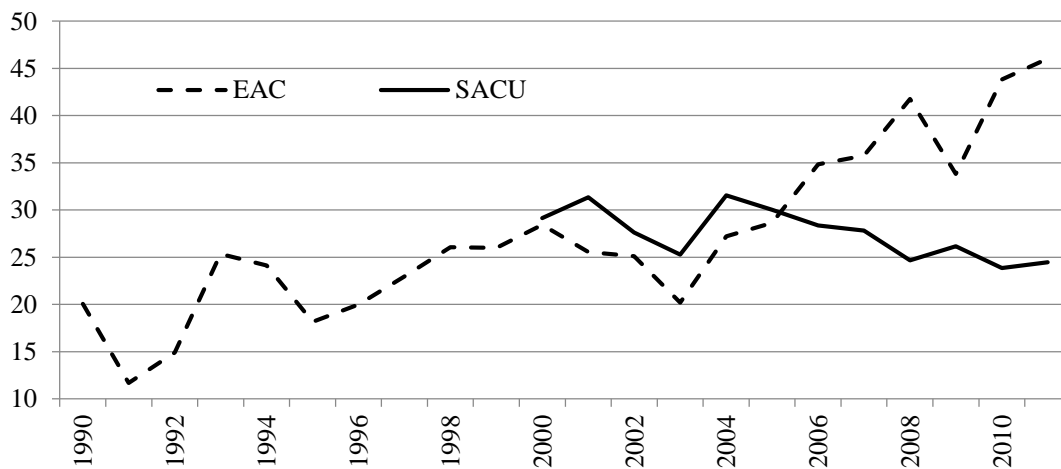
The intensity of intra-industry trade flows is measured using Grubel-Lloyd index, which is derived in detail in Grubel and Lloyd (1971) and defined as follows:

$$(2) \quad iit_{jkt} = \sum_{i=0}^9 \frac{(X_{ijkt} + M_{ijkt}) - |X_{ijkt} - M_{ijkt}|}{X_{ijkt} + M_{ijkt}} \times \frac{X_{ijkt} + M_{ijkt}}{\sum_{i=0}^9 X_{ijkt} + M_{ijkt}} \times 100$$

where iit represents the intra-industry index; X_{ijkt} and M_{ijkt} represent, respectively, country j 's exports and imports of product class i to and from country k in year t . The ratio takes the minimum value of zero if there is no intra-industry trade and the maximum value of 100 if there is only intra-industry trade.⁷ The overall bilateral index of intra-industry trade between countries j and k is a weighted average of the indices for all product classes in which the shares of total trade of product i over total commodity trade is used as weights.

The intra-industry trade has remained relatively low in both RECs from the early until about mid-2000s, with the higher – and rising rapidly – intra-industry trade intensity in the EAC since then (Figure 5). Once again, these indices point to greater structural similarity and hence likelihood of closer output shock synchronization among the EAC than the SACU members.

Figure 5. Grubel-Lloyd Intra-Industry Trade Index, 1990-2012



Source: Authors' calculations based on the UN Comtrade database.

