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# Abstract

Brazil and Morocco have been engaged in different forms of trade negotiations and committed to liberalize their trade, as they have concluded several bilateral and multilateral trade agreements whether within the WTO or in specific framework. This paper analyzes different facets of trade relations between Brazil and Morocco and assesses the potential for deeper trade integration between these two key players in the southern Atlantic. Trade flows between Brazil and Morocco have been concentrated in a few products and it is clear that there are significant opportunities to improve not only the magnitude of trade flows but also the range of products in the near future. Given the gap in terms of economic size, the Moroccan market does not draw more than 0.35% of the total Brazilian exports (45th market). The Chinese and the American markets are the most important destinations of Brazilian foreign sales, followed by some regional economies like Argentina and Chile. For Morocco, Brazil is relatively more important as a market for national exports, representing, in 2014, 4.6% of total exports and thus, placing itself as the third most important destination for Moroccan exports, after France and Spain. One can say that a significant part of the bilateral trade between Brazil and Morocco is closely associated to the agricultural value chain. Morocco provides fertilizers, while Brazilians exports to Morocco concentrate mainly on agricultural products. The regional distribution of value added effects of Moroccan exports to Brazil reveals that fertilizers exports benefits, direct and indirectly, almost all Moroccan regions, in spite of the concentration of mining and processing activities in specific locations. Simulations have been conducted to assess the impact of the elimination of tariffs and export subsidies on trade between the two countries. On one hand, there is a potential increase in welfare in Brazil equal to USD 212.46 in a context of bilateral liberalization. On the other hand, welfare in Morocco and in the ROW may potentially face a decrease (equivalent to USD 88.03 and USD 64.32, respectively). The divergence in results can be explained in part by the different sizes of these two economies, the share of each economy in the international trade, and the degrees of specialization and inter-sectorial integration in each country. Notwithstanding, there would be potential gainers and losers in both countries.

# Different Dimensions of Brazil and Morocco Trade Flows: A Quantitative Assessment

## Introduction

The past decade has experienced the rise of new forms of south-south cooperation between countries from different regions involving not only bilateral trade flows but also other arrangements that expand the scope of cooperation. One of the main economic issues related to integration processes refers to the assessment of their impacts on economic growth and welfare. On one hand, static effects are related to short-term considerations, directly linked to comparative advantages of countries and, hence, to specialization. Trade creation and trade diversion are in the core of the analysis. On the other hand, dynamic effects can be regarded as medium- and long-term effects, focusing on aspects such as economies of scale, attraction of direct investments, and technological progress.

In general, countries that engage in trade agreements hope to obtain benefits from them. The benefits are in part due to the reduction of trade barriers among participating countries. An agreement is intended to create incentives to increase trade among participating countries, leading to potential gains arising from the integration process.

The definition of economic integration permeates the work by Viner (1950), Balassa (1961), Molle (1991), El Agraa (1985), Robson (1998), Swann (1996) and Jovnovic (1998). Important to note that there is no consensus on such definition. These authors worked on issues related to the dynamic and static topics, which aim to avoid discrimination; to eliminate gradually the economic borders; to create the coordination among the participating countries; to create freedom in terms of flows of goods and factors and to reduce the discriminatory process; and to search a better welfare due some coordinated actions among participating countries; among others.

The contribution of international trade to an economy includes the levels of economic activity and employment. There are studies that show, through the multiplier concept, the monetary effect on economic activity or the number of jobs created for each additional unit of exports. Note that the importer process also creates jobs and develops economic activity. The promotion of export activity brings issues related to productivity and economies of scale; incentives for innovation and labor skills; and strengthening the conditions of competition. Therefore, the export promotion process has positive externalities for the whole economy and constitutes a strategic activity to increase competitiveness and integration of productive process in the international market. The existence of a strong export sector has positive impacts on macroeconomic subjects, such as trade balance and services account. In addition, exports can influence the labor market by raising the income and employment standards (Thirlwall, 1979; Melitz, 2003; Helpman and Krugman, 1985).

In the cases of Brazil and Morocco, both countries have been somehow engaged in different forms of trade negotiations, ranging from broader perspectives within the World Trade Organization (WTO), to more specific

bilateral trade agreements.[1] In this context, we will exam more closely different facets of trade relations between Brazil and Morocco. Despite difference in size and economic structures, the two countries share common aspirations to increase their respective relevance in global trade as key players in south-south integration.

This report is organized as follows. Section 2 highlights some of the structural features of bilateral trade between Brazil and Morocco, presenting a descriptive analysis based on recent statistics. Section 3 presents some trade-based traditional indices, such as the Revealed Comparative Advantage (RCA) index and the Coverage Ratio (CR) for the two countries. In section 4 we look at regional (domestic) characteristics of Morocco's trade with Brazil in an attempt to identify the different patterns within the countries and the key regional players in the spatial value chains of exports. Section 5 discusses potential for further integration in the context of bilateral trade liberalization agreements simulated with a global CGE model, and Section 6 presents some concluding remarks. By developing such an analysis of trade flows between Brazil and Morocco, we are able to address identify some of the main trends of such trade flows and potential channels to help fostering them, not only at the national level but also at the regional level.

# I. Trade Structure: Brazil and Morocco

Trade flows between Brazil and Morocco have been concentrated in a few products and it is clear that there are significant opportunities to improve not only the magnitude of trade flows but also the range of products in the near future.

In 2005, Brazil was the 22nd largest exporter in the world; in 2014, the country lost two positions and became the 24th largest exporter. Regarding imports, in 2005, Brazil was the 29th largest importer; in 2014, the country gained seven positions and became the 22nd largest importer.

Morocco, in 2005 and 2014, was the 63rd largest exporter. Regarding imports, in 2005, Morocco was the 53rd largest importer; in 2014, the country gained one position and became the 52nd largest importer.

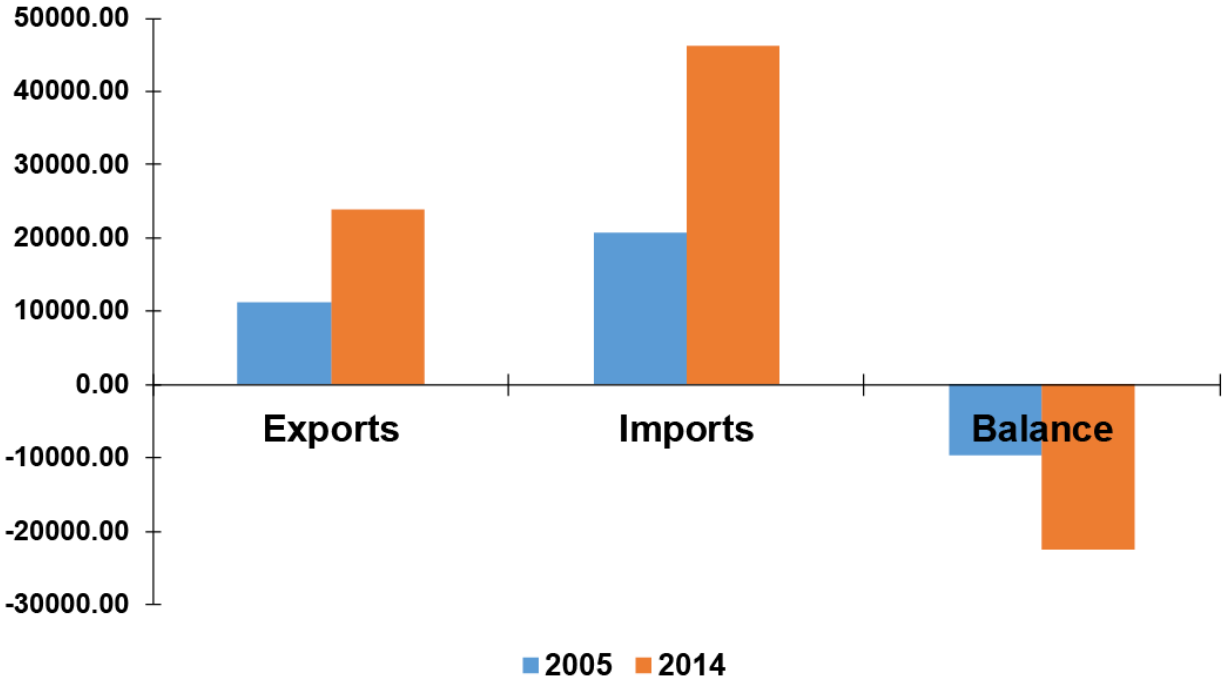
Figures 1 and 2 show the evolution of the foreign trade of Brazil and Morocco for the years 2005 and 2014. On the one hand, for Brazil, there was a decrease in exports and an increase in imports during the period of analysis, leading to a decrease in the positive result of the trade balance on the second period. On the other hand, for Morocco, there was an increase in exports and imports during the period of analysis; however, the increase in imports was greater than in exports, leading to a deficit in the trade balance for both years.

1. In the case of Brazil, there is a discussion about which is the best strategy to be used by the government in terms of trade policies and goals. In other words, the Brazilian Government can seek the strengthening of trade relations with traditional markets (e.g. European Union, China, United States, among others) with higher capacity for absorption of Brazilian products, or the government can seek strengthening relationships with potential markets, such as countries in South America, Central and North America and countries in Africa (including Morocco). Although both of these strategies are not mutually exclusive, they have a supply capacity constraint in the short term. In the case of Morocco, we can highlight the Deep and Comprehensive Free Trade Agreement (DCFTA), which is an agreement between European Union and Morocco. The DCFTA negotiation started in 2013 and the main aim behind the DCFTA is to bring Moroccan legislation closer to European Union legislation in terms of trade (European Commission, 2015). Moreover, before the DCFTA, in 2004, United States and Morocco have signed a Free Trade Agreement (FTA). The FTA is a broad agreement that supports both economic and political reforms in Morocco in order to improve commercial opportunities for USA exports to Morocco by reducing and eliminating trade barriers (USA, 2015).

**Figure 1. Evolution of Foreign Trade in Brazil, 2005 & 2014 (US$ millions)**


Source: Authors' calculation.

**Figure 2. Evolution of Foreign Trade in Morocco, 2005 & 2014 (US$ millions)**




Source: Authors' calculation.

In 2005, Brazilian exports to Morocco were USD 414.17 million, which corresponded to 0.35% of the total Brazilian exports. During the period of analysis (2005-2014), Brazilian exports' share to Morocco did not change considerably. In 2014, the total Brazilian exports to Morocco were USD 568.29 million, which corresponded to

0.25% of the total Brazilian exports (Table 1).

In Table 1, Brazilian exports are extremely concentrated in all 3 years of analysis. In 2005, eight countries were responsible for 51.53% of the total Brazilian exports. If we look deeply into the shares, we can note that three countries were responsible for more than 30% of the total Brazilian exports. The pictures in 2010 and 2014 are relatively the same, where it is important to highlight the relative importance of China that become the most important destination of the Brazilian exports in these years. The relative important role-played by Argentina and Chile can be observed in all 3 years. Despite the small share of Morocco, from 2005 to 2014, the Moroccan economy gains relative importance as a destination of Brazilian exports.

**Table 1. Main Destinations of Brazilian Exports, 2005, 2010 & 2014**

| Year | Nº of trade partners | Ranking | Country | % |
|---|---|---|---|---|
| 2005 | 212 | 1 | USA | 19.24% |
| | | 2 | Argentina | 8.38% |
| | | 3 | China | 5.77% |
| | | 4 | Netherlands | 4.46% |
| | | 5 | Germany | 4.25% |
| | | 6 | Mexico | 3.44% |
| | | 7 | Chile | 3.06% |
| | | 8 | Japan | 2.94% |
| | | | Total | 51.53% |
| | | 51 | Morocco | 0.35% |
| 2010 | 205 | 1 | China | 15.58% |
| | | 2 | USA | 9.75% |
| | | 3 | Argentina | 9.34% |
| | | 4 | Netherlands | 5.18% |
| | | 5 | Germany | 4.09% |
| | | 6 | Japan | 3.61% |
| | | 7 | United Kingdom | 2.34% |
| | | 8 | Chile | 2.14% |
| | | | Total | 52.03% |
| | | 45 | Morocco | 0.36% |
| 2014 | 215 | 1 | China | 18.04% |
| | | 2 | USA | 12.06% |
| | | 3 | Argentina | 6.34% |
| | | 4 | Netherlands | 5.79% |
| | | 5 | Japan | 2.98% |
| | | 6 | Germany | 2.95% |
| | | 7 | Chile | 2.21% |
| | | | Total | 50.38% |
| | | 47 | Morocco | 0.25% |

Source: Authors' calculation

From the Moroccan economy side, in 2005, Moroccan exports to Brazil were USD 247.68 million, which were equivalent to 2.21% of the total Moroccan exports. The Moroccan exports share to Brazil increased between 2005 and 2014. In 2014, the total Moroccan exports to Brazil were USD 1088.61 million, which corresponded to 4.57% of the total Moroccan exports (Table 2).

In Table 2, in comparison to Brazil, Morocco has a small number of trade partners and the destination of its exports is more concentrated than the Brazilian exports. For all 3 years (2005, 2010, and 2014), Brazil was an important destination for Moroccan exports. In 2014, Brazil was the third most important destination for Moroccan exports. The destinations of Moroccan products are spatially concentrated in France and Spain.

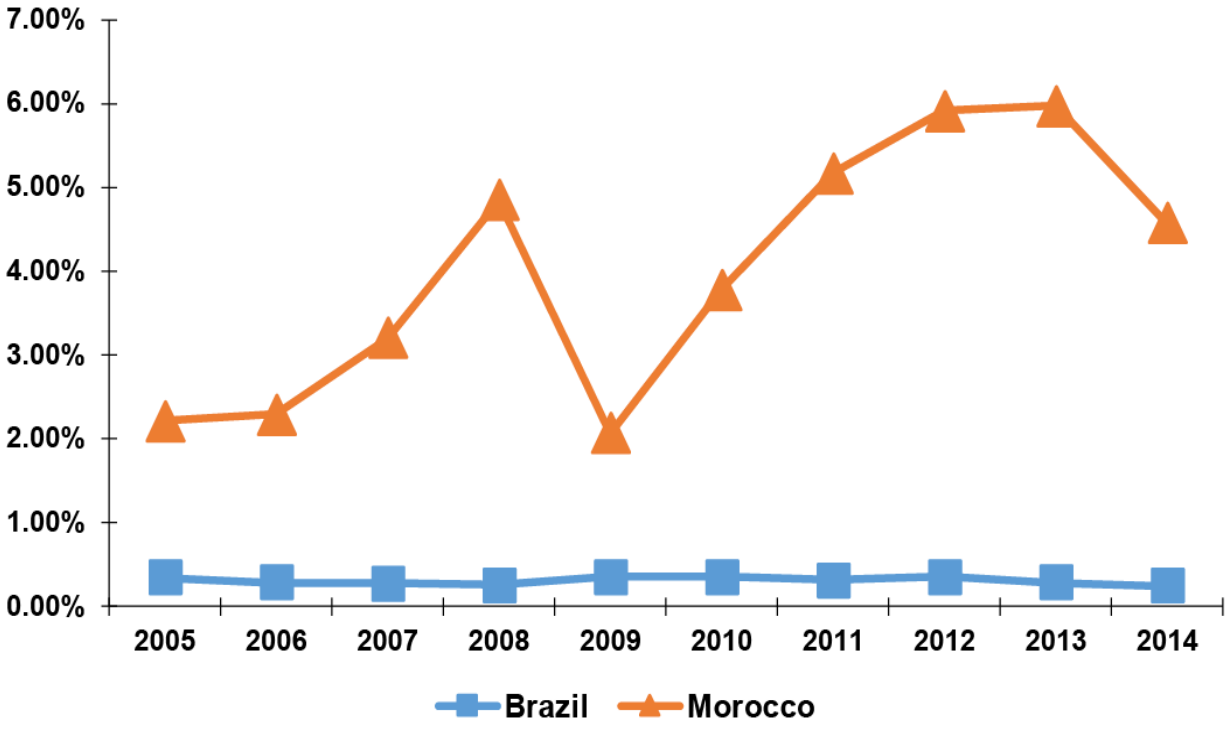
**Table 2. Main Destinations of Moroccan Exports – 2005, 2010 & 2014**

| Year | Nº of trade partners | Ranking | Country | % |
|---|---|---|---|---|
| 2005 | 159 | 1 | France | 30.11% |
| | | 2 | Spain | 19.99% |
| | | 3 | United Kingdom | 6.34% |
| | | 4 | Italy | 5.00% |
| | | 5 | India | 3.97% |
| | | 6 | Germany | 3.20% |
| | | | Total | 68.60% |
| | | 10 | Brazil | 2.21% |
| 2010 | 167 | 1 | France | 22.47% |
| | | 2 | Spain | 16.91% |
| | | 3 | India | 6.05% |
| | | 4 | Italy | 4.50% |
| | | 5 | Brazil | 3.77% |
| | | | Total | 53.71% |
| 2014 | 171 | 1 | Spain | 21.86% |
| | | 2 | France | 20.79% |
| | | 3 | Brazil | 4.57% |
| | | 4 | Italy | 4.30% |
| | | 5 | India | 3.64% |
| | | | Total | 55.16% |

Source: Authors' calculation.

