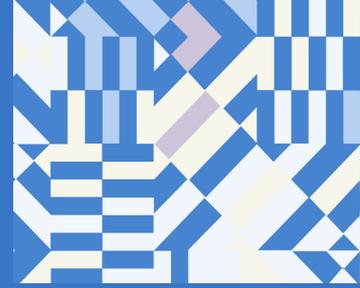




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## The Regional Trade Expansion Potential in Cereals, Oilseeds, and Vegetable Oils

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### Introduction

In the short run, the most suitable option to expand regional trade is to redirect existing trade flows from third-party countries to other member states of a given Regional Economic Community (REC). Two indicators, the Trade Overlap Indicator (TOI) and Trade Expansion Indicator (TEI) are used to calculate the potential for regional trade expansion and identify the commodities that present the strongest scope to boost regional trade. Finally, an indicator on country competitiveness, the Revealed Comparative Advantage (RCA) Index, is used to identify countries that are best positioned to seize opportunities to expand trade in individual commodity groups.<sup>1</sup>

### Trade Overlap and Regional Trade Expansion Potential

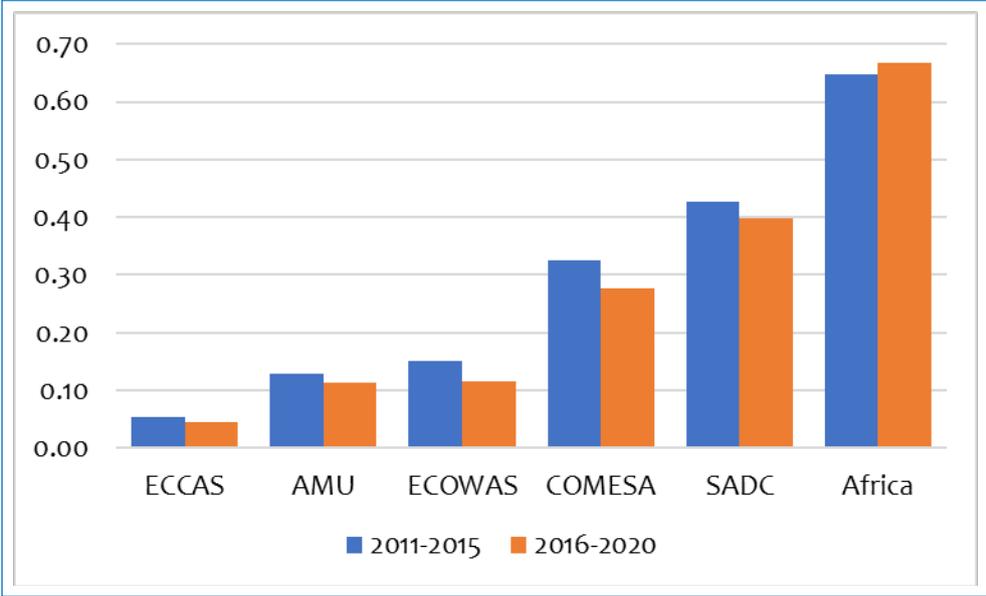
Values of the Trade Overlap Indicator (TOI) range from zero (0) to one (1). A value of 0.10 suggests the potential to redirect flows and boost regional trade up to the equivalent of 10% of current trade values. Two of Africa's major Regional Economic Communities (RECs), the Common Market for Eastern and Southern Africa (COMESA), and the Southern African Development Community (SADC), show the highest overlap indicators of approximately 30% and 40% respectively (Figure 1a). The degree of trade overlap has fallen slightly over the last decade across all RECs. The higher a region's TOI value, the higher the potential for that region to generally expand regional trade by redirecting trade flows from extra-regional to intra-regional trade partners.

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In general, the more overlapping trade flows within a given region that originate from different importing and exporting countries — that is, countries in the same region are importing and exporting the same goods but to and from countries outside the region — the greater the potential to redirect trade flows to boost trade within the region. The regional TOI is, therefore, a true indicator of the scope for regional trade expansion.