3.3 Links between Trade and Output Co-movements

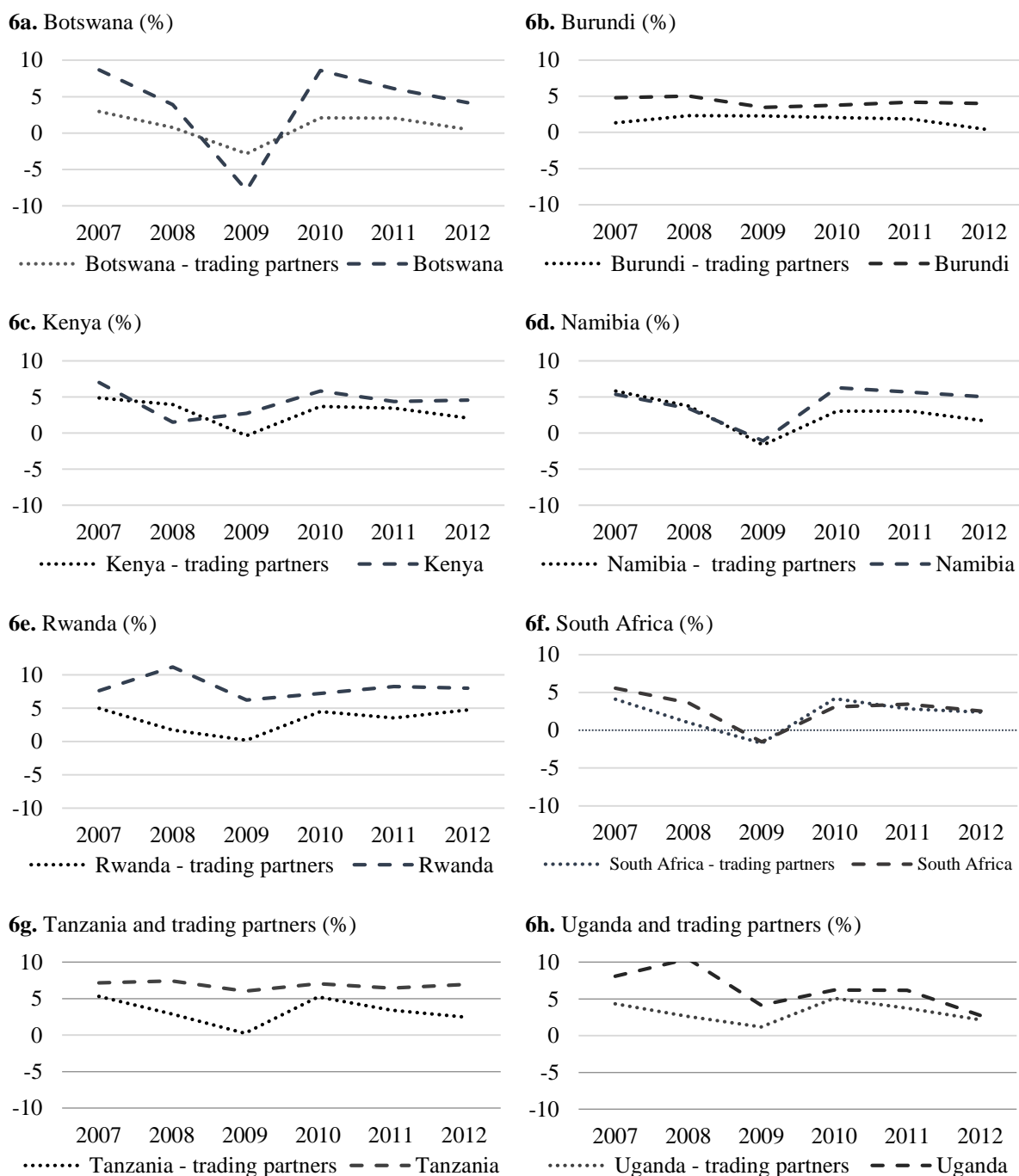
What is the role of trade linkages in transmitting shocks from (i) the advanced economies or Africa into regional communities or (ii) from the advanced economies, Africa, and the regional communities into REC's members? Figure 6 illustrates that "where you export matters", that is that the trade linkages seem positively associated with output co-movements.⁸ African exports are vulnerable to banking crises in the countries they export to (Berman and Martin,

⁷ We use the one-digit SITC (Revision 3) classification to compute the index for each product class.

⁸ As IMF (2013) points out, the impact of trade is difficult to separate from effects of common border and language, currency and cultural similarity, which all facilitate trade.

2012). Greater diversification across trading partners helps reduce vulnerability to slowdown in individual trading partners (Figure 5 and Abiad et al., 2012).⁹

Figure 6. Growth in Countries and Weighted Growth of Their Trading Partners, 2007-2012



Source: Authors' calculations based on the IMF and WTO databases.

As shown by (i) Krugman (1991), Frankel and Rose (1997) and Fidrmuc (2004) for developed countries and (ii) Calderon (2007) for developing countries, the response of output co-movements to trade depends on the structure of production among country-pairs and in

⁹ Abiad et al. (2012) also suggest that increased financial openness, changes in the composition in the capital flows, and income equality raise resilience to shocks. In Africa, the financial integration is limited, but rising.

particular on intra-industry trade. To assess the role of intra-regional trade as a buffer against output shocks from advanced economies, we compute correlation coefficients between pair-wise growth correlations and both intra-industry and intra-regional trade. We also regress growth correlations between country pairs on their trade linkages them for both RECs, which are measured by quantity of intra-regional trade and intra-industry links. The expectation is that when growth rates are more synchronized due to deeper intra-regional trade linkages, intra-regional trade should help absorb global shocks.