Figure 3 shows the Brazilian export share to Morocco and vice versa, from 2005 to 2014. As emphasized before, on the one hand, Figure 3 shows that the relative importance of Morocco to Brazilian exports does not change along the period of analysis. On the other hand, the importance of Brazil to Morocco exports changes significantly. From 2009 to 2013, the share of Brazil in Morocco increased and reached 5.97%.

## Figure 3. Brazil and Morocco – Share on Total Exports




Source: Authors' calculation.

Tables 3 and 4 describe the export from Brazil to Morocco and from Morocco to Brazil, respectively. The three most important products exported by Brazil to Morocco in 2014 were Preparations of meat, fish, or crustaceans (16); Aircraft, spacecraft, and parts thereof (88); and Coffee, tea, mate, and spices (9). For the same year, the three most important products exported by Morocco to Brazil were Fertilizers (31); Mineral fuels, mineral oils, and products of their distillation (27); and Salt; sulfur; earths and stone; plastering materials (25).

**Table 3. Exports from Brazil to Morocco (US$ million**

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | 0.3480 | 0.3989 | 0.6428 | 0.7546 | 0.4073 | 0.9358 | 1.1784 | 1.1807 | 1.0716 | 1.2172 |
| 3 | | 1.1580 | 1.6478 | | 2.3952 | 1.4435 | 0.8607 | 0.1965 | 0.0073 | |
| 4 | | | | | | | | | 0.0715 | |
| 5 | | | | | | | | | | |
| 6 | | 0.0864 | | | | | | | | |
| 7 | | | | | 0.0066 | 0.0122 | 0.1986 | | | 0.1209 |
| 8 | 0.6923 | 1.0379 | 1.6042 | 1.8516 | 1.6330 | 2.4559 | 3.4943 | 2.3328 | 1.8136 | 2.8335 |
| 9 | | | 7.0638 | 63.5214 | 68.2875 | 186.8467 | 190.0555 | 273.2875 | 218.1817 | 129.8106 |
| 10 | | | | | 0.0050 | | | | 0.0091 | |
| 11 | 31.3273 | 23.2605 | 42.9302 | 83.9031 | 57.2316 | 10.1936 | | | | 29.1262 |
| 12 | 0.0002 | 0.0022 | 0.0023 | | | | | 0.0014 | 0.0084 | 0.0960 |
| 13 | | | | | | | | | | |
| 14 | 52.9809 | 14.4326 | 43.7281 | 43.4587 | 7.9971 | 5.1603 | 12.0790 | 15.6609 | 49.9893 | 3.1260 |
| 15 | 0.2190 | 0.1900 | 0.6666 | 1.0677 | 0.7710 | 1.2340 | 1.0445 | 1.5563 | 1.6859 | 2.1824 |
| 16 | 175.1215 | 211.8737 | 161.6203 | 175.9990 | 276.6921 | 394.7598 | 489.3477 | 518.8729 | 375.6127 | 214.0035 |
| 17 | 0.2271 | 0.2979 | | 0.0174 | | | | | | 0.0134 |
| 18 | 0.2774 | 0.4454 | 0.4234 | 0.2571 | 0.2992 | 0.2411 | 0.2238 | 0.2410 | 0.1851 | 0.1277 |
| 19 | 0.2425 | 0.2911 | | | | 0.0825 | 0.0805 | | 0.2446 | |
| 20 | 0.1894 | 0.2810 | 0.9053 | 0.8789 | 1.1787 | 0.6567 | 0.9511 | 1.1455 | 0.6674 | 1.2765 |
| 21 | 0.0509 | 0.0040 | 0.0259 | 0.0126 | | | 0.0239 | | 0.0178 | |
| 22 | 0.0509 | | | | | 0.0234 | | | | |
| 23 | 6.0045 | 2.1280 | 4.1603 | 5.4890 | 12.1271 | 10.0980 | 11.1974 | 12.0366 | 8.9070 | 3.7979 |
| 24 | 0.0070 | 0.0031 | | 0.0123 | 0.0404 | 0.0076 | 0.0098 | | 0.0566 | 0.0243 |
| 25 | 3.3699 | | | | | | | | | |
| 26 | 0.0190 | | | 0.1726 | | | | | | 0.0012 |
| 27 | 0.0539 | 0.0562 | 0.1468 | 0.0002 | | | | | 0.0229 | 0.0001 |
| 28 | 0.5248 | 0.0960 | 0.7577 | 0.8039 | 0.2841 | 0.1769 | 0.2003 | 0.3444 | 6.0259 | 3.1615 |
| 29 | 0.3727 | 0.1648 | 0.2939 | 0.3606 | 0.2711 | 0.0585 | 0.1017 | 0.7390 | 0.2717 | 0.1762 |
| 30 | | | | | | | | | | |
| 31 | 0.5230 | 0.5991 | 0.8356 | 0.9229 | 0.8025 | 0.9301 | 0.9731 | 1.3043 | 1.0887 | 1.5618 |
| 32 | 0.2186 | 0.1639 | 0.4180 | 0.5841 | 0.7346 | 0.8081 | 0.6767 | 0.5318 | 0.4658 | 0.6319 |
| 33 | 0.4288 | 0.5554 | 1.5391 | 3.0033 | 0.8514 | 1.2194 | 1.6270 | 0.9939 | 0.0002 | 0.1913 |
| 34 | 0.0748 | 0.2276 | 0.2161 | 0.2718 | 0.2969 | 0.0631 | 0.2509 | 0.2431 | 1.1488 | 0.0916 |
| 35 | | | | | | | | | 0.0476 | |
| 36 | | | 0.0047 | 0.0045 | 0.0023 | 0.1148 | 0.0033 | 0.0030 | 0.0391 | 0.0789 |
| 37 | 0.0770 | | 0.0167 | 0.0028 | 0.0132 | 0.0013 | 0.0238 | 0.0299 | 0.0105 | 0.0698 |
| 38 | 1.0615 | 2.6707 | 3.6085 | 2.4285 | 0.6449 | 1.6133 | 2.3558 | 2.2138 | 2.0556 | 1.8418 |
| 39 | 1.7171 | 1.1554 | 2.3853 | 0.9049 | 1.7119 | 0.8975 | 0.5449 | 0.4531 | 1.2329 | 1.1109 |
| 40 | 0.0014 | 0.0859 | 0.0178 | | | | | | | |
| 41 | 0.0031 | 0.0118 | 0.0014 | | | 0.0001 | 0.0065 | 0.0125 | 0.0166 | 0.0177 |
| 42 | | | | | | | | | | |
| 43 | 10.8843 | 13.6788 | 20.9348 | 25.7291 | 14.6235 | 10.2912 | 16.6818 | 3.8591 | 3.6539 | 6.1681 |
| 44 | | | 0.0000 | | 0.0003 | | | | | |
| 45 | | | | | | | | | | |
| 46 | | | | | | | | | 0.1513 | 1.0078 |
| 47 | 2.2640 | 0.0674 | 0.2649 | 0.0205 | 0.3046 | 0.6257 | 0.0001 | 0.0188 | 0.0000 | 0.0382 |
| 48 | 0.0002 | 0.0068 | 0.0003 | 0.0006 | 0.0002 | 0.0002 | 0.0000 | 0.0031 | 0.0033 | 0.0056 |
| 49 | | | | | | | | | | |

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | | | | | | |
| 51 | 0.2314 | 0.4823 | 1.3411 | 0.3822 | 1.7141 | 3.4358 | 19.9428 | 4.4885 | 2.5946 | 1.0219 |
| 52 | 0.4011 | 0.9539 | 0.8037 | 0.7831 | 0.7513 | 0.7891 | 0.6501 | 0.6730 | 0.6537 | 1.4372 |
| 53 | | | | | | | | 0.0026 | 0.0031 | 0.0028 |
| 54 | 0.0054 | | | | | | | | | 0.0000 |
| 55 | 0.0000 | 0.5495 | 0.0000 | 0.0000 | 0.0354 | 0.0205 | | 0.0000 | | |
| 56 | | | | | | | | | | |
| 57 | | | 0.0012 | 0.0017 | | | | | 0.0019 | 0.0028 |
| 58 | 0.0940 | 0.2224 | 0.3000 | 0.4391 | 0.0928 | 0.1910 | 0.3696 | 0.0085 | 0.3700 | 0.0847 |
| 59 | | 0.0256 | 0.0230 | | | | | | | |
| 60 | | 0.0050 | 0.0028 | 0.0117 | 0.0165 | 0.0087 | 0.0021 | 0.0109 | 0.0080 | 0.0146 |
| 61 | | 0.0015 | 0.0032 | | | 0.0002 | 0.0000 | 0.0021 | 0.0009 | 0.0031 |
| 62 | | | 0.0233 | 0.0163 | 0.0114 | 0.0008 | 0.0001 | 0.0001 | 0.0005 | 0.0009 |
| 63 | 0.5592 | 0.7304 | 0.7837 | 0.6989 | 0.8739 | 0.7887 | 0.4982 | 0.6361 | 0.5249 | 0.7441 |
| 64 | | | | | | | | 0.0000 | 0.0006 | |
| 65 | | | | | | 0.0001 | | | | 0.0003 |
| 66 | | | | | | | | | | |
| 67 | 0.0971 | 0.0993 | 0.1151 | 0.2378 | 0.3806 | 0.2518 | 0.1191 | 0.1936 | 0.0555 | 0.1136 |
| 68 | 0.2088 | | 0.2459 | 0.2584 | 0.0001 | | | 0.0002 | | 0.0025 |
| 69 | 0.3000 | 0.1613 | 0.0725 | 0.1416 | 0.1533 | 0.0153 | 0.0025 | 0.0038 | 0.0034 | 0.2379 |
| 70 | 0.0108 | 0.0160 | 0.0084 | 0.0050 | | | 0.0071 | 0.0004 | 0.0048 | |
| 71 | 36.5109 | 40.5486 | 61.5760 | 5.9496 | 16.2697 | 7.1457 | 33.2763 | | 0.0026 | 11.1019 |
| 72 | 3.9021 | 1.2515 | 0.4960 | 0.0419 | 0.0911 | 0.0684 | 0.0540 | 0.0160 | 0.0492 | 0.0244 |
| 73 | 0.0003 | 0.0370 | 0.0001 | 0.0036 | 0.0003 | 0.0001 | 0.0003 | 0.0001 | 0.0001 | 0.0027 |
| 74 | | | | | | | | | | |
| 75 | 0.4750 | 1.4510 | 1.7179 | 2.8597 | 3.4567 | 4.2421 | 4.2933 | 0.0015 | 0.0042 | 0.0056 |
| 76 | | | | | | | | | | |
| 78 | | | | | | | | | | |
| 79 | | | | | | | | | | |
| 80 | | | | | | | | | | |
| 81 | | | | | | | | | | |
| 82 | 0.0250 | 0.0113 | 0.0651 | 0.0335 | 0.0744 | 0.0174 | 0.0087 | 0.0156 | 0.0254 | 0.0019 |
| 83 | 0.0024 | 0.0014 | 0.0096 | 0.0086 | 0.0031 | 0.0011 | 0.0035 | 0.0050 | 0.0079 | 0.0015 |
| 84 | 14.3065 | 15.4926 | 12.5753 | 13.2964 | 14.3352 | 8.3981 | 13.2984 | 10.5162 | 4.5293 | 9.7592 |
| 85 | 0.3499 | 0.7648 | 1.6905 | 6.6345 | 0.3066 | 0.9198 | 1.2333 | 0.7473 | 3.3691 | 2.4972 |
| 86 | | | | | | | | | | |
| 87 | 66.4794 | 52.4044 | 57.8355 | 65.4989 | 48.6064 | 9.9369 | 1.9104 | 0.8956 | 1.2567 | 0.2275 |
| 88 | | | | 0.0034 | 0.0609 | 35.4934 | | | | 130.4734 |
| 89 | | | | | | | | | | |
| 90 | 0.6004 | 0.5978 | 0.5813 | 0.5047 | 0.6044 | 0.7673 | 1.2410 | 0.7535 | 0.4945 | 0.7305 |
| 91 | | | | | | | | | | |
| 92 | | | | | | | 0.0002 | | | |
| 93 | | | | 0.4369 | | 0.0231 | 0.0093 | | | |
| 94 | 0.2139 | 0.2949 | 0.2141 | 0.1980 | 0.4723 | 0.0883 | 0.0796 | 0.0591 | 0.0121 | 0.1139 |
| 95 | 0.0048 | 0.0056 | | 0.0073 | 0.0356 | | 0.0001 | | | |
| 96 | 0.0000 | | 0.0218 | | 0.0000 | 0.0000 | 0.0003 | 0.0001 | | 0.0007 |
| 97 | | | | | | | | | | |
| 99 | 0.0543 | 0.0370 | 0.7054 | 0.2221 | 0.0592 | | 0.0205 | 16.0144 | 0.3920 | 5.7708 |
| **Total** | **414.17** | **391.58** | **438.07** | **511.11** | **538.02** | **703.55** | **811.21** | **872.31** | **689.13** | **568.29** |

Source: UN Comtrade Database.

## Table 4. Exports from Morocco to Brazil (US$ millions

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | 1.6075 | 12.5822 | 12.9012 | 23.6392 | 19.7024 | 26.4622 | 10.8748 | 25.8970 | 29.0218 | 15.0353 |
| 4 | | | | | | | | | | |
| 5 | | | | | | 0.0700 | | | | |
| 6 | | | | | | | | | | |
| 7 | 0.4180 | 0.5625 | 0.9494 | 0.7976 | 1.2188 | 0.8126 | 0.9323 | 0.9596 | 1.6992 | 1.4202 |
| 8 | | | | | | | | | | 0.0414 |
| 9 | 0.0212 | 0.0275 | 0.0206 | 0.0516 | 0.1021 | 0.0597 | 0.0735 | 0.0490 | 0.0867 | 0.8399 |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |
| 12 | 0.1564 | 0.1066 | 0.1364 | 0.1822 | 0.3630 | 0.2842 | 0.3096 | 0.3283 | 0.3971 | 0.4789 |
| 13 | | | | | | 0.0558 | 0.2797 | 0.3213 | 0.3541 | 0.3283 |
| 14 | | | | | | | | | | |
| 15 | | | | | | 0.2571 | 0.0032 | 0.1703 | 0.2475 | 0.0641 |
| 16 | 0.1612 | | 0.0732 | 0.0835 | | 2.6183 | 1.4096 | 0.0520 | 1.2379 | 0.2245 |
| 17 | | | | | | | | | | |
| 18 | | | | | | | | | | |
| 19 | 0.0003 | 0.0012 | 0.0098 | 0.0245 | 0.0251 | 0.0233 | 0.0282 | 0.0261 | 0.0269 | 0.0539 |
| 20 | 0.2365 | 0.1453 | 0.1413 | 0.2595 | 0.2970 | 0.2399 | 0.1460 | 0.0900 | 0.0182 | 0.2442 |
| 21 | | | | | 0.0003 | | | | | |
| 22 | | | | | | | | | | |
| 23 | | | | | | | | | | |
| 24 | | | | | | | | | | |
| 25 | 28.0712 | 23.2728 | 48.7892 | 125.0562 | 44.8710 | 49.3899 | 108.0305 | 91.1524 | 56.1958 | 71.3512 |
| 26 | | | | 0.0000 | 0.1482 | | | | | |
| 27 | 24.8463 | 62.8614 | 20.7568 | 24.6790 | | 71.5783 | 162.4255 | 177.9906 | 171.7168 | 276.1912 |
| 28 | 61.8030 | 65.5996 | 88.5130 | 288.9367 | 26.8509 | 73.7638 | 92.7102 | 26.6423 | 13.6545 | 20.1432 |
| 29 | | | | | | | | | | |
| 30 | | | | | 0.0003 | | | | | 0.0005 |
| 31 | 129.6364 | 120.1001 | 294.9027 | 516.7565 | 193.0285 | 440.6747 | 736.1232 | 934.7940 | 1032.2408 | 696.8003 |
| 32 | | | | | | | | | | |
| 33 | 0.0706 | | | 0.0025 | 1.2974 | 1.4249 | 0.1250 | 0.0648 | 0.0000 | |
| 34 | 0.0000 | 0.0000 | | 0.0002 | | 0.0076 | | 0.0010 | | |
| 35 | | | | | | | | | | |
| 36 | | | | | | | | | | |
| 37 | | | | | | | | | | |
| 38 | | | | | | | | | | |
| 39 | 0.0001 | 0.0109 | 0.0478 | 0.7316 | 0.0918 | 0.0412 | 0.0134 | 0.0011 | 0.0062 | 0.0162 |
| 40 | 0.0109 | 0.0173 | 0.0260 | 0.0289 | 0.0030 | | 0.0000 | 0.0021 | | 0.0005 |
| 41 | | | | | | | | | 0.0018 | |
| 42 | 0.0010 | 0.0080 | 0.0002 | 0.0004 | | 0.0041 | 0.0010 | | 0.0004 | 0.0003 |
| 43 | | | | | | | | | | |
| 44 | 0.0023 | | 0.0017 | 0.0023 | 0.0031 | 0.0016 | 0.0049 | 0.0060 | 0.0081 | 0.0107 |
| 45 | 0.4053 | 0.2619 | 0.1041 | 0.1489 | 0.0163 | 0.0391 | 0.0305 | | | 0.1196 |
| 46 | | | 0.0004 | 0.0051 | 0.0038 | | 0.0022 | 0.0001 | 0.0002 | 0.0040 |
| 47 | | | | | | | | | | |
| 48 | | | | | | | | | 0.0003 | 0.0001 |
| 49 | | | 0.0000 | 0.0001 | | 0.0005 | 0.0002 | | | 0.0000 |