The extent to which this is true can be tested by calculating the TOI for individual countries within the same region and dividing this by the overall TOI for that region. When the normalized TOI within a region converge towards values less than 1, they indicate that overlapping trade flows originate from different countries. The normalized country TOI values presented in Figure 1b are less than 1 for the vast majority of African countries.

**Figure 1a: Average Regional Trade Overlap Indicator Values, 2011-2020**



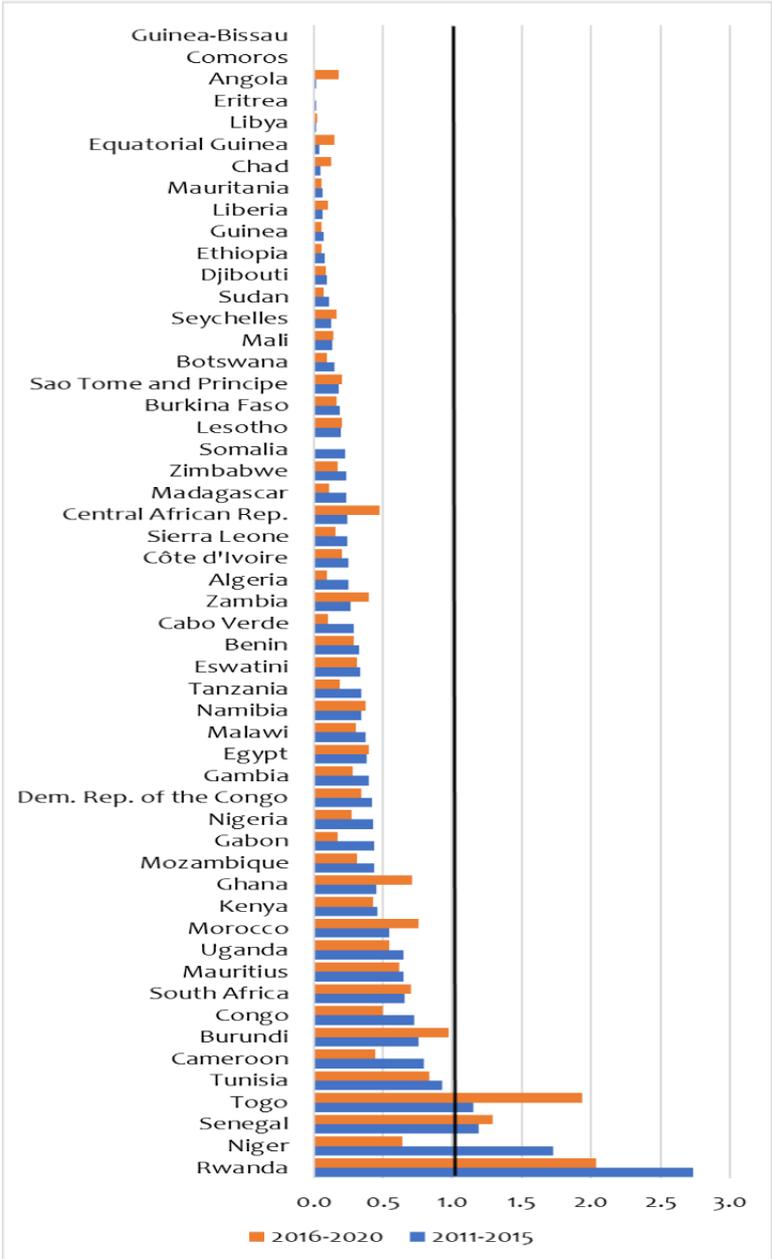
**Source:** Authors’ calculations based on 2022 Africa Agriculture Trade Monitor (AATM) data.  
**Notes:** AMU: Arab Maghreb Union. COMESA: Common Market for Eastern and Southern Africa. ECCAS: Economic Community of Central African States. ECOWAS: Economic Community of West African States. SADC: Southern African Development Community.

At the continental level, overlapping trade flows account for 67% of current agricultural trade by African countries. Here too, the much larger value of the continental TOI in comparison to regional TOI values is an indicator of overlapping trade flows, reflecting the reality that different regions are exporting and importing the same goods to and from outside the continent.