Table 5a shows correlation coefficients and Table 5b presents results of pooled OLS and (country-pair) fixed-effect regressions, using data during 1981–2011. The dependent variable is output synchronization ($Sync_{jkt}$) measured by the pair-wise correlations of real annual GDP growth between countries j and k in each REC and period. Intra-industry trade (iit_{jkt}) is measured by the pair-wise Grubel-Lloyd index. Bilateral trade linkage (bt_{jkt}) is measured by the exports between countries j and k as percent of their total exports. Structural similarity (d_{jkt}) is measured by the pair-wise Bray-Curtis index.

Table 5a. Trade Linkages and Output Co-movements – Correlation Coefficients

	Output synch.	Logsimilarity	Logintrade	Logtradelink
Output synch.	1.0000			
Logsimilarity	-0.1895	1.0000		
Logiitrade	0.3286*	-0.1526	1.0000	
Logtradelink	0.4493**	-0.2852	0.2586	1.0000

Note : *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Output synch. measures the pair-wise correlations of real GDP growth, Logsimilarity measures the logarithm of pair-wise Bray-Curtis Index, Logiitrade is the logarithm of pair-wise Grubel-Lloyd index and Logtradelink is the logarithm of the share of bilateral exports in total exports.

Table 5b. Trade Linkages and Output Co-movements – Regression Results

	Pooled OLS regressions				Fixed-effect regressions			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
d_{jkt}	-0.14 (-1.63)			-0.27 (-1.30)	-0.07 (-0.43)			-0.43 (-1.16)
iit_{jkt}		0.15** (2.28)		0.02 (0.15)		-0.16 (-0.50)		-0.15 (-0.43)
bt_{jkt}			0.13** (2.11)	0.08 (1.03)			0.09 (0.98)	0.04 (0.31)
<i>constant</i>	-0.08 (-0.56)	0.52*** (3.82)	0.76** (2.67)	0.07 (0.11)	0.02 (0.07)	-0.12 (-0.19)	0.58 (1.28)	-0.75 (1.20)
Obs.	56	30	26	20	56	30	26	20
Pairs	20	20	10	10	20	20	10	10
F-test					0.82	3.74**	0.49	0.73
R²	0.04	0.11	0.20	0.22	0.04	0.11	0.20	0.15

Note: The t -statistics for robust errors are in parentheses. *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. All indices are in logs. Given the small number of observations in the sample, the robustness of results needs further research from other RECs.

The results reveal positive and statistically significant correlation between intra-industry/intra-regional trade and output co-movement. Similarly, results of pooled OLS regression – with positive and statistically significant coefficients on intra-industry trade and bilateral trade ties within the two RECs – suggest that an increase in intra-regional trade tends to raise output co-movements between the REC members. The result is consistent with the observation that the

EAC countries trade more with each other and on average record higher growth rates than the SACU members. While the results of the fixed effect regression are not significant, the coefficients have the same sign.

The EAC's deeper intra-regional trade and its fewer trade ties with advanced economies have strengthened capacity of this REC to reduce exports volatility and mitigate global output shocks. Further, unlike the case of the SACU where the small countries export mostly to South Africa, the EAC's regional trade is better diversified among various members and other countries in the region (Sudan, Democratic Republic of Congo). This underscores the importance of export diversification and trading with fast growing economies.

4. Conclusions

This paper has sought to find out whether intra-regional trade can help explain the differences in output co-movements between the advanced economies and the African RECs, in particular the EAC and the SACU regions. These two regions are of interest because of the different growth outcomes and the intensity of the intra-regional trade that they have exhibited.

The paper utilized several empirical methods, including distance indices and regressions. The results indicate that more intensive intra-regional and intra-industry trade ties have contributed to the EAC's resilience to output shocks stemming from the global financial crisis than the SACU region.¹⁰ Experiences of small SACU countries, including the Swaziland's fiscal crisis in 2011- 2012 triggered by a fall in SACU receipts, show that excessive trade concentration towards one or two trading partners increases countries' vulnerability to external shocks.