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | | | | | | | | | |
| 51 | | | | 0.0003 | | | | | | |
| 52 | | 0.0001 | | 0.0003 | 0.3021 | | | | | |
| 53 | | | | | | | | | | |
| 54 | | | | | | | | | | |
| 55 | | 0.0001 | | | 0.0000 | | | | | |
| 56 | | | | | | | | | | |
| 57 | 0.0167 | 0.0122 | 0.0103 | 0.0399 | 0.0074 | 0.0193 | 0.0279 | 0.0638 | 0.0520 | 0.1128 |
| 58 | | | 0.0009 | | | | | | | |
| 59 | | | | | | | | | | |
| 60 | 0.0000 | | | | | | | | | |
| 61 | 0.0028 | 0.0125 | 0.1718 | 0.1695 | 0.1121 | 0.0629 | 0.0012 | 0.0086 | 0.3589 | 0.1212 |
| 62 | 0.0046 | 0.0591 | 0.0471 | 0.0956 | 0.0207 | 0.0163 | 0.0024 | 0.0280 | | 0.0005 |
| 63 | 0.0002 | 0.0035 | 0.0015 | 0.0018 | 0.0001 | 0.0008 | 0.0019 | 0.0012 | 0.0687 | 0.0099 |
| 64 | 0.0025 | 0.0012 | 0.0024 | 0.0038 | 0.0013 | | 0.0001 | | | |
| 65 | | | | 0.0065 | 0.0094 | | | | | |
| 66 | | | | | | | | | 0.0001 | |
| 67 | | | | | | | | | | |
| 68 | | 0.0015 | | | | 0.0026 | 0.3251 | 0.0078 | 0.0899 | 0.0773 |
| 69 | 0.0036 | 0.0132 | 0.0146 | 0.0431 | 0.0140 | 0.0269 | 0.0558 | 0.0319 | 0.0164 | 0.0253 |
| 70 | 0.0008 | 0.0048 | 0.0056 | 0.0065 | 0.0034 | 0.0044 | 0.0034 | 0.0087 | 0.0041 | 0.0027 |
| 71 | 0.0006 | 0.3563 | 0.0002 | | | | 0.0002 | 0.0390 | | 0.0015 |
| 72 | | | | | | | | | | 0.0062 |
| 73 | 0.0001 | | 0.0023 | 0.0002 | 0.1582 | 0.0026 | 0.0101 | 0.1063 | 0.1053 | 0.5162 |
| 74 | 0.0002 | 0.0017 | 0.0044 | 0.0117 | 0.0006 | 0.0077 | 0.0035 | 0.0015 | 0.4426 | 0.7989 |
| 75 | | | | | | 0.0014 | | | | |
| 76 | 0.0443 | | 0.0789 | 0.3902 | | | | 0.0527 | 0.2314 | 0.0327 |
| 78 | | | | | | | | | 0.3007 | |
| 79 | | | | | | | | | | |
| 80 | | | | | | | | | | |
| 81 | | | | 0.3251 | 1.4281 | 2.1523 | 3.3035 | 2.1315 | 1.2166 | 1.1701 |
| 82 | | | | | | | | 2.1195 | | |
| 83 | | 0.0113 | 0.0027 | 0.0109 | 0.0010 | 0.0065 | 0.0080 | 1.2606 | 0.0177 | 0.0102 |
| 84 | | 0.2919 | | 0.2218 | 0.0135 | 0.0197 | | | 0.1105 | 0.0298 |
| 85 | 0.0197 | 0.0408 | 0.0955 | 0.0453 | 0.9373 | 0.1157 | 0.6898 | 1.5085 | 1.1694 | 0.8255 |
| 86 | | | | | | | | | | |
| 87 | 0.0012 | | 0.0041 | | 0.0006 | | 0.0000 | 0.0066 | 0.2627 | 1.1603 |
| 88 | | | | | | | | | | |
| 89 | | | | 0.0505 | | | | | | |
| 90 | | | | 0.0140 | | 0.0045 | | 0.0367 | | |
| 91 | | | | | | | | | | |
| 92 | | | | | | | 0.0000 | | | |
| 93 | | | | | | | | | | |
| 94 | 0.1347 | 0.1885 | 0.3082 | 0.0363 | 0.1126 | 0.1842 | 0.2289 | 0.3743 | 0.1748 | 0.3016 |
| 95 | | | | | | | | | 0.0009 | |
| 96 | | 0.0010 | 0.0001 | 0.0001 | 0.0015 | | 0.0009 | 0.0019 | | |
| 97 | | | | | | 0.0032 | 0.0153 | 0.0331 | 0.0463 | 0.0375 |
| 99 | | | | | | | | | | |
| **Total** | **247.68** | **286.56** | **468.12** | **982.86** | **291.15** | **670.44** | **1118.20** | **1266.37** | **1311.58** | **1088.61** |

Source: UN Comtrade Database.

# II. Indices of Bilateral Trade

In this section, we present some traditional indicators that will allow us to describe the international trade pattern between Brazil and Morocco, emphasizing the RCA in the period of analysis (2005-2014). Comparative advantage is a principle attributed to David Ricardo in 1817. It is recurrently used as one of the factors accounting for the trade pattern of a region. The Ricardian theory explains comparative advantage in terms of

cost differentials (supply) that arise from technologies and specific resource allocations in the regions/countries involved in exchange processes (Bowen et al., 1998).

In the context of Brazil-Morocco trade relations, we use an RCA indicator (Balassa, 1965) and a trade coverage rate. Furthermore, based on the above two indicators, it is possible to determine the trade "strong points" for both economies, according to the method suggested by Gutman and Miotti (1996). It should consider, for economic policy purposes, the sectors that have a comparative advantage in a particular country and its changes over time. A detailed knowledge and the identification of these sectors favor the assessment of changes in trade policy impacts, providing support for policy proposals aimed at reorienting and reallocating resources.

### 3.1. RCA Index

To identify the commodities that Brazil and Morocco have a comparative advantage, we use the RCA index. The RCA index is written as:

$$RCA^{i}_{j} = (X^{i}_{j}/X_{j}) / (X^{i}/X) \quad (1)$$

where $X^{i}_{j}$ is country i's exports of commodity j, $X_j$ is world exports of commodity j, $X_i$ is country i's total exports, and X is total world exports.

The RCA index measures the degree of internationalization and can be interpreted as follows:

RCA > 1 indicates that country i has a revealed comparative advantage in commodity j;
RCA < 1 indicates that country i has a revealed comparative disadvantage in commodity j.

Considering Brazil as an investigated country and the world as a reference region, an RCA index equal to 1.25 for coffee, for example, indicates that Brazil has revealed comparative advantage in this commodity. Furthermore, it indicates that the coffee exports ratio of Brazil with regard to the world's coffee exports is 25% higher than all Brazilian exports ratio, with regard to all world's exports.

### 3.2. CR Index

Another index able to describe the trade pattern is the CR index (CR). The CR index is defined as:

$$CR_{ij} = X_{ij} / M_{ij} \quad (2)$$

where Xij is country i's exports of commodity j and Mij is country i's imports of commodity j.

The CR index allows us to observe the trade dependence degree of a country regarding all foreign markets, a group of countries, or a single country.

### 3.3. Strong Points in Trade

As suggested by Gutman and Miotti (1996), the strong points in a country's international trade are defined as commodities that present both RCA and CR indices greater than unit.

## 3.4. Results

### 3.4.1. RCA Index

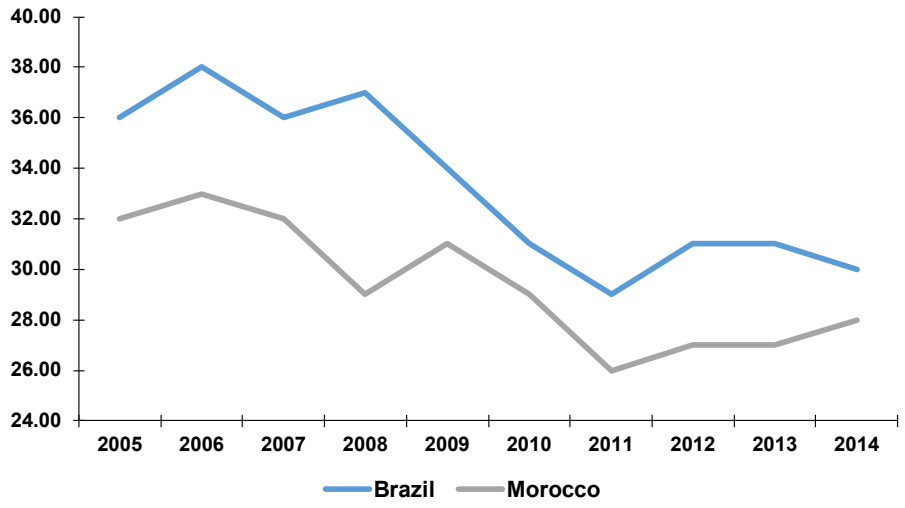
We start by showing the results for the RCA index for Brazil and Morocco for 3 years (2005, 2010, and 2014. The RCA index was calculated for the Harmonized System 2002 Classification (HS-2002), 2 digits; however, the analysis is presented here by section.

Figure 4 describes the total number of sectors with an RCA index greater than unit for Brazil and Morocco. There is a decreased tendency in this number for both countries. For Brazil, it is possible to observe a huge decrease between 2008 and 2011. Further, Brazil and Morocco present the smallest number of sectors with an RCA index greater than unit in 2011.

The RCA index is greater than unit for 36 Brazilian sectors in 2005, which indicates that the country holds comparative advantage in these sectors. During the period of analysis, there is a decrease in the number of sectors that presents an RCA index greater than unit. In 2014, for example, there were 30 sectors.

For Morocco, the RCA index is greater than unit for 32 sectors. The Moroccan economy also presents a slight decrease in the number of sectors that presents an RCA index greater than unit. In 2010, there were 29; in 2014, there were 28.

**Figure 4. Brazil and Morocco – Total number of sectors with RCA >1**




Source: Authors' calculation.

Tables 5 and 6 present a ranking of sectors based on the RCA index for Brazil and Morocco in 2014, respectively. For Brazil, the majority of the top 10 sectors are from the animal and vegetable products section. The picture for Morocco is almost the same, except for Articles of apparel and clothing accessories, not knitted or crocheted (62).

**Table 5. Brazil – Top Ten Sectors Based on RCA Index, 2014**

| Ranking | Commodity Code | Sector - Description | RCA Index |
|---|---|---|---|
| 1 | 12 | Oil seeds and oleaginous fruits | 18.90 |
| 2 | 17 | Sugars and sugar confectionery | 17.40 |
| 3 | 9 | Coffee, tea, matF and spices | 11.12 |
| 4 | 26 | Ores, slag and ash | 10.75 |
| 5 | 2 | Meat and edible meat offal | 9.42 |
| 6 | 47 | Pulp of wood or of other fibrous cellulose material | 9.32 |
| 7 | 23 | Residues and waste from the food industries | 7.18 |
| 8 | 41 | Raw hides and skins (other than fur skins) and leather | 6.68 |
| 9 | 5 | Products of animal origin, not elsewhere specified | 4.91 |
| 10 | 24 | Tobacco and manufactured tobacco substitutes | 4.81 |

Source: Authors' calculation.

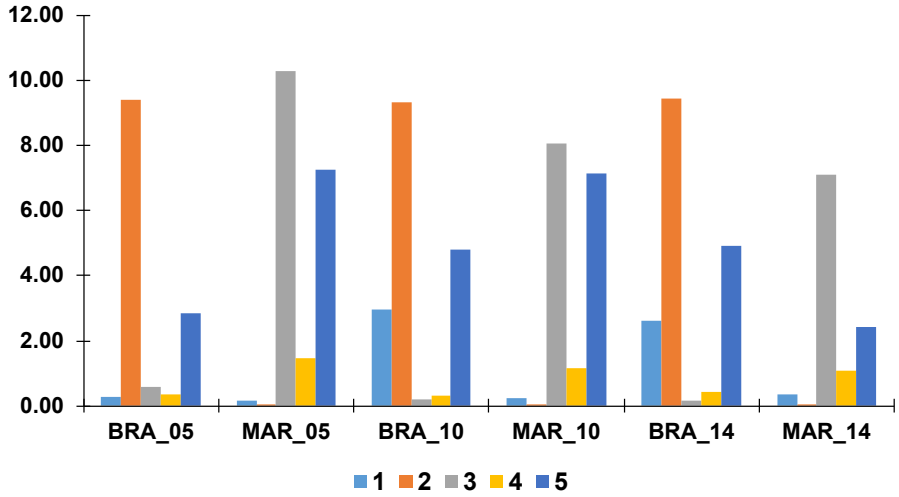
**Table 6. Morocco – Top Ten Sectors Based on RCA Index, 2014**

| Ranking | Commodity Code | Sector - Description | RCA Index |
|---|---|---|---|
| 1 | 31 | Fertilizers | 27.08 |
| 2 | 25 | Salt; sulfur; earths and stone; plastering materials | 20.97 |
| 3 | 16 | Preparations of meat, of fish or of crustaceans | 11.37 |
| 4 | 28 | Inorganic chemicals | 10.87 |
| 5 | 7 | Edible vegetables and certain roots and tubers | 10.19 |
| 6 | 45 | Cork and articles of cork | 8.99 |
| 7 | 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 8.56 |
| 8 | 3 | Fish and crustaceans, molluscs and other aquatic invertebrates | 7.11 |
| 9 | 8 | Edible fruit and nuts; peel of citrus fruit or melons | 5.31 |
| 10 | 13 | Lac; gums, resins and other vegetable saps and extracts | 4.98 |

Source: Authors' calculation.

Figure 5 shows the RCA index for the Animal and Animal Products section. Brazil, for the period of analysis, presents RCA for the sectors Meat and edible meat offal (2) and Products of animal origin, not elsewhere specified (5) for the whole period and also for Live animals in 2005 and 2010. On the contrary, Morocco presents RCA for the following sectors: Fish and crustaceans, mollusks, and other aquatic invertebrates (3); Dairy produce; birds eggs; natural honey (4); and Products of animal origin, not elsewhere specified (5).

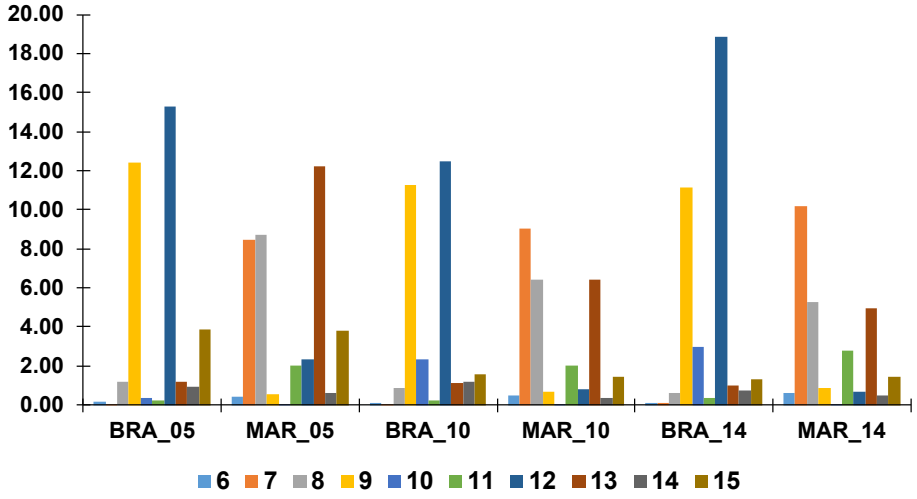
## Figure 5. RCA Index – Animal & Animal Products




Source: Authors' calculation.