**Commodity Level Trade Expansion Potential**

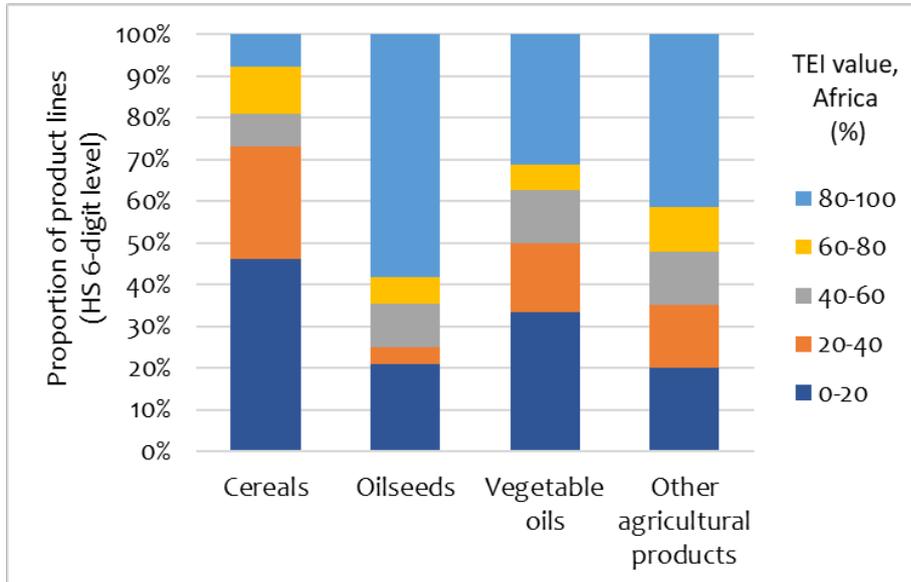
The Trade Expansion Indicator (TEI) calculates the degree of overlapping trade flows at the level of individual commodities, that is, the extent to which the same product is being exported and imported by the same region to and from the rest of the world. The index ranges from 0% to 100%, with a higher value indicating a greater potential to boost trade in the short run by redirecting existing trade flows from extra-continental to intra-continental markets. That potential is larger for oilseeds and vegetable oils than for cereals (Figure 2a). Around 65% of individual oilseed products and 35% of individual vegetable oil products exhibit TEI values higher than 60, a threshold value conventionally indicative of real scope for trade expansion. The corresponding proportion of TEI values for individual cereals in that range is around 20%.

Figure 1b: Normalized Average Trade Overlap Indicators by Country, 2011-2020



Source: Authors' calculations based on 2022 AATM data.

**Figure 2a.** Distribution of Average TEI Values by Product Group in Africa, 2016-2020



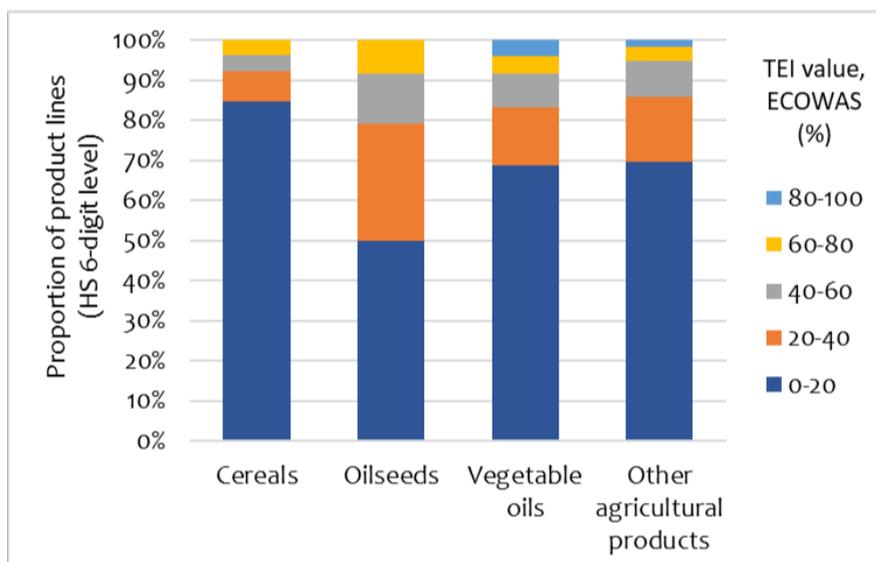
**Source:** Authors' calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System.