The policy implications from our analysis point to the role of regional integration in building resilience of African countries against external shocks. However, this impact of regional integration is not automatic. The recent examples of the small SACU members show that these countries would also benefit from export diversification into fast growing emerging markets outside the REC to reduce their exposure to advanced economies. Besides helping shield countries from external shocks, intra-regional trade supports economic diversification and participation in regional value chains.

This paper has raised several important issues for future research. First is the relation between regional integration and intra-regional trade on the one hand and strengthening multilateral trade ties on the other. Our results should not be interpreted as support to regional integration via preferential regional trade agreements at the expense of multilateral trade. Intra-regional trade in Africa would benefit from improved regional infrastructure, reducing red tape at the border, improving business environment, and facilitating labor mobility, which are all factors that would facilitate trade in general. Second, we have focused on the transmission of shocks from the advanced economies to Africa, leaving the impact of shocks in emerging markets on Africa to further investigation.¹¹ Third, the question whether regional integration can help shield developing countries from external shocks can be examined for other types of shocks (e.g. fall in commodity prices) and other regional communities in Africa and developing

¹⁰ Still, the lack of macroeconomic convergence in the EAC provides evidence against hurried creation of a monetary union (Mafusire and Brixiová, 2013).

¹¹ Drummond and Liu (2013) studied spill-overs from changes in China's investment to Sub-Saharan Africa's export. They found that one percentage increase (decline) in China's domestic investment growth is associated with an average 0.6 percentage increase (decline) in Sub-Saharan Africa's exports.

regions. Finally, future research could examine channels through which the intra-regional trade facilitates diversification and integration of African RECs into the global value chains.¹²

¹² Bems et al. (2010) examine the implications of trade in intermediate goods for transmission of shocks across border and the empirical relationship between demand, trade and production.

Annex I. Output Co-movements 1980–2012

Table A1. Correlation Coefficients for the GDP Growths of the EAC Countries

Output Growth	Burundi	Kenya	Rwanda	Tanzania	Uganda	EAC	SSA
Kenya	0.29 (0.10)	1					
Rwanda	0.13 (0.47)	0.07 (0.70)	1				
Tanzania	0.26 (0.15)	0.49*** (0.00)	0.30* (0.10)	1			
Uganda	-0.41** (0.02)	0.15 (0.43)	0.02 (0.92)	0.28 (0.12)	1		
EAC	0.28 (0.12)	0.76*** (0.00)	0.48*** (0.01)	0.84*** (0.00)	0.41** (0.02)	1	
SSA	0.18 (0.32)	0.38** (0.03)	0.31* (0.09)	0.68*** (0.00)	0.41** (0.02)	0.70*** (0.00)	1
Advanced Global	-0.05 (0.79)	0.15 (0.42)	-0.06 (0.76)	-0.10 (0.60)	-0.19 (0.31)	-0.05 (0.78)	0.00 (0.99)

Table A2. Correlation Coefficients for the GDP Growths of the SACU Countries

Output Growth	Botswana	Lesotho	Namibia	S. Africa	Swaziland	SACU	SSA
Lesotho	-0.01 (0.94)	1					
Namibia	-0.05 (0.77)	-0.11 (0.54)	1				
South Africa	0.11 (0.55)	0.00 (1.00)	0.16 (0.39)	1			
Swaziland	0.31* (0.08)	0.02 (0.91)	-0.30* (0.09)	0.06 (0.73)	1		
SACU	0.16 (0.38)	0.00 (0.99)	0.19 (0.30)	1.00*** (0.00)	0.08 (0.68)	1	
SSA	-0.05 (0.78)	0.05 (0.80)	0.17 (0.34)	0.82*** (0.00)	-0.10 (0.59)	0.81*** (0.00)	1
Advanced Global	0.53*** (0.00)	0.04 (0.83)	0.19 (0.29)	0.32* (0.07)	0.36** (0.04)	0.36** (0.04)	0.00 (0.99)

Source: Authors' calculations based on the IMF WEO database. **Note:** For SACU, only correlation with South Africa are statistically significant, reflecting South Africa's economic weight in the customs union.

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