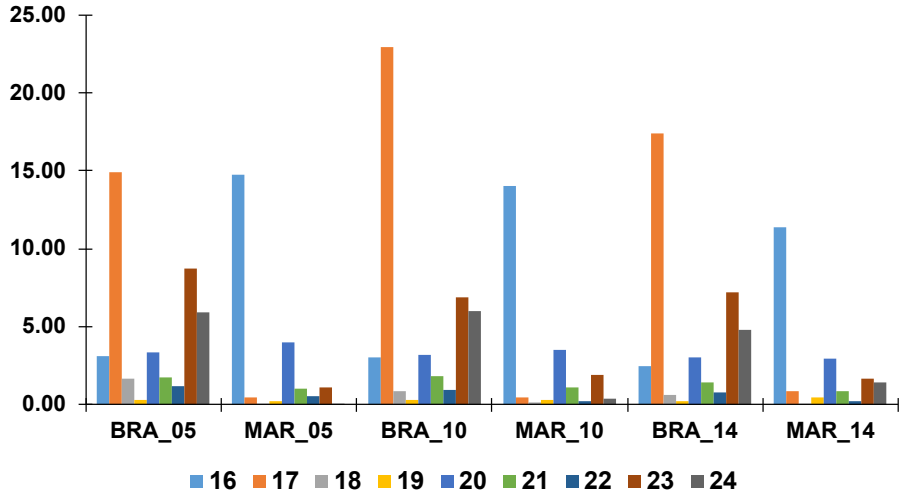
Figure 6 highlights the sectors on the Vegetable Products section that present RCA greater than unit. For the Brazilian case, four sectors present RCA > 1 for all 3 years: Coffee, tea, mate, and spices (9); Oil seeds and oleaginous fruits (12); Lac; gums, resins, and other vegetable saps and extracts (13); and Animal or vegetable fats and oils (15). For Morocco five sectors present RCA > 1 for all 3 years: Edible vegetables and certain roots and tubers (7); Edible fruit and nuts; peel of citrus fruit or melons (8); Products of the milling industry; malt; starches; inulin (11); Lac; gums, resins, and other vegetable saps and extracts (13); and Animal or vegetable fats and oils (15).

## Figure 6. RCA Index – Vegetable Products




Source: Authors' calculation.

## Figure 7. RCA Index – Foodstuffs



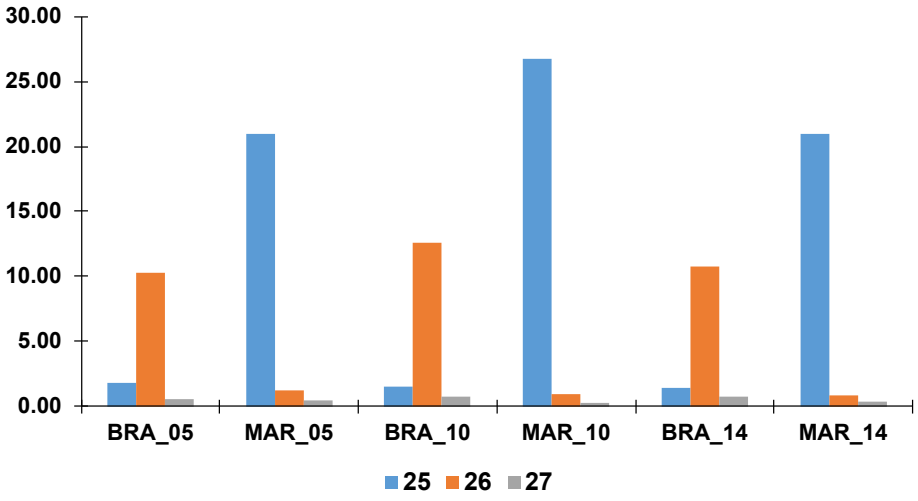

Source: Authors' calculation.

Figure 8 shows the results for the Foodstuffs section. The Brazilian economy loses revealed comparative advantage for Cocoa and cocoa preparations (18) and Beverages, spirits, and vinegar (22). On the contrary, the Brazilian economy presents revealed comparative advantage for all 3 years for six sectors. It is also important to highlight that there is a decrease in the RCA index in five of the six sectors. Thus, we can affirm that the sectors in this section play an important role in the Brazilian international trade, but it is necessary to observe more closely the behavior of those sectors.

For Morocco, in each year of analysis, four sectors present RCA > 1: Preparations of meat, fish, or crustaceans (16); Preparations of vegetables, fruit, or nuts (20); and Residues and waste from the food industries (23).

The results for Mineral Products section are presented in Figure 8. Brazil and Morocco present revealed comparative advantage for Salt; sulfur; earths and stone; plastering materials (25), but the index for Morocco is about 20 times greater than the index for Brazil. Brazil also presents an RCA for Ores, slag, and ash (26) for all three periods of analysis.

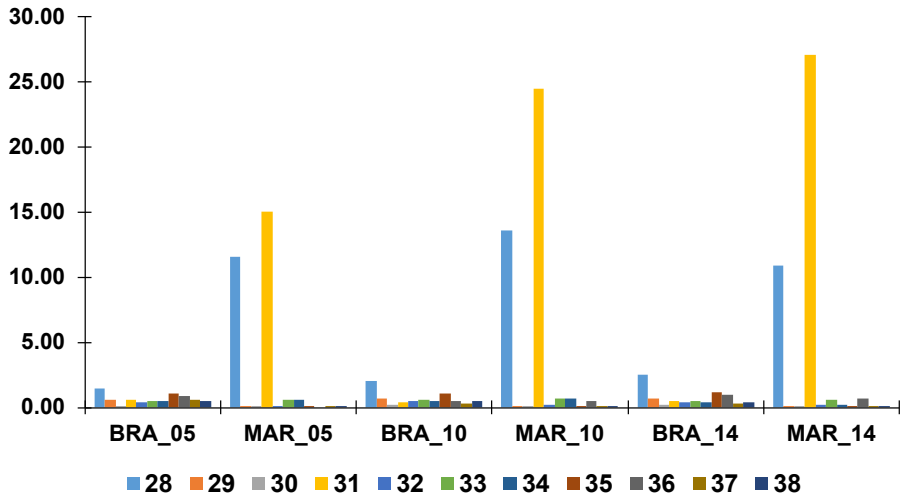
## Figure 8. RCA Index – Mineral Products




Source: Authors' calculation.

Figure 9 presents the results for Chemicals and Allied Industries. Based on the RCA index, we can conclude that this group of sectors presents a small number of sectors with an RCA index greater than 1. For the Brazilian economy, they are Inorganic chemicals (28) and Albuminoidal substances; modified starches; glues; enzymes (35). For Morocco, they are Inorganic chemicals (28) and Fertilizers (31). It is important to highlight the differences of the RCA index between Brazil and Morocco for sector 28, for example. The result for Morocco is about five times the result for Brazil.

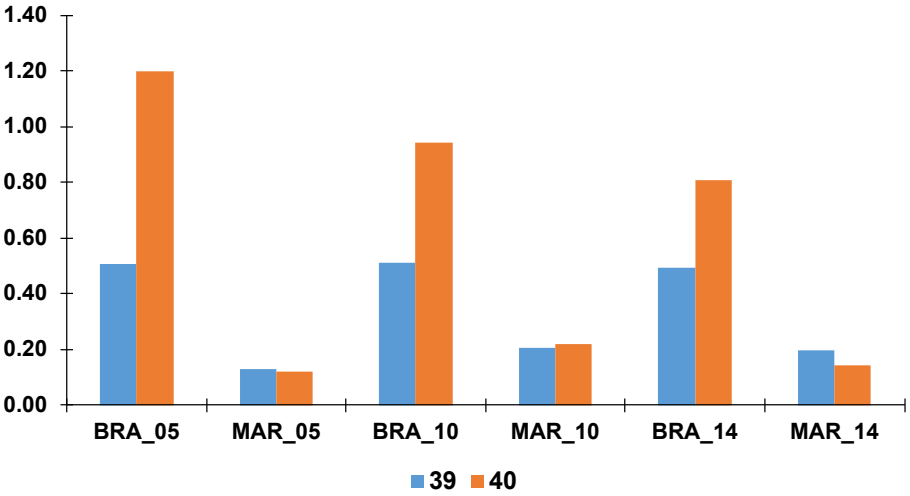
## Figure 9. RCA Index – Chemicals & Allied Industries




Source: Authors' calculation.

The results for the Plastics/Rubbers section are presented in Figure 10. Brazil only presents RCA > 1 for Rubber and articles thereof (40) for the first period of analysis. Actually, this is the only case of an RCA index greater than 1 for both Brazil and Morocco for the period of analysis for this section.

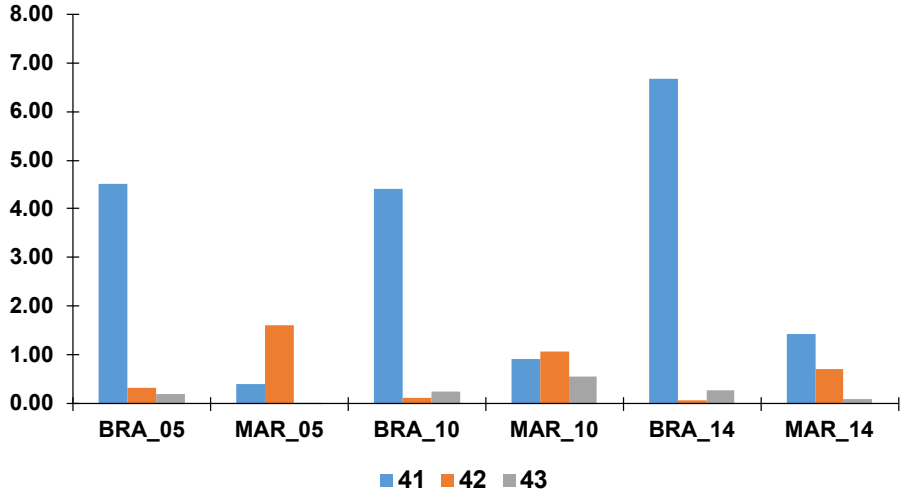
## Figure 10. RCA Index – Plastics/Rubbers




Source: Authors' calculation.

Brazil has an RCA > 1 in international trade at Raw hides and skins (other than fur skins) and leather sector (41) for all 3 years. The results enables us to conclude that for this section there is a small number of RCA index greater than 1, meaning that this section is characterized by revealed comparative disadvantage in international trade for Brazil and Morocco.

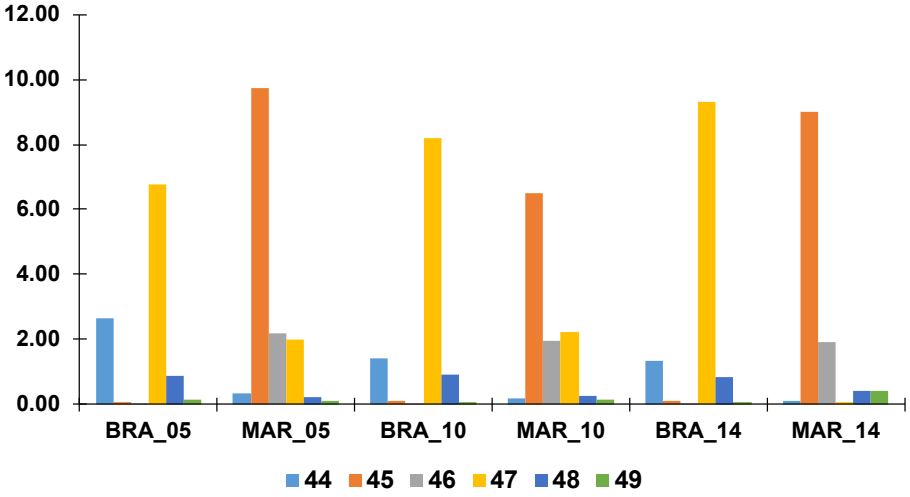
## Figure 11. RCA Index – Raw Hides, Skins, Leather & Furs




Source: Authors' calculation.

For the Wood and Wood Products section, in Figure 12, Brazil and Morocco present two sectors with RCA > 1 in all 3 years. The size of RCA index is almost the same for both economies. In the case of Brazil, there is an increase in the size of the RCA index for Pulp of wood or of other fibrous cellulose material (47) along the period of analysis.

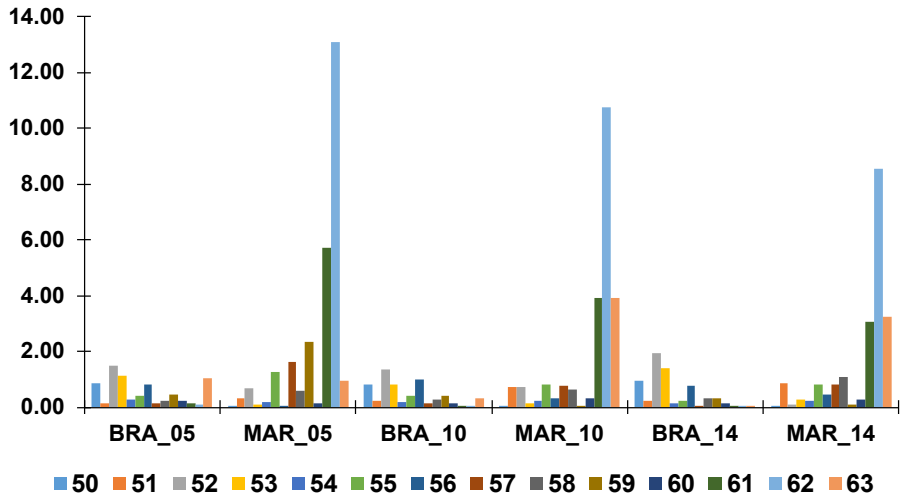
## Figure 12. RCA Index – Wood & Wood Products




Source: Authors' calculation.

For the Textiles section, for the first period, Brazil has three sectors with RCA index greater than 1 and Morocco present five sectors. The predominance of sectors with RCA index greater than 1 in Morocco continues in the other period. Another important characteristic is the size of the RCA index for Articles of apparel and clothing accessories, not knitted or crocheted (62) for Morocco, i.e., the importance of this sector in international trade for Morocco (Figure 13).

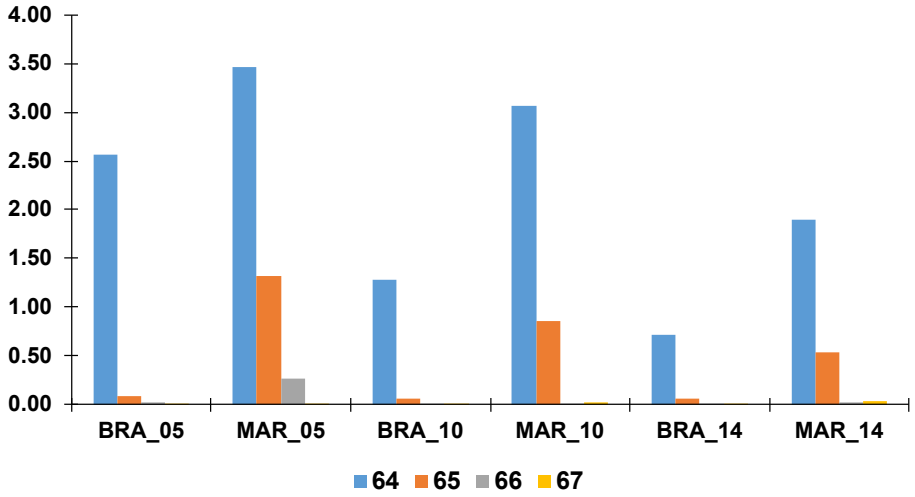
## Figure 13. RCA Index – Textiles




Source: Authors' calculation.

In Figure 14, only Footwear, gaiters and the like; parts of such articles sector (64) presents an RCA index greater than 1 for all three periods of analysis.