The trade expansion potential for individual commodity groups is significantly larger at the continental level than at the regional level, as can be seen by comparing the results presented in Figure 2a with those in Figures 2b to 2f. Across the different RECs, the share of products (cereals, oilseeds, vegetable oils) with TEI values above 60 does not exceed 10%. In fact, none of these products exhibit TEI values higher than 80 in the Arab Maghreb Union (AMU) and Economic Community of Central African States (ECCAS), and only 4% of vegetable oil products show TEI values in that range in the Economic Community of West African States (ECOWAS) and COMESA. The SADC region is the lone exception, where 8% of individual cereal products, 12% of oilseeds and 6% of vegetable oils have TEI values above 80. In contrast, at the continental level, 8% of cereals, 60% of oilseeds and 30% of vegetable oils have TEI values that exceed 80.

Consistent with its low TOI values, ECCAS shows the lowest potential for trade expansion in individual agricultural products. No cereal product and less than 15% of other product categories examined exhibit TEI values higher than 20%.

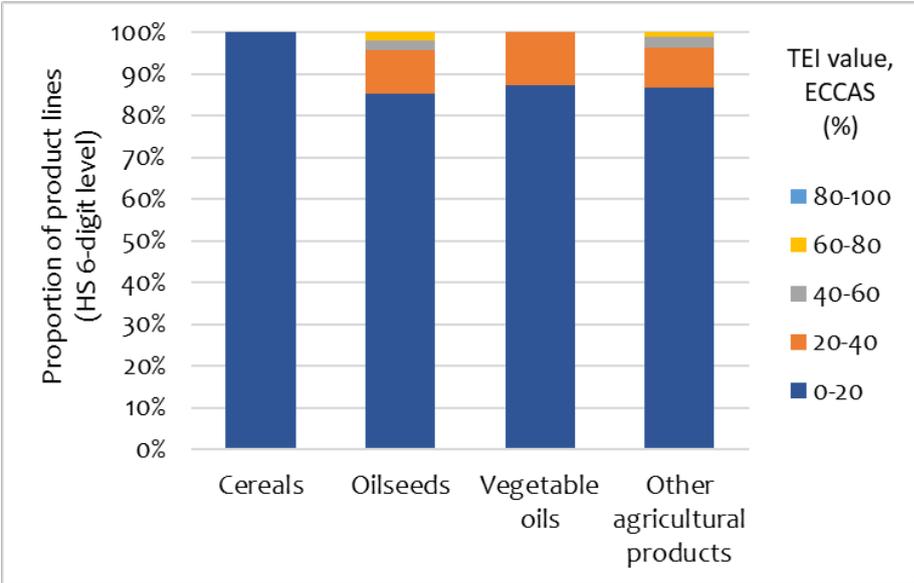
**Figure 2b.** Distribution of Average TEI Values by Product Group, ECOWAS Region, 2016-2020



**Source:** Authors' calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System. ECOWAS: Economic Community of West African States.