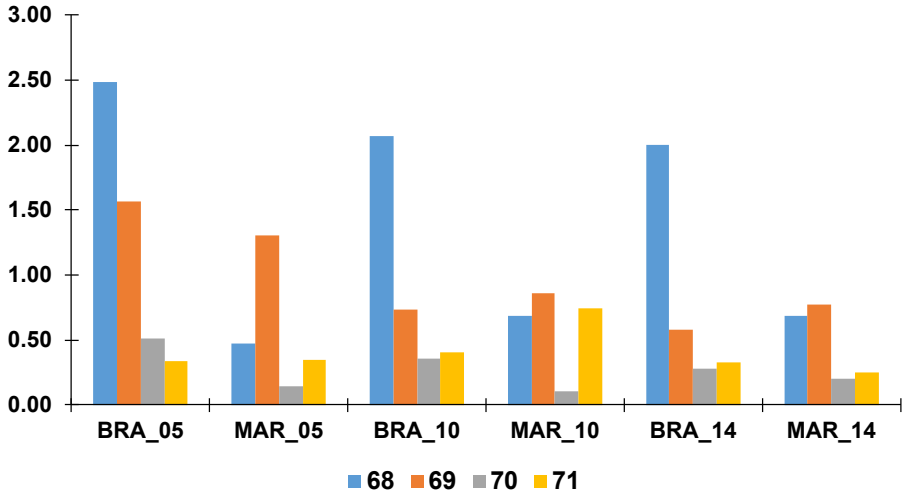
## Figure 14. RCA Index – Footwear/Headgear




Source: Authors' calculation.

The results in Figure 15 shows that for the majority of sectors and period of analysis the RCA index is less than 1, meaning revealed comparative disadvantage, except for Articles of stone, plaster, cement, asbestos, mica, or similar materials (68) for Brazil and for Ceramic products (68) in 2005 for Brazil and Morocco. Thus, the results show the weakness of Brazil and Morocco in international trade for this group of sectors.

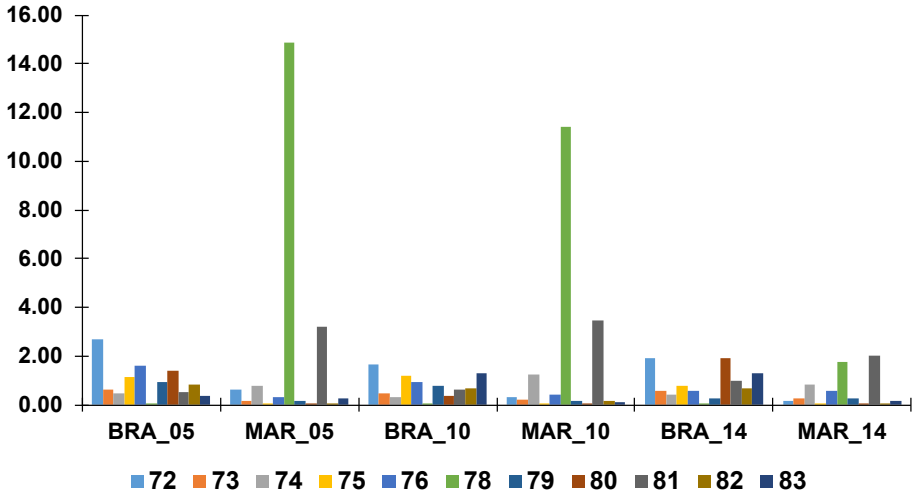
## Figure 15. RCA Index – Stone/Glass




Source: Authors' calculation.

In Figure 16, for this range of sectors located in Brazil, only Iron and steel (72) presents an RCA index greater than 1 for the three periods. For Morocco, Lead and articles thereof (78) presents an RCA index greater than 1 for the three periods. It is interesting to highlight that the RCA index for the sector decreases with time.

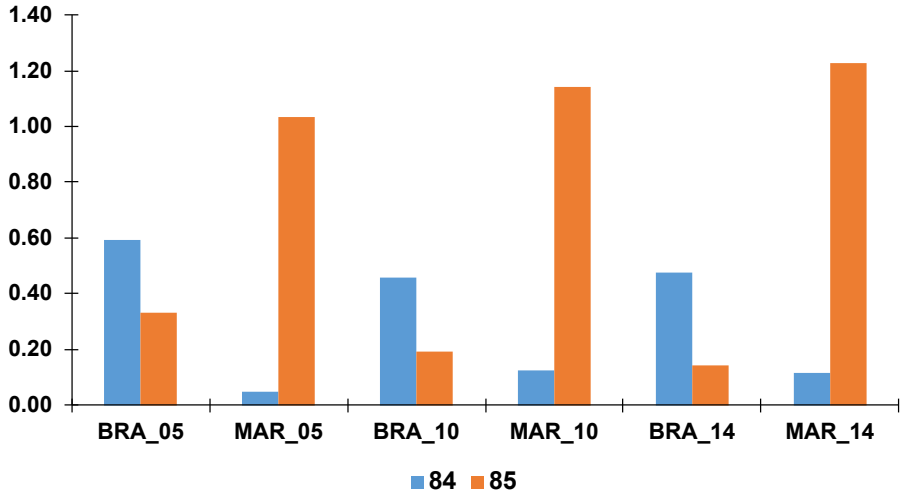
## Figure 16. RCA Index – Metals




Source: Authors' calculation.

The results in Figure 17 show the weakness of this range of sector in international trade for both Brazil and Morocco. For Brazil, no one sector presents an RCA index greater than 1. On the contrary, for Morocco, Electrical machinery and equipment and parts thereof; sound recorders (85) has an RCA index slightly greater than 1 and increases along the period of analysis.

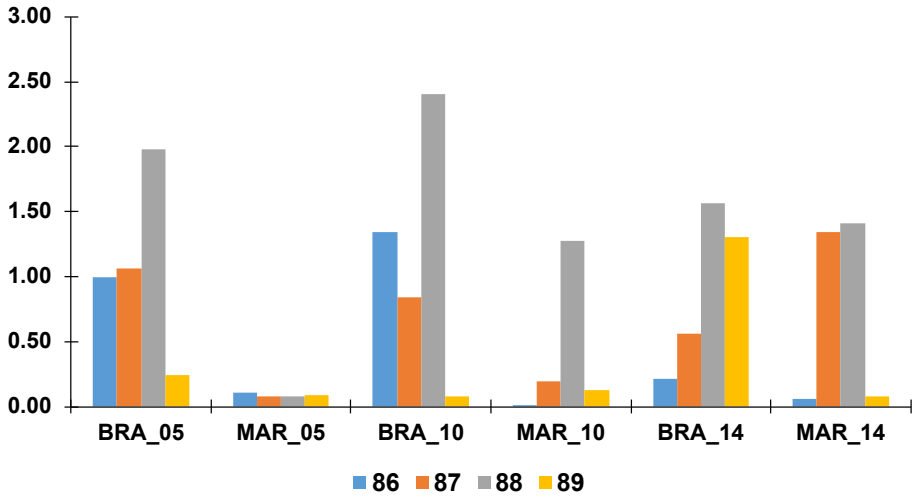
## Figure 17. RCA Index – Machinery/Electrical




Source: Authors' calculation.

The Brazilian transport sector presents an RCA index greater than 1 for the whole period for Aircraft, spacecraft, and parts thereof (88). There is a decrease in the size of the RCA index in 2014. Morocco also has an RCA index greater than 1 for the last two periods for Aircraft, spacecraft, and parts thereof (88). The results for the other transport sector are presented in Figure 18.

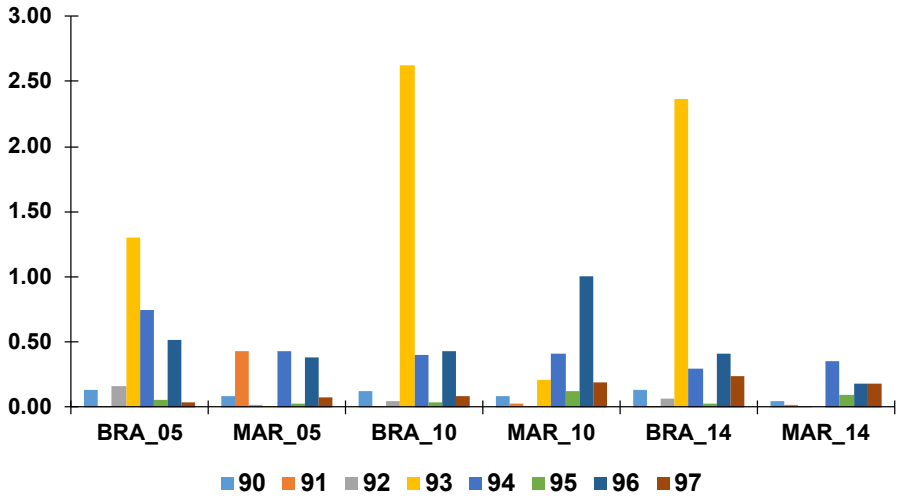
## Figure 18. RCA Index – Transportation




Source: Authors' calculation.

For the Miscellaneous section, there is a small number of sectors with comparative advantage in international trade. The main sector is Arms and ammunition; parts and accessories thereof (93) for Brazil (Figure 19).

### Figure 19. RCA Index – Miscellaneous



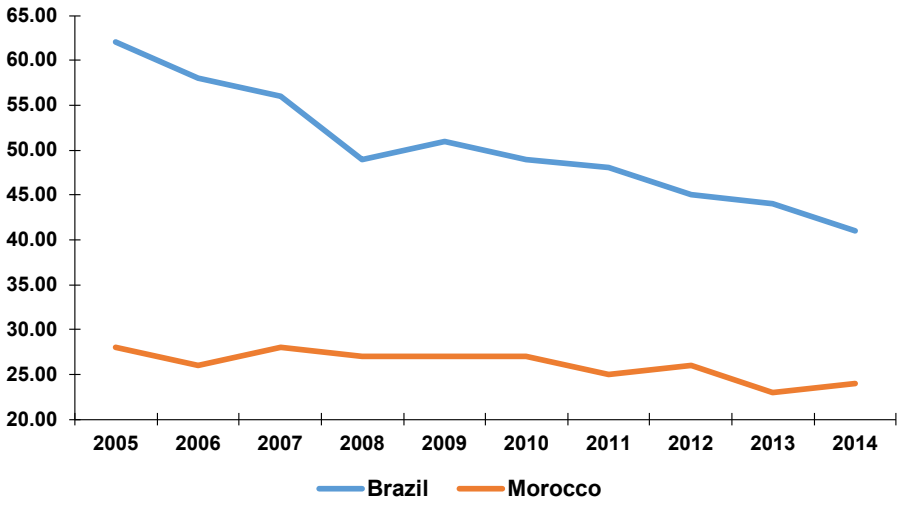

Source: Authors' calculation.

### 3.4.2. CR Index

A CR index of 1 (or 100% if is expressed as a percentage) means that the country has a strong commercial position (trade competitiveness), whereas a rate below 1 indicates a weak position or trade dependence (negative trade balance). Figures A.1 to A.15, in the Annex, show the CR index for 99 sections of HS-2002.

In Figure 20, the number of sectors with a CR index greater than unit for Brazil is declining along the period of analysis but still greater than the number of sectors with a CR index greater than 1 for Morocco. This means that, in comparison to Morocco, Brazil is more competitive in a broader range of goods. On the contrary, it calls us to pay attention to the tendency of the CR index. For Brazil, the index presents a huge decrease, starting from 62 out of 99 sectors with a CR index greater than 1 and finishing with 41. The Moroccan economy presents a more stable result.

### Figure 20. Brazil and Morocco – Total number of sectors with CR >1




Source: Authors' calculation.

Table 7 presents the top 10 sectors based on the CR index in 2014. Based on the measure, we can conclude that Brazil has a strong position in international trade on sectors related to Animal, Vegetable, Mineral, and Food products. The majority of those with low value added.

Table 8 presents the top 10 sectors based on the CR index for Morocco. In comparison to Brazil, the structure of the more competitive sectors is very different and the size of the index is different. For the Brazilian economy, the CR index of the top 10 sectors ranges from 101.80 to 22.77. For the Moroccan economy, it is from 56.48 to 5.83.

**Table 7. Brazil – Top Ten Sectors Based on CR Index, 2014**

| Ranking | Commodity Code | Sector - Description | CR Index |
|---|---|---|---|
| 1 | 41 | Raw hides and skins (other than fur skins) and leather | 101.80 |
| 2 | 17 | Sugars and sugar confectionery | 94.80 |
| 3 | 9 | Coffee, tea, matF and spices | 74.14 |
| 4 | 24 | Tobacco and manufactured tobacco substitutes | 51.64 |
| 5 | 12 | Oil seeds and oleaginous fruits | 51.46 |
| 6 | 1 | Live animals | 35.17 |
| 7 | 2 | Meat and edible meat offal | 32.34 |
| 8 | 23 | Residues and waste from the food industries | 25.98 |
| 9 | 43 | Fur skins and artificial fur; manufactures thereof | 25.16 |
| 10 | 26 | Ores, slag and ash | 22.77 |

Source: Authors' calculation.

**Table 8. Morocco – Top Ten Sectors Based on CR Index, 2014**

| Ranking | Commodity Code | Sector - Description | CR Index |
|---|---|---|---|
| 1 | 26 | Ores, slag and ash | 56.48 |
| 2 | 78 | Lead and articles thereof | 45.19 |
| 3 | 16 | Preparations of meat, of fish or of crustaceans | 30.05 |
| 4 | 45 | Cork and articles of cork | 28.12 |
| 5 | 62 | Articles of apparel and clothing accessories, not knitted or crocheted | 10.39 |
| 6 | 46 | Manufactures of straw, of esparto or of other plaiting materials | 9.70 |
| 7 | 7 | Edible vegetables and certain roots and tubers | 9.43 |
| 8 | 31 | Fertilizers | 8.03 |
| 9 | 61 | Articles of apparel and clothing accessories, knitted or crocheted | 6.37 |
| 10 | 11 | Products of the milling industry; malt; starches; inulin | 5.83 |

Source: Authors' calculation.

### 3.4.3. Strong Points in Trade

The "strong point" in trade indicator is considered a synthesis for the assessment of international trade, as put together, the results of two other indicators that describe the competitive advantage of countries in international trade. Table 9 presents the results for Brazil and Morocco for 99 sectors of HS-2002 for three years. It is important to analyze the number of sectors classified as strong point and the diversity of sections.
In 2005, Brazil presents 34 sectors as strong points in international trade. The number of sectors considered as strong points decreases, reaching 27 in 2014. In the case of Morocco, in 2005, there were 23 sectors classified as strong points; in 2014, there were 18 sectors.

The results for Brazil during the period of analysis show that the majority of sectors classified as strong points are related to the Animal, Vegetable, Mineral, and Food sector. In 2005, 16 sectors were in this group. Morocco presents a similar structure.

For Brazil, apart from the Animal, Vegetable, Mineral, and Food sector, we can also highlight some other sectorial results, such as Inorganic chemicals (28); Raw hides and skins (other than fur skins) and leather (41); Iron and steel (72); Aircraft, spacecraft, and parts thereof (88); and Arms and ammunition; parts and accessories thereof (93).

For Morocco, apart from the Animal, Vegetable, Mineral, and Food sector, we can also highlight some other sectorial results, such as Inorganic chemicals (28); Lead and articles thereof (78); and Other base metals; cermets; articles thereof (81).

## Table 9. Strong Points in Trade

| Section | Commodity Code | BRA_05 | MAR_05 | BRA_10 | MAR_10 | BRA_14 | MAR_14 |
|---|---|---|---|---|---|---|---|
| Animal & Animal Products | 1 | - | - | Strong | - | Strong | - |
| | 2 | Strong | - | Strong | - | Strong | - |
| | 3 | - | Strong | - | Strong | - | Strong |
| | 4 | - | - | - | - | - | - |
| | 5 | Strong | Strong | Strong | Strong | Strong | - |
| Vegetable Products | 6 | - | - | - | - | - | - |
| | 7 | - | Strong | - | Strong | - | Strong |
| | 8 | Strong | Strong | - | Strong | - | Strong |
| | 9 | Strong | - | Strong | - | Strong | - |
| | 10 | - | - | Strong | - | Strong | - |
| | 11 | - | Strong | - | Strong | - | Strong |
| | 12 | Strong | - | Strong | - | Strong | - |
| | 13 | - | Strong | - | Strong | - | Strong |
| | 14 | - | - | Strong | - | - | - |
| | 15 | Strong | - | Strong | - | Strong | - |
| Foodstuffs | 16 | Strong | Strong | Strong | Strong | Strong | Strong |
| | 17 | Strong | - | Strong | - | Strong | - |
| | 18 | Strong | - | - | - | - | - |
| | 19 | - | - | - | - | - | - |
| | 20 | Strong | Strong | Strong | Strong | Strong | Strong |
| | 21 | Strong | - | Strong | - | Strong | - |
| | 22 | Strong | - | - | - | - | - |
| | 23 | Strong | - | Strong | - | Strong | - |
| | 24 | Strong | - | Strong | - | Strong | - |
| Mineral Products | 25 | Strong | Strong | - | Strong | - | Strong |
| | 26 | Strong | Strong | Strong | - | Strong | - |
| | 27 | - | - | - | - | - | - |
| Chemicals & Allied Industries | 28 | Strong | Strong | Strong | Strong | Strong | Strong |
| | 29 | - | - | - | - | - | - |
| | 30 | - | - | - | - | - | - |
| | 31 | - | Strong | - | Strong | - | Strong |
| | 32 | - | - | - | - | - | - |
| | 33 | - | - | - | - | - | - |
| | 34 | - | - | - | - | - | - |
| | 35 | Strong | - | - | - | - | - |
| | 36 | - | - | - | - | - | - |
| | 37 | - | - | - | - | - | - |
| | 38 | - | - | - | - | - | - |
| Plastics/Rubbers | 39 | - | - | - | - | - | - |
| | 40 | - | - | - | - | - | - |
| Raw Hides, Skins, Leather & Furs | 41 | Strong | - | Strong | - | Strong | - |
| | 42 | - | Strong | - | Strong | - | - |
| | 43 | - | - | - | - | - | - |

## Table 9. Strong Points in Trade (cont.)

| Section | Commodity Code | BRA_05 | MAR_05 | BRA_10 | MAR_10 | BRA_14 | MAR_14 |
|---|---|---|---|---|---|---|---|
| Wood & Wood Products | 44 | Strong | - | Strong | - | Strong | - |
| | 45 | - | Strong | - | Strong | - | Strong |
| | 46 | - | Strong | - | Strong | - | Strong |
| | 47 | Strong | Strong | Strong | Strong | Strong | - |
| | 48 | - | - | - | - | - | - |
| | 49 | - | - | - | - | - | - |
| Textiles | 50 | - | - | - | - | - | - |
| | 51 | - | - | - | - | - | - |
| | 52 | Strong | - | Strong | - | Strong | - |
| | 53 | Strong | - | - | - | Strong | - |
| | 54 | - | - | - | - | - | - |
| | 55 | - | - | - | - | - | - |
| | 56 | - | - | - | - | - | - |
| | 57 | - | Strong | - | - | - | - |
| | 58 | - | - | - | - | - | - |
| | 59 | - | - | - | - | - | - |
| | 60 | - | - | - | - | - | - |
| | 61 | - | Strong | - | Strong | - | Strong |
| | 62 | - | Strong | - | Strong | - | Strong |
| | 63 | Strong | - | - | Strong | - | Strong |
| Footwear-Headgear | 64 | Strong | Strong | Strong | Strong | - | Strong |
| | 65 | - | Strong | - | - | - | - |
| | 66 | - | - | - | - | - | - |
| | 67 | - | - | - | - | - | - |
| Stone-Glass | 68 | Strong | - | Strong | - | Strong | - |
| | 69 | Strong | - | - | - | - | - |
| | 70 | - | - | - | - | - | - |
| | 71 | - | - | - | - | - | - |
| Metals | 72 | Strong | - | Strong | - | Strong | - |
| | 73 | - | - | - | - | - | - |
| | 74 | - | - | - | - | - | - |
| | 75 | Strong | - | Strong | - | - | - |
| | 76 | Strong | - | - | - | - | - |
| | 78 | - | Strong | - | Strong | - | Strong |
| | 79 | - | - | - | - | - | - |
| | 80 | Strong | - | - | - | Strong | - |
| | 81 | - | Strong | - | Strong | - | Strong |
| | 82 | - | - | - | - | - | - |
| | 83 | - | - | Strong | - | Strong | - |
| Machinery-Electrical | 84 | - | - | - | - | - | - |
| | 85 | - | - | - | - | - | - |

**Table 9. Strong Points in Trade (cont.)**

| Section | Commodity Code | BRA_05 | MAR_05 | BRA_10 | MAR_10 | BRA_14 | MAR_14 |
|---|---|---|---|---|---|---|---|
| Transportation | 86 | - | - | - | - | - | - |
| | 87 | Strong | - | - | - | - | - |
| | 88 | Strong | - | Strong | - | Strong | - |
| | 89 | - | - | - | - | Strong | - |
| Miscellaneous | 90 | - | - | - | - | - | - |
| | 91 | - | - | - | - | - | - |
| | 92 | - | - | - | - | - | - |
| | 93 | Strong | - | Strong | - | Strong | - |
| | 94 | - | - | - | - | - | - |
| | 95 | - | - | - | - | - | - |
| | 96 | - | - | - | - | - | - |
| | 97 | - | - | - | - | - | - |
| Services | 99 | - | - | - | - | - | - |

Source: Authors' calculation

# III. Regional Analysis: Spatial Value Chains of Exports

In this section, we use interregional input-output techniques to analyze the regional effects of Brazilian exports to Morocco, as well as Moroccan exports to Brazil. The general equilibrium nature of economic interdependence and the fact that the impacts in various regional markets differ are considered in the results of the model. Attention is directed to one main issue, namely the differential regional impacts of the current export flows structure on regional value added. We have selected estimates for 2013, as we have access to interregional input-output data for both countries for that year.

In order to grasp the differential local effects associated to international exports, we used two interregional input-output models, one calibrated with data for Brazil (Haddad et al., 2017b) and the other with data for Morocco (Haddad, 2017a). The simulation strategy is to introduce a final-demand "shock" related to the existing structure of international exports in the context of bilateral trade between Brazil and Morocco and to evaluate its distributional regional impacts. By looking at the spatial value chains of both export profiles, we are able to check in how the respective production structures act through the operation of multiplier effects.

Table 10 presents the results for Brazil focusing on the regional distribution of value added effects of Brazilian exports to Morocco. For reference, the second column shows the regional USD of national exports to Morocco; the fourth column presents the regional distribution of the effects of Moroccan expenditures on Brazilian products on the generation of value added in the Brazilian economy. Comparing such distributions, one can have an idea on the presence of relevant interregional leakages associated with specific value chains. For instance, while the São Paulo was responsible for almost 70% of total exports to Morocco in 2013, the state economy achieved less than 50% of total value added associated with such flows. On the other hand, the some states with relevant natural-resource-based activities that supply the manufacturing sector in São Paulo, achieved shares in the impact on value added above their respective shares in national exports to Morocco. States highlighted in the Table are those that have shown to receive benefits "beyond their contribution", i.e. their share in total benefits is higher than their share in total expenditures.

Similarly, Table 11 presents the results for Morocco focusing on the regional distribution of value added effects

of Moroccan exports to Brazil. The interesting case of the fertilizer industry, whose exports to Brazil depart mainly from Casablanca, reveal a pattern associated with it spatial value chain that indirectly benefit value added generation in the mining areas of Béni Mellal-Khénifra. Regions highlighted in Table 11 are those that have shown to receive benefits "beyond their contribution.

**Table 10. Regional Value Added Effects of Brazilian Exports to Morocco**

| Regions | Exports* | Share EXP | Value-Added* ($VA_{EXP}$) | Share $VA_{EXP}$ |
|---|---|---|---|---|
| Rondônia | 0.94 | 0.19% | 1.08 | 0.28% |
| Acre | 0.00 | 0.00% | 0.41 | 0.11% |
| Amazonas | 0.00 | 0.00% | 2.47 | 0.65% |
| Roraima | 0.00 | 0.00% | 0.05 | 0.01% |
| Pará | 0.68 | 0.14% | 5.67 | 1.49% |
| Amapá | 0.00 | 0.00% | 0.09 | 0.02% |
| Tocantins | 1.06 | 0.22% | 1.64 | 0.43% |
| Maranhão | 2.57 | 0.53% | 4.56 | 1.19% |
| Piauí | 0.10 | 0.02% | 1.17 | 0.31% |
| Ceará | 4.50 | 0.92% | 4.56 | 1.19% |
| Rio Grande do Norte | 0.29 | 0.06% | 4.46 | 1.17% |
| Paraíba | 0.21 | 0.04% | 0.86 | 0.23% |
| Pernambuco | 33.19 | 6.81% | 5.05 | 1.32% |
| Alagoas | 0.25 | 0.05% | 3.16 | 0.83% |
| Sergipe | 0.00 | 0.00% | 2.28 | 0.60% |
| Bahia | 6.41 | 1.32% | 13.36 | 3.50% |
| Minas Gerais | 43.92 | 9.01% | 35.83 | 9.39% |
| Espírito Santo | 0.26 | 0.05% | 5.26 | 1.38% |
| Rio de Janeiro | 0.46 | 0.09% | 20.78 | 5.45% |
| São Paulo | 334.13 | 68.55% | 176.13 | 46.17% |
| Paraná | 9.74 | 2.00% | 27.81 | 7.29% |
| Santa Catarina | 6.47 | 1.33% | 9.63 | 2.52% |
| Rio Grande do Sul | 4.87 | 1.00% | 15.48 | 4.06% |
| Mato Grosso do Sul | 9.78 | 2.01% | 10.01 | 2.62% |
| Mato Grosso | 18.28 | 3.75% | 16.55 | 4.34% |
| Goiás | 9.30 | 1.91% | 11.54 | 3.02% |
| Distrito Federal | 0.03 | 0.01% | 1.63 | 0.43% |
| Total | 487.45 | 100.00% | 381.50 | 100.00% |

*millions USD.

**Table 11. Regional Value Added Effects of Moroccan Exports to Brazil**

| | Regions | Exports* | Share EXP | Value-Added ($VA_{EXP}$)* | Share $VA_{EXP}$ |
|---|---|---|---|---|---|
| R1 | Tanger-Tetouan-Al Hoceima | 4.89 | 0.38% | 6.41 | 0.97% |
| R2 | Oriental | 1.89 | 0.15% | 8.64 | 1.31% |
| R3 | Fès-Meknès | 6.57 | 0.51% | 11.72 | 1.78% |
| R4 | Rabat-Salé-Kénitra | 0.19 | 0.01% | 13.29 | 2.02% |
| R5 | Béni Mellal-Khénifra | 4.52 | 0.35% | 66.29 | 10.07% |
| R6 | Grand Casablanca-Settat | 374.66 | 29.07% | 121.77 | 18.50% |
| R7 | Marrakech-Safi | 860.59 | 66.78% | 370.78 | 56.34% |
| R8 | Drâa-Tafilalet | 0.00 | 0.00% | 18.81 | 2.86% |
| R9 | Souss-Massa | 14.81 | 1.15% | 13.55 | 2.06% |
| R10 | Guelmim-Oued Noun | 1.16 | 0.09% | 1.29 | 0.20% |
| R11 | Laayoune-Sakia El Hamra | 16.18 | 1.26% | 24.27 | 3.69% |
| R12 | Dakhla-Oued Eddahab | 3.28 | 0.25% | 1.27 | 0.19% |
| Total | | 1288.75 | 100.00% | 658.08 | 100.00% |

# IV. Bilateral Trade Liberalization: A CGE Experiment

To analyze the impacts of an elimination of tariffs between Brazil and Morocco, we use the Global Trade Analysis Project (GTAP) database to calibrate a computable general equilibrium (CGE) model for 2011 (base year) that captures the trade relations between Brazil and Morocco. In this experiment, we suppose that Brazil and Morocco eliminate tariffs and export subsidies on trade with each other. In other words, we draw an experiment where there are no tariffs and export subsidies on trade between these countries. This exercise allows us to look at the welfare effects of trade liberalization (equivalent variation, EV) and effects on trade flows (% change from base year).

Table 12 describes the welfare effects of trade liberalization by region and by policy change, i.e., it shows the EV of each region (BRA, MAR, and ROW) due to the elimination of tariffs and export subsidies on trade with Morocco by Brazil (BRA Reform Policy), and the elimination of tariffs and export subsidies on trade with Brazil by Morocco (MAR Reform Policy). Moreover, Table 10 also describes the total global trade effects on welfare (BRA Reform Policy and MAR Reform Policy together). When Brazil and Morocco eliminate tariff and export subsidies on trade with each other (both policy reforms), there is an opposite result to Brazil and Morocco. On the one hand, there is a potential increase in welfare in Brazil equal to 212.46 (in USD millions). On the other hand, the welfare in Morocco and in the ROW decreases (-88.03 and -64.32, respectively). These results can be explained in part by the increase in the competition, as both countries eliminate the tariffs and export subsidies on trade with each other. To have a better explanation, we look at the effect of the Morocco Policy Reform and Brazil Policy Reform separately. When we look only at the Morocco Policy Reform, we can observe that Brazil has a greater advantage. Brazil has a welfare effect equal to 212.46 (in USD millions). On the contrary, Morocco and ROW have a negative effect (-140.82 and -23.26, respectively). Similarly, we look only at the Brazil Policy Reform. From this specific policy, tariffs and export subsidies on trade elimination by Brazil with Morocco, we can observe that Morocco has some advantage. Morocco has a welfare effect equal to 52.79, whereas Brazil and ROW have a negative effect (-14.93 and -41.06, respectively). These results can be explained in part by the different sizes of these two economies, the share of each economy in the international trade, and the degree of inter-sectorial integration in each country.

Table 13 presents the decomposition of the total welfare effect of trade liberalization. On the one hand, Morocco and Brazil benefit from efficiency gains, although these are relativity small. On the contrary, ROW does not benefit from efficiency gains. We also can look at the terms-of-trade effects. It is important to emphasize that the terms-of-trade measure the price of a country's exports relative to its imports or, i.e., the import purchasing power of its exports. In our experiment, we can observe that the terms-of-trade effect is the most important component for both countries. This component has an import contribution to the total welfare effect of each country. For Brazil, the terms-of-trade component is equal to 168.93, whereas the same component to Morocco is equal to -107.35.

**Table 12. Welfare Effects of Trade Liberalization, by regions and by policy (in US$ million)**

| EV | Total | BRA. Policy Reform | MAR. Policy Reform |
|---|---|---|---|
| BRA | 195.93 | -14.93 | 212.46 |
| MAR | -88.03 | 52.79 | -140.82 |
| ROW | -64.32 | -41.06 | -23.26 |

**Table 13. Decomposition of the Total Welfare Effect, US$ Millions**

| EV | Total | Allocative Efficiency | Terms of Trade in Goods and Services | Terms of Trade in Savings-Investment |
|---|---|---|---|---|
| BRA | 195.93 | 29.88 | 168.93 | -2.88 |
| Mar | -88.03 | 56.18 | -107.35 | -36.86 |
| ROW | -64.32 | -42.35 | -61.62 | 39.65 |
| Total | 43.58 | 43.71 | -0.04 | -0.09 |

We have also calculated the effects of trade liberalization on exports by sector. Overall, the majority of the Brazilian sectors decrease its exports. Thus, as only seven sectors present positive variation in its exports, we can conclude that the gains from trade liberalization are concentrated in the Brazilian economy. The greater positive variation was on Wheat: wheat and meslin (17.2%) followed by Milk: dairy products (7.32%) and Sugar (2.12%). All of them are related to the agriculture sector. Observing the database, we verify that these three sectors are responsible for 6.64% of the total Brazilian exports to Morocco. From the losers' side, we can highlight the performance of Cane and Beet: sugar cane and sugar beet (-0.84%); Paddy Rice: rice, husked and unhusked (-0.92%); and Wool: wool, silk, and other raw animal materials used in textile (-1.18%). Observing the database, we verify that these three sectors have a small share on Brazilian exports to Morocco. They are responsible for only 0.04% of the total Brazilian exports to Morocco. The result for Moroccan exports shows that only two sectors present a negative impact. The three most important impacts are on Wheat: wheat and meslin (6.2%); Raw milk (5.85%); and Paddy Rice: rice, husked and unhusked (5.1%). These three sectors are responsible for only 0.21% of the total Moroccan exports to Brazil. From the loser side, we can highlight Oil (-0.01%) and Gas (-0.2%). The effects of a withdrawal of export subsidy for a particular good are similar to tariff rate upon exports. The withdrawal of an export subsidy can ensure that the domestic production first meets domestic demand at lower prices. It is also important to highlight that the effect of withdrawal of export subsidy will be positive or negative within the country depending on the size of the export activity on the economy in

question and how this activity is related to the economy as a whole, i.e., the spillovers through the generation of employment and income, for example. Moreover, if the exporting country has market power in international trade, it will be able to take advantage of this scenario, as the demand for its products may be less sensitive to changes in export prices.

# Concluding Remarks

In this paper, we have disentangled different aspects of bilateral trade between Brazil and Morocco. We have looked at different aspects of recent statistics, considering not only aggregate trade flows, but also a finer level of sectoral and spatial disaggregation. Geography plays an important role in this picture, as attested by our analysis of integrated spatial value chains of exports originating from both countries.