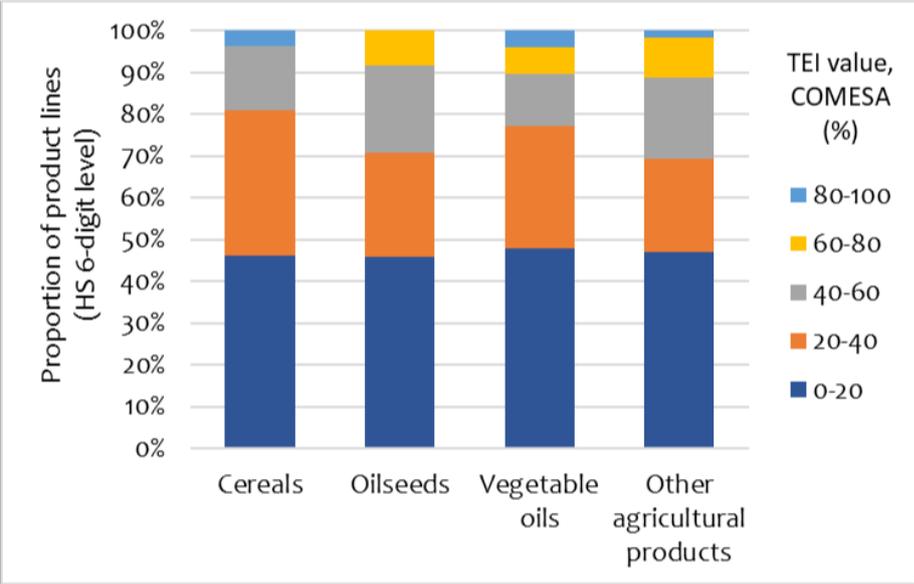
**Figure 2c.** Distribution of Average TEI Values by Product Group, ECCAS Region, 2016-2020



**Source:** Authors’ calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System. ECCAS: Economic Community of Central African States.

**Figure 2d.** Distribution of Average TEI Values by Product Group, COMESA Region, 2016-2020

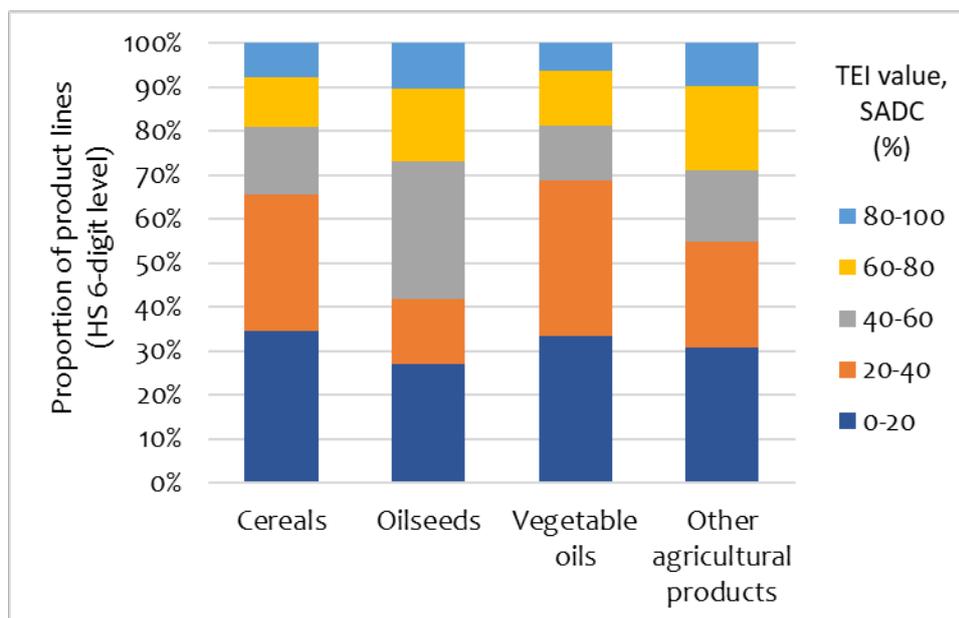


**Source:** Authors’ calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System. COMESA: Common Market for Eastern and Southern Africa.



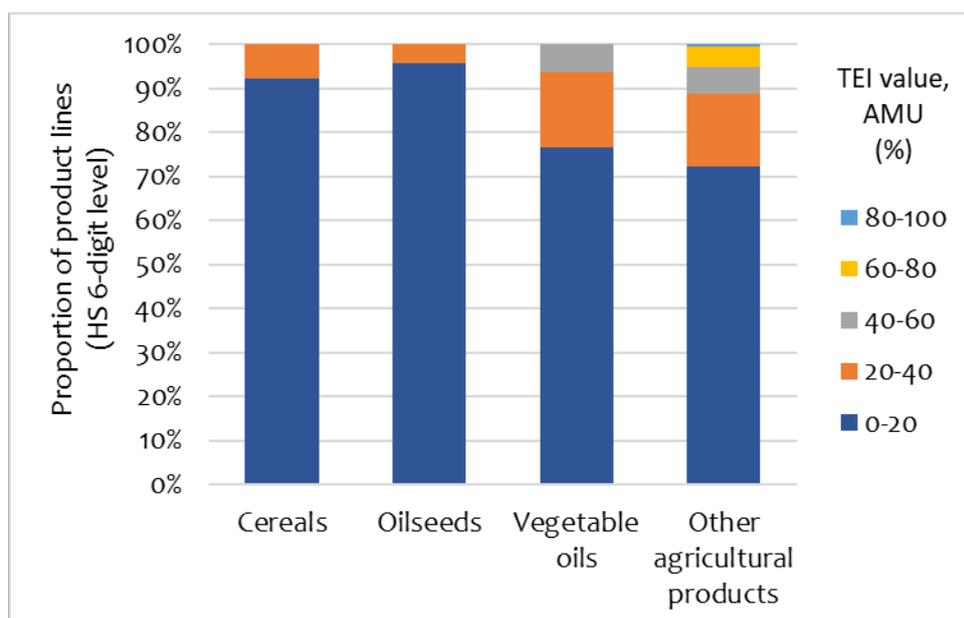
**Figure 2e.** Distribution of Average TEI Values by Product Group, SADC Region, 2016-2020



**Source:** Authors' calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System. SADC: Southern African Development Community. SSA: Sub-Saharan Africa.

**Figure 2f.** Distribution of Average TEI Values by Product Group, AMU Region, 2016-2020



**Source:** Authors' calculations based on 2022 AATM data.

**Notes:** TEI: Trade Expansion Indicator; HS: Harmonized System. AMU: Arab Maghreb Union.

### Country Competitiveness and Exploitation of Regional Trade Potential

The capacity to seize the trade expansion opportunities identified above will depend on the competitiveness and thus the ability of neighboring countries to boost export supplies to regional markets. Countries with the highest level of competitiveness, measured by the Revealed Comparative Advantage (RCA) Index, will play a bigger role in responding to rising global prices and supply shortages to capture trade opportunities in regional markets. Such countries are listed in Table 1 for the different product categories and RECs.



The table shows the most competitive countries for each of the three product categories in each REC. The differences in the set of leading countries across the three categories of products within individual regions are reflective of differences in specialization patterns among countries, confirming the scope for regional trade expansion.

Based on the RCA Index as a measure of competitiveness, Guinea, Mali, and Togo are most likely to lead the regional trade expansion in the cereals sector within ECOWAS. Niger, Nigeria, and Togo are best placed to drive trade expansion in oilseeds, while Benin, Gambia and Senegal are best positioned to lead trade expansion in vegetable oils. For COMESA and SADC, Ethiopia, the Democratic Republic of the Congo (DRC), Mauritius, Rwanda, Uganda, and Zambia are the leading candidates in the cereals sector. The same countries, except Mauritius, are joined by Mozambique and Sudan in the oilseeds sector. Angola, Seychelles, Somalia, and Sudan are the leading countries for vegetable oils.

## Conclusion

The structure of current trade in cereals, oilseeds, and vegetable oils, as well as competitiveness patterns among African countries, suggest opportunities to expand regional trade in these commodities in the short run in response to supply shortages and rising global commodity prices. The scope to do so is much larger for oilseeds and vegetable oils than for cereals. It is also larger among COMESA and SADC countries than it is for other regional trading blocs.