In general, one can say that a significant part of the bilateral trade between Brazil and Morocco is associated with the agricultural productive chain (export of agricultural raw materials by Morocco and the export of food products by Brazil). At the same time, intra-industry trade does not have an expressive role on trade flows. One additional statement to be considered is that there are trade policy restrictions (high tariffs and trade agreements) that limit the opportunities to increase bilateral trade.

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## Annex I. Commodity list and description (HS 2002 Classification – 2 digit)

| Commodity Code | Name | Description |
|---|---|---|
| 1 | Live animals | Live animals |
| 2 | Meat and edible meat offal | Meat and edible meat offal |
| 3 | Fish and crustaceans, molluscs and other aquatic invertebrates | Fish and crustaceans, molluscs and other aquatic invertebrates |
| 4 | Dairy produce; birds eggs; natural honey; | Dairy produce; birds eggs; natural honey; edible products of animal origin, not elsewhere specified or included |
| 5 | Products of animal origin, not elsewhere specified | Products of animal origin, not elsewhere specified or included |
| 6 | Live trees and other plants | Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage |
| 7 | Edible vegetables and certain roots and tubers | Edible vegetables and certain roots and tubers |
| 8 | Edible fruit and nuts; peel of citrus fruit or melons | Edible fruit and nuts; peel of citrus fruit or melons |
| 9 | Coffee, tea, matF and spices | Coffee, tea, matT and spices |
| 10 | Cereals | Cereals |
| 11 | Products of the milling industry; malt; starches; inulin | Products of the milling industry; malt; starches; inulin; wheat gluten |
| 12 | Oil seeds and oleaginous fruits | Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruits; industrial or medicinal plants; straw and fodder |
| 13 | Lac; gums, resins and other vegetable saps and extracts | Lac; gums, resins and other vegetable saps and extracts |
| 14 | Vegetable plaiting materials; vegetable products nes | Vegetable plaiting materials; vegetable products not elsewhere specified or included |
| 15 | Animal or vegetable fats and oils | Animal or vegetable fats and oils and their cleavage products prepared edible fats; animal or vegetable waxes |
| 16 | Preparations of meat, of fish or of crustaceans | Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates |
| 17 | Sugars and sugar confectionery | Sugars and sugar confectionery |
| 18 | Cocoa and cocoa preparations | Cocoa and cocoa preparations |
| 19 | Preparations of cereals, flour, starch or milk; bakers' wares | Preparations of cereals, flour, starch or milk; bakers' wares |
| 20 | Preparations of vegetables, fruit or nuts | Preparations of vegetables, fruit, nuts or other parts of plants |
| 21 | Miscellaneous edible preparations | Miscellaneous edible preparations |
| 22 | Beverages, spirits and vinegar | Beverages, spirits and vinegar |
| 23 | Residues and waste from the food industries | Residues and waste from the food industries; prepared animal feed |

| | | |
|---|---|---|
| 24 | Tobacco and manufactured tobacco substitutes | Tobacco and manufactured tobacco substitutes |
| 25 | Salt; sulfur; earths and stone; plastering materials | Salt; sulfur; earths and stone; plastering materials, lime and cement |
| 26 | Ores, slag and ash | Ores, slag and ash |
| 27 | Mineral fuels, mineral oils and products of their distillation | Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes |

## Annex I. Commodity list and description (HS 2002 Classification – 2 digit) (cont.)

| Commodity Code | Name | Description |
|---|---|---|
| 28 | Inorganic chemicals | Inorganic chemicals; organic or inorganic compounds of precious metals, of rare earth metals, of radioactive elements or of isotopes |
| 29 | Organic chemicals | Organic chemicals |
| 30 | Pharmaceutical products | Pharmaceutical products |
| 31 | Fertilizers | Fertilizers |
| 32 | Tanning or dyeing extracts | Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other coloring matter; paints and varnishes; putty and other mastics; inks |
| 33 | Essential oils and resinoids; perfumery, cosmetic or toilet preparations | Essential oils and resinoids; perfumery, cosmetic or toilet preparations |
| 34 | Soap, organic surface-active agents | Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes and dental preparations with a basis of plaster |
| 35 | Albuminoidal substances; modified starches; glues; enzymes | Albuminoidal substances; modified starches; glues; enzymes |
| 36 | Explosives; pyrotechnic products; matches | Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations |
| 37 | Photographic or cinematographic goods | Photographic or cinematographic goods |
| 38 | Miscellaneous chemical products | Miscellaneous chemical products |
| 39 | Plastics and articles thereof | Plastics and articles thereof |
| 40 | Rubber and articles thereof | Rubber and articles thereof |
| 41 | Raw hides and skins (other than fur skins) and leather | Raw hides and skins (other than fur skins) and leather |
| 42 | Articles of leather; saddlery and harness | Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silkworm gut) |
| 43 | Fur skins and artificial fur; manufactures thereof | Fur skins and artificial fur; manufactures thereof |
| 44 | Wood and articles of wood; wood charcoal | Wood and articles of wood; wood charcoal |
| 45 | Cork and articles of cork | Cork and articles of cork |

| | | |
|---|---|---|
| 46 | Manufactures of straw, of esparto or of other plaiting materials | Manufactures of straw, of esparto or of other plaiting materials; basket ware and wickerwork |
| 47 | Pulp of wood or of other fibrous cellulose material | Pulp of wood or of other fibrous cellulose material; waste and scrap of paper or paperboard |
| 48 | Paper and paperboard; articles of paper pulp, of paper or of paperboard | Paper and paperboard; articles of paper pulp, of paper or of paperboard |
| 49 | Printed books, newspapers, pictures and other products of the printing indu ... | Printed books, newspapers, pictures and other products of the printing industry; manuscripts, typescripts and plans |
| 50 | Silk | Silk |
| 51 | Wool, fine or coarse animal hair; horsehair yarn and woven fabric | Wool, fine or coarse animal hair; horsehair yarn and woven fabric |
| 52 | Cotton | Cotton |

## Annex I. Commodity list and description (HS 2002 Classification – 2 digit) (cont.)

| Commodity Code | Name | Description |
|---|---|---|
| 53 | Other vegetable textile fibers; paper yarn and woven fabric of paper yarn | Other vegetable textile fibers; paper yarn and woven fabric of paper yarn |
| 54 | Man-made filaments | Man-made filaments |
| 55 | Man-made staple fibers | Man-made staple fibers |
| 56 | Wadding, felt and non-wovens; special yarns, twine, cordage, ropes and cabl ... | Wadding, felt and non-wovens; special yarns, twine, cordage, ropes and cables and articles thereof |
| 57 | Carpets and other textile floor coverings | Carpets and other textile floor coverings |
| 58 | Special woven fabrics; tufted textile fabrics; lace, tapestries; trimmings; ... | Special woven fabrics; tufted textile fabrics; lace, tapestries; trimmings; embroidery |
| 59 | Impregnated, coated, covered or laminated textile fabrics | Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use |
| 60 | Knitted or crocheted fabrics | Knitted or crocheted fabrics |
| 61 | Articles of apparel and clothing accessories, knitted or crocheted | Articles of apparel and clothing accessories, knitted or crocheted |
| 62 | Articles of apparel and clothing accessories, not knitted or crocheted | Articles of apparel and clothing accessories, not knitted or crocheted |
| 63 | Other made up textile articles; sets; worn clothing and worn textile articl ... | Other made up textile articles; sets; worn clothing and worn textile articles; rags |
| 64 | Footwear, gaiters and the like; parts of such articles | Footwear, gaiters and the like; parts of such articles |
| 65 | Headgear and parts thereof | Headgear and parts thereof |
| 66 | Umbrellas, sun umbrellas, walking sticks, seat sticks, whips, riding-crops | Umbrellas, sun umbrellas, walking sticks, seat sticks, whips, riding-crops and parts thereof |
| 67 | Prepared feathers and down and articles made of feathers or of down | Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair |

| | | |
|---|---|---|
| 68 | Articles of stone, plaster, cement, asbestos, mica or similar materials | Articles of stone, plaster, cement, asbestos, mica or similar materials |
| 69 | Ceramic products | Ceramic products |
| 70 | Glass and glassware | Glass and glassware |
| 71 | Natural or cultured pearls, precious or semi-precious stones | Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation jewelry; coin |
| 72 | Iron and steel | Iron and steel |
| 73 | Articles of iron or steel | Articles of iron or steel |
| 74 | Copper and articles thereof | Copper and articles thereof |
| 75 | Nickel and articles thereof | Nickel and articles thereof |
| 76 | Aluminum and articles thereof | Aluminum and articles thereof |
| 77 | (Reserved for possible future use) | (Reserved for possible future use) |
| 78 | Lead and articles thereof | Lead and articles thereof |
| 79 | Zinc and articles thereof | Zinc and articles thereof |
| 80 | Tin and articles thereof | Tin and articles thereof |
| 81 | Other base metals; cermets; articles thereof | Other base metals; cermets; articles thereof |
| 82 | Tools, implements, cutlery, spoons and forks, of base metal | Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal |

## Annex I. Commodity list and description (HS 2002 Classification – 2 digit) (cont.)

| Commodity Code | Name | Description |
|---|---|---|
| 83 | Miscellaneous articles of base metal | Miscellaneous articles of base metal |
| 84 | Machinery and mechanical appliances; parts thereof | Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof |
| 85 | Electrical machinery and equipment and parts thereof; sound recorders and r ... | Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles |
| 86 | Railway or tramway locomotives, rolling-stock and parts thereof | Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signaling equipment of all kinds |
| 87 | Vehicles other than railway or tramway rolling stock | Vehicles other than railway or tramway rolling stock, and parts and accessories thereof |
| 88 | Aircraft, spacecraft, and parts thereof | Aircraft, spacecraft, and parts thereof |
| 89 | Ships, boats and floating structures | Ships, boats and floating structures |
| 90 | Optical, photographic, cinematographic, measuring, checking, precision, med ... | Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof |
| 91 | Clocks and watches and parts thereof | Clocks and watches and parts thereof |
| 92 | Musical instruments; parts and accessories of such articles | Musical instruments; parts and accessories of such articles |
| 93 | Arms and ammunition; parts and accessories thereof | Arms and ammunition; parts and accessories thereof |

| | | |
|---|---|---|
| 94 | Furniture; bedding, mattresses, cushions and similar stuffed furnishing | Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated sign illuminated nameplates and the like; prefabricated buildings |
| 95 | Toys, games and sports requisites; parts and accessories thereof | Toys, games and sports requisites; parts and accessories thereof |
| 96 | Miscellaneous manufactured articles | Miscellaneous manufactured articles |
| 97 | Works of art, collectors' pieces and antiques | Works of art, collectors' pieces and antiques |
| 99 | Commodities not specified according to kind | Commodities not specified according to kind |

Source: UN Comtrade Database.

## Annex II. Commodity list and description (GTAP)

| Number | Code | Name | Description |
|---|---|---|---|
| 1 | pdr | Paddy Rice | rice, husked and unhusked |
| 2 | wht | Wheat | wheat and meslin |
| 3 | gro | Other Grains | maize (corn), barley, rye, oats, other cereals |
| 4 | v_f | Veg & Fruit | vegetables, fruitvegetables, fruit and nuts, potatoes, cassava, truffles, |
| 5 | osd | Oil Seeds | oil seeds and oleaginous fruit; soy beans, copra |
| 6 | c_b | Cane & Beet | sugar cane and sugar beet |
| 7 | pfb | Plant Fibres | cotton, flax, hemp, sisal and other raw vegetable materials used in textiles |
| 8 | ocr | Other Crops | live plants; cut flowers and flower buds; flower seeds and fruit seeds; vegetable seeds, beverage and spice crops, unmanufactured tobacco, cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets; swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets, plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes, sugar beet seed and seeds of forage plants, other raw vegetable materials |
| 9 | ctl | Cattle | cattle, sheep, goats, horses, asses, mules, and hinnies; and semen thereof |
| 10 | oap | Other Animal Products | swine, poultry and other live animals; eggs, in shell (fresh or cooked), natural honey, snails (fresh or preserved) except sea snails; frogs' legs, edible products of animal origin n.e.c., hides, skins and furskins, raw , insect waxes and spermaceti, whether or not refined or coloured |
| 11 | rmk | Raw milk | |
| 12 | wol | Wool | wool, silk, and other raw animal materials used in textile |
| 13 | frs | Forestry | forestry, logging and related service activities |
| 14 | fsh | Fishing | hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing |
| 15 | coa | Coal | mining and agglomeration of hard coal, lignite and peat |

| | | | |
|---|---|---|---|
| 16 | oil | Oil | extraction of crude petroleum and natural gas (part), service activities incidental to oil and gas extraction excluding surveying (part) |
| 17 | gas | Gas | extraction of crude petroleum and natural gas (part), service activities incidental to oil and gas extraction excluding surveying (part) |
| 18 | omn | Other Mining | mining of metal ores, uranium, gems. other mining and quarrying |
| 19 | cmt | Cattle Meat | fresh or chilled meat and edible offal of cattle, sheep, goats, horses, asses, mules, and hinnies. raw fats or grease from any animal or bird. |

## Annex II. Commodity list and description (GTAP) (cont.)

| Number | Code | Name | Description |
|---|---|---|---|
| 20 | omt | Other Meat | pig meat and offal. preserves and preparations of meat, meat offal or blood, flours, meals and pellets of meat or inedible meat offal; greaves |
| 21 | vol | Vegetable Oils | crude and refined oils of soya-bean, maize (corn),olive, sesame, ground-nut, olive, sunflower-seed, safflower, cotton-seed, rape, colza and canola, mustard, coconut palm, palm kernel, castor, tung jojoba, babassu and linseed, perhaps partly or wholly hydrogenated,inter-esterified, re-esterified or elaidinised. Also margarine and similar preparations, animal or vegetable waxes, fats and oils and their fractions, cotton linters, oil-cake and other solid residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; degras and other residues resulting from the treatment of fatty substances or animal or vegetable waxes. |
| 22 | mil | Milk | dairy products |
| 23 | pcr | Processed Rice | rice, semi- or wholly milled |
| 24 | sgr | Sugar | |
| 25 | ofd | Other Food | prepared and preserved fish or vegetables, fruit juices and vegetable juices, prepared and preserved fruit and nuts, all cereal flours, groats, meal and pellets of wheat, cereal groats, meal and pellets n.e.c., other cereal grain products (including corn flakes), other vegetable flours and meals, mixes and doughs for the preparation of bakers' wares, starches and starch products; sugars and sugar syrups n.e.c., preparations used in animal feeding, bakery products, cocoa, chocolate and sugar confectionery, macaroni, noodles, couscous and similar farinaceous products, food products n.e.c. |
| 26 | b_t | Beverages and Tobacco products | |
| 27 | tex | Textiles | textiles and man-made fibres |
| 28 | wap | Wearing Apparel | Clothing, dressing and dyeing of fur |
| 29 | lea | Leather | tanning and dressing of leather; luggage, handbags, saddlery, harness and footwear |
| 30 | lum | Lumber | wood and products of wood and cork, except furniture; articles of straw and plaiting materials |
| 31 | ppp | Paper & Paper Products | includes publishing, printing and reproduction of recorded media |

| | | | |
|---|---|---|---|
| 32 | p_c | Petroleum & Coke | coke oven products, refined petroleum products, processing of nuclear fuel |
| 33 | crp | Chemical Rubber Products | basic chemicals, other chemical products, rubber and plastics products |
| 34 | nmm | Non-Metallic Minerals | cement, plaster, lime, gravel, concrete |

## Annex II. Commodity list and description (GTAP) 9cont.)

| Number | Code | Name | Description |
|---|---|---|---|
| 35 | i_s | Iron & Steel | basic production and casting |
| 36 | nfm | Non-Ferrous Metals | production and casting of copper, aluminium, zinc, lead, gold, and silver |
| 37 | fmp | Fabricated Metal Products | Sheet metal products, but not machinery and equipment |
| 38 | mvh | Motor, Motor vehicles and parts | cars, lorries, trailers and semi-trailers |
| 39 | otn | Other Transport Equipment | Manufacture of other transport equipment |
| 40 | ele | Electronic Equipment | office, accounting and computing machinery, radio, television and communication equipment and apparatus |
| 41 | ome | Other Machinery & Equipment | electrical machinery and apparatus n.e.c., medical, precision and optical instruments, watches and clocks |
| 42 | omf | Other Manufacturing | includes recycling |
| 43 | ely | Electricity | production, collection and distribution |
| 44 | gdt | Gas Distribution | distribution of gaseous fuels through mains; steam and hot water supply |
| 45 | wtr | Water | collection, purification and distribution |
| 46 | cns | Construction | building houses factories offices and roads |
| 47 | trd | Trade | all retail sales; wholesale trade and commission trade; hotels and restaurants; repairs of motor vehicles and personal and household goods; retail sale of automotive fuel |
| 48 | otp | Other Transport | road, rail ; pipelines, auxiliary transport activities; travel agencies |
| 49 | wtp | Water transport | |
| 50 | atp | Air transport | |
| 51 | cmn | Communications | post and telecommunications |
| 52 | ofi | Other Financial Intermediation | includes auxiliary activities but not insurance and pension funding (see next) |
| 53 | isr | Insurance | includes pension funding, except compulsory social security |
| 54 | obs | Other Business Services | real estate, renting and business activities |
| 55 | ros | Recreation & Other Services | recreational, cultural and sporting activities, other service activities; private households with employed persons (servants) |

| | | | |
|---|---|---|---|
| 56 | osg | Other Services (Government) | public administration and defense; compulsory social security, education, health and social work, sewage and refuse disposal, sanitation and similar activities, activities of membership organizations n.e.c., extra-territorial organizations and bodies |
| 57 | dwe | Dwellings | ownership of dwellings (imputed rents of houses occupied by owners) |

Source: GTAP Database.