**Table 1: Top 3 Countries with the Highest Normalized RCA Index Values by Product Category and by Region, 2016-20120.**

	Cereals		Oilseeds		Vegetable oils	
<b>ECOWAS</b>	Guinea	0.997	Niger	0.991	Senegal	0.987
	Togo	0.993	Togo	0.980	Gambia	0.987
	Mali	0.981	Nigeria	0.975	Benin	0.980
<b>ECCAS</b>	Cameroon	0.783	Chad	0.984	Gabon	0.983
	DRC	0.629	DRC	0.970	Angola	0.976
	Rwanda	0.610	Rwanda	0.936	Central African Rep.	0.975
<b>COMESA</b>	Ethiopia	0.995	Ethiopia	0.993	Seychelles	0.989
	Djibouti	0.961	Sudan	0.984	Sudan	0.957
	Uganda	0.921	DRC	0.970	Somalia	0.927
<b>SADC</b>	Zambia	0.906	DRC	0.970	Seychelles	0.989
	Mauritius	0.790	Zambia	0.965	Angola	0.976
	DRC	0.629	Mozambique	0.956	Mauritius	0.903
<b>AMU</b>	Tunisia	-0.284	Morocco	0.986	Mauritania	0.995
	Libya	-0.395	Algeria	0.984	Tunisia	0.973
	Mauritania	-0.698	Tunisia	0.534	Algeria	0.911

**Source:** Authors' calculations based on 2022 AATM data.

**Notes:** RCA: Revealed Comparative Advantage. AMU: Arab Maghreb Union. COMESA: Common Market for Eastern and Southern Africa. ECCAS: Economic Community of Central African States. ECOWAS: Economic Community of West African States. SADC: Southern African Development Community.

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For each region , the trade overlap indicator is computed as follows:

$$TOI_i = 2 \left( \sum_k \text{Min}(E_{ik}, M_{ik}) \right) / \sum_k (E_{ik} + M_{ik}),$$

where  $E_{ik}$  and  $M_{ik}$  denote the values of the global export and import of an agricultural product  $k$  by region  $i$  . Similarly, for each region  $i$  and product  $k$  , the trade expansion indicator is given by the following formula where  $E_{ik}$  and  $M_{ik}$  are defined as above.

$$TEI_{ik} = 100 \cdot [\text{Min}(E_{ik}, M_{ik}) / \text{Max}(E_{ik}, M_{ik})]$$

For each country and product the RCA index is computed as follows:

$$RCA_{ik} = \frac{E_{ik} / E_i}{E_{wk} / E_w}$$

where  $E_{ik}$  and  $E_{wk}$  are country  $i$ 's exports and the world's exports of an agricultural product  $k$  and  $E_i$ , where  $E_w$ , and are country  $i$ 's total exports and the world's total exports of agricultural products. RCA index values are then normalized as follows:

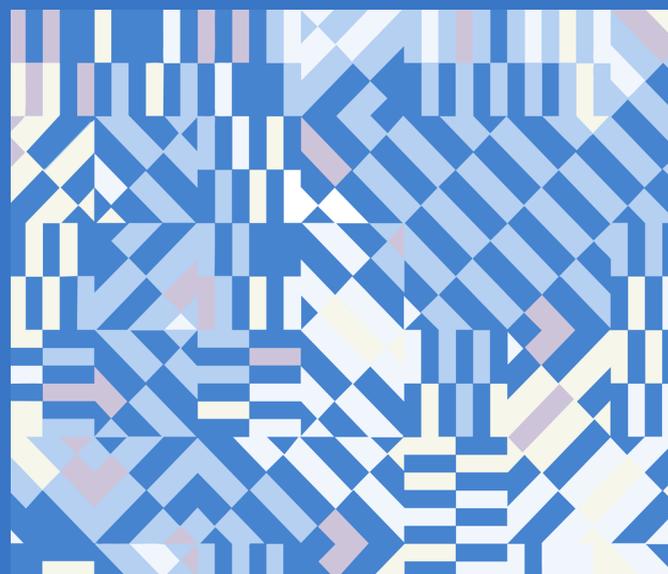
$$NRCA_{ik} = \frac{RCA_{ik} - 1}{RCA_{ik} + 1}$$

The normalized RCA index value varies between -1 and 1 with 0 corresponding to an RCA index value of 1. Positive values of  $NRCA_{ik}$  , that is  $RCA_{ik} > 1$ , indicate products with revealed comparative advantage as opposed to negative values of .

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