## Annex III. RCA Index for Brazil

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.28 | 0.53 | 1.52 | 1.88 | 2.22 | 2.95 | 1.68 | 2.17 | 2.71 | 2.62 |
| 2 | 9.42 | 9.17 | 10.19 | 9.85 | 8.92 | 9.31 | 8.17 | 8.47 | 8.95 | 9.42 |
| 3 | 0.60 | 0.50 | 0.37 | 0.27 | 0.20 | 0.19 | 0.15 | 0.15 | 0.15 | 0.14 |
| 4 | 0.34 | 0.35 | 0.48 | 0.71 | 0.41 | 0.32 | 0.23 | 0.23 | 0.18 | 0.44 |
| 5 | 2.85 | 3.00 | 3.88 | 4.15 | 4.78 | 4.80 | 4.07 | 4.47 | 4.66 | 4.91 |
| 6 | 0.17 | 0.18 | 0.17 | 0.15 | 0.14 | 0.12 | 0.09 | 0.09 | 0.08 | 0.09 |
| 7 | 0.04 | 0.04 | 0.10 | 0.04 | 0.06 | 0.02 | 0.04 | 0.06 | 0.04 | 0.08 |
| 8 | 1.20 | 1.16 | 1.30 | 1.11 | 0.99 | 0.87 | 0.72 | 0.71 | 0.66 | 0.64 |
| 9 | 12.45 | 12.49 | 11.87 | 11.36 | 11.02 | 11.27 | 11.66 | 9.52 | 8.72 | 11.12 |
| 10 | 0.38 | 1.07 | 2.39 | 1.45 | 1.67 | 2.35 | 2.41 | 3.95 | 4.35 | 2.98 |
| 11 | 0.26 | 0.34 | 0.37 | 0.30 | 0.34 | 0.26 | 0.28 | 0.27 | 0.27 | 0.34 |
| 12 | 15.30 | 15.61 | 13.42 | 13.68 | 15.68 | 12.48 | 13.99 | 13.58 | 17.33 | 18.90 |
| 13 | 1.20 | 1.12 | 1.19 | 1.21 | 1.14 | 1.12 | 0.94 | 0.57 | 0.83 | 1.01 |
| 14 | 0.94 | 1.69 | 0.33 | 1.05 | 0.96 | 1.16 | 1.38 | 1.83 | 0.65 | 0.73 |
| 15 | 3.90 | 3.23 | 3.31 | 3.21 | 2.20 | 1.56 | 1.64 | 1.74 | 1.42 | 1.34 |
| 16 | 3.11 | 3.59 | 3.95 | 4.26 | 3.86 | 3.01 | 2.65 | 2.51 | 2.35 | 2.50 |
| 17 | 14.88 | 18.74 | 15.66 | 14.52 | 20.66 | 22.96 | 20.38 | 18.76 | 18.52 | 17.40 |
| 18 | 1.62 | 1.40 | 1.17 | 1.01 | 0.86 | 0.84 | 0.67 | 0.63 | 0.54 | 0.58 |
| 19 | 0.33 | 0.36 | 0.43 | 0.58 | 0.35 | 0.26 | 0.23 | 0.24 | 0.24 | 0.25 |
| 20 | 3.38 | 3.93 | 4.67 | 3.60 | 3.28 | 3.19 | 3.27 | 3.28 | 3.17 | 3.01 |
| 21 | 1.73 | 1.74 | 1.88 | 1.85 | 1.66 | 1.82 | 1.44 | 1.53 | 1.50 | 1.39 |
| 22 | 1.18 | 2.10 | 1.62 | 2.16 | 1.44 | 0.97 | 1.08 | 1.59 | 1.36 | 0.77 |
| 23 | 8.69 | 6.89 | 6.77 | 7.03 | 7.62 | 6.86 | 6.42 | 6.89 | 6.68 | 7.18 |
| 24 | 5.91 | 5.66 | 6.44 | 6.57 | 7.16 | 6.02 | 5.11 | 5.92 | 5.94 | 4.81 |
| 25 | 1.81 | 1.90 | 1.94 | 1.33 | 1.52 | 1.47 | 1.23 | 1.29 | 1.40 | 1.42 |
| 26 | 10.32 | 9.46 | 9.12 | 11.16 | 10.90 | 12.60 | 12.35 | 10.93 | 11.30 | 10.75 |
| 27 | 0.51 | 0.56 | 0.67 | 0.59 | 0.70 | 0.70 | 0.65 | 0.67 | 0.46 | 0.69 |
| 28 | 1.45 | 1.83 | 1.91 | 1.75 | 2.11 | 2.01 | 1.98 | 2.02 | 1.91 | 2.49 |
| 29 | 0.60 | 0.61 | 0.67 | 0.63 | 0.67 | 0.68 | 0.59 | 0.58 | 0.60 | 0.65 |
| 30 | 0.16 | 0.18 | 0.18 | 0.20 | 0.21 | 0.23 | 0.22 | 0.24 | 0.24 | 0.25 |
| 31 | 0.55 | 0.51 | 0.65 | 0.49 | 0.49 | 0.44 | 0.38 | 0.35 | 0.51 | 0.51 |
| 32 | 0.45 | 0.50 | 0.49 | 0.49 | 0.46 | 0.45 | 0.42 | 0.45 | 0.40 | 0.40 |
| 33 | 0.54 | 0.60 | 0.57 | 0.57 | 0.57 | 0.59 | 0.56 | 0.55 | 0.48 | 0.51 |
| 34 | 0.48 | 0.50 | 0.50 | 0.50 | 0.49 | 0.51 | 0.43 | 0.46 | 0.42 | 0.43 |
| 35 | 1.04 | 1.10 | 1.05 | 1.00 | 1.24 | 1.07 | 1.02 | 1.21 | 1.34 | 1.21 |
| 36 | 0.85 | 0.80 | 0.61 | 0.56 | 0.56 | 0.53 | 0.58 | 0.76 | 0.73 | 0.99 |
| 37 | 0.57 | 0.47 | 0.49 | 0.38 | 0.35 | 0.32 | 0.21 | 0.23 | 0.28 | 0.29 |
| 38 | 0.47 | 0.48 | 0.52 | 0.46 | 0.45 | 0.47 | 0.42 | 0.44 | 0.41 | 0.42 |
| 39 | 0.51 | 0.57 | 0.55 | 0.46 | 0.58 | 0.51 | 0.50 | 0.48 | 0.45 | 0.49 |
| 40 | 1.20 | 1.21 | 1.29 | 1.17 | 1.11 | 0.94 | 0.78 | 0.82 | 0.76 | 0.81 |
| 41 | 4.51 | 5.57 | 5.96 | 5.17 | 4.52 | 4.41 | 4.41 | 4.84 | 5.40 | 6.68 |
| 42 | 0.34 | 0.30 | 0.23 | 0.20 | 0.19 | 0.13 | 0.08 | 0.07 | 0.06 | 0.06 |
| 43 | 0.20 | 0.32 | 0.48 | 0.35 | 0.31 | 0.26 | 0.24 | 0.21 | 0.20 | 0.27 |
| 44 | 2.66 | 2.56 | 2.37 | 1.93 | 1.55 | 1.41 | 1.13 | 1.19 | 1.19 | 1.34 |
| 45 | 0.08 | 0.09 | 0.09 | 0.09 | 0.10 | 0.09 | 0.10 | 0.12 | 0.10 | 0.09 |
| 46 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 |
| 47 | 6.76 | 7.28 | 6.97 | 7.75 | 8.73 | 8.19 | 6.96 | 7.67 | 8.56 | 9.32 |
| 48 | 0.86 | 0.89 | 0.88 | 0.87 | 0.90 | 0.90 | 0.81 | 0.82 | 0.82 | 0.84 |
| 49 | 0.14 | 0.15 | 0.12 | 0.10 | 0.08 | 0.07 | 0.08 | 0.10 | 0.06 | 0.07 |

## Annex III. RCA Index for Brazil (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 0.88 | 1.06 | 0.94 | 0.75 | 0.76 | 0.82 | 0.69 | 0.73 | 0.88 | 0.93 |
| 51 | 0.14 | 0.16 | 0.17 | 0.17 | 0.21 | 0.21 | 0.18 | 0.19 | 0.24 | 0.22 |
| 52 | 1.48 | 1.19 | 1.42 | 1.50 | 1.64 | 1.35 | 1.81 | 2.54 | 1.38 | 1.96 |
| 53 | 1.11 | 1.26 | 1.21 | 1.17 | 0.94 | 0.80 | 0.80 | 1.09 | 0.92 | 1.39 |
| 54 | 0.29 | 0.25 | 0.23 | 0.22 | 0.21 | 0.17 | 0.14 | 0.15 | 0.15 | 0.16 |
| 55 | 0.40 | 0.45 | 0.52 | 0.43 | 0.34 | 0.39 | 0.23 | 0.23 | 0.30 | 0.23 |
| 56 | 0.80 | 0.97 | 0.97 | 1.07 | 1.02 | 1.00 | 0.90 | 0.86 | 0.79 | 0.76 |
| 57 | 0.16 | 0.15 | 0.14 | 0.13 | 0.10 | 0.12 | 0.10 | 0.10 | 0.09 | 0.07 |
| 58 | 0.25 | 0.46 | 0.65 | 0.38 | 0.26 | 0.27 | 0.29 | 0.32 | 0.33 | 0.34 |
| 59 | 0.44 | 0.45 | 0.41 | 0.38 | 0.40 | 0.42 | 0.41 | 0.45 | 0.38 | 0.33 |
| 60 | 0.22 | 0.24 | 0.22 | 0.21 | 0.12 | 0.15 | 0.12 | 0.13 | 0.12 | 0.13 |
| 61 | 0.14 | 0.10 | 0.08 | 0.06 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |
| 62 | 0.09 | 0.07 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 |
| 63 | 1.02 | 0.79 | 0.75 | 0.56 | 0.41 | 0.33 | 0.14 | 0.11 | 0.09 | 0.07 |
| 64 | 2.57 | 2.31 | 2.10 | 1.77 | 1.46 | 1.28 | 0.91 | 0.81 | 0.75 | 0.72 |
| 65 | 0.09 | 0.08 | 0.11 | 0.08 | 0.05 | 0.06 | 0.04 | 0.05 | 0.05 | 0.05 |
| 66 | 0.02 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 67 | 0.00 | 0.01 | 0.01 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 68 | 2.49 | 2.81 | 2.57 | 1.95 | 1.99 | 2.06 | 1.65 | 1.78 | 1.98 | 2.00 |
| 69 | 1.57 | 1.54 | 1.28 | 0.99 | 0.85 | 0.73 | 0.61 | 0.60 | 0.58 | 0.58 |
| 70 | 0.51 | 0.47 | 0.49 | 0.40 | 0.36 | 0.35 | 0.28 | 0.26 | 0.26 | 0.28 |
| 71 | 0.34 | 0.38 | 0.36 | 0.35 | 0.43 | 0.40 | 0.34 | 0.34 | 0.30 | 0.33 |
| 72 | 2.68 | 2.37 | 1.98 | 1.96 | 1.96 | 1.67 | 1.77 | 1.84 | 1.61 | 1.90 |
| 73 | 0.62 | 0.61 | 0.52 | 0.57 | 0.63 | 0.47 | 0.40 | 0.43 | 0.44 | 0.57 |
| 74 | 0.48 | 0.63 | 0.61 | 0.55 | 0.46 | 0.32 | 0.36 | 0.31 | 0.50 | 0.41 |
| 75 | 1.16 | 1.00 | 1.21 | 1.01 | 1.00 | 1.21 | 1.34 | 1.29 | 1.26 | 0.76 |
| 76 | 1.60 | 1.76 | 1.64 | 1.35 | 1.23 | 0.93 | 0.73 | 0.70 | 0.60 | 0.57 |
| 78 | 0.02 | 0.02 | 0.05 | 0.02 | 0.01 | 0.02 | 0.02 | 0.03 | 0.02 | 0.02 |
| 79 | 0.93 | 0.96 | 0.67 | 0.58 | 0.84 | 0.80 | 0.83 | 0.60 | 0.33 | 0.29 |
| 80 | 1.41 | 1.25 | 1.63 | 1.85 | 1.27 | 0.36 | 0.79 | 1.31 | 1.44 | 1.90 |
| 81 | 0.54 | 0.45 | 0.55 | 0.46 | 0.51 | 0.65 | 0.66 | 0.97 | 1.06 | 1.00 |
| 82 | 0.85 | 0.77 | 0.81 | 0.73 | 0.76 | 0.69 | 0.65 | 0.64 | 0.63 | 0.67 |
| 83 | 0.39 | 0.46 | 0.44 | 0.51 | 1.24 | 1.32 | 1.04 | 1.28 | 1.14 | 1.30 |
| 84 | 0.59 | 0.59 | 0.53 | 0.50 | 0.43 | 0.46 | 0.47 | 0.49 | 0.47 | 0.48 |
| 85 | 0.33 | 0.34 | 0.29 | 0.29 | 0.26 | 0.19 | 0.17 | 0.17 | 0.16 | 0.14 |
| 86 | 1.00 | 0.83 | 0.84 | 0.51 | 0.71 | 1.34 | 0.52 | 0.16 | 0.34 | 0.21 |
| 87 | 1.06 | 1.04 | 0.94 | 0.93 | 0.79 | 0.84 | 0.75 | 0.71 | 0.79 | 0.57 |
| 88 | 1.98 | 1.68 | 2.30 | 2.37 | 2.61 | 2.40 | 1.95 | 2.21 | 1.77 | 1.56 |
| 89 | 0.24 | 0.03 | 0.58 | 0.85 | 0.07 | 0.08 | 0.43 | 0.74 | 4.22 | 1.30 |
| 90 | 0.14 | 0.15 | 0.15 | 0.15 | 0.14 | 0.12 | 0.13 | 0.12 | 0.12 | 0.13 |
| 91 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 |
| 92 | 0.16 | 0.17 | 0.14 | 0.11 | 0.10 | 0.05 | 0.06 | 0.05 | 0.05 | 0.06 |
| 93 | 1.30 | 1.52 | 2.20 | 2.45 | 2.97 | 2.62 | 2.20 | 2.44 | 2.43 | 2.37 |
| 94 | 0.74 | 0.66 | 0.60 | 0.51 | 0.46 | 0.40 | 0.33 | 0.37 | 0.26 | 0.30 |
| 95 | 0.05 | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 |
| 96 | 0.52 | 0.56 | 0.57 | 0.48 | 0.47 | 0.43 | 0.40 | 0.42 | 0.37 | 0.41 |
| 97 | 0.03 | 0.06 | 0.04 | 0.07 | 0.18 | 0.08 | 0.20 | 0.14 | 0.37 | 0.24 |
| 99 | 0.75 | 0.77 | 0.52 | 0.66 | 0.38 | 0.00 | 0.55 | 0.79 | 0.72 | 0.58 |

Source: Authors' calculation.

## Annex IV. RCA Index for Morocco

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.16 | 0.21 | 0.11 | 0.16 | 0.18 | 0.23 | 0.25 | 0.29 | 0.26 | 0.33 |
| 2 | 0.00 | 0.00 | 0.00 | 0.12 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |
| 3 | 10.27 | 10.74 | 11.91 | 11.13 | 10.38 | 8.06 | 7.80 | 8.08 | 8.13 | 7.11 |
| 4 | 1.48 | 1.96 | 1.49 | 1.04 | 1.43 | 1.16 | 0.96 | 1.25 | 1.33 | 1.07 |
| 5 | 7.25 | 8.44 | 5.42 | 2.87 | 7.74 | 7.15 | 2.98 | 3.30 | 2.19 | 2.41 |
| 6 | 0.45 | 0.45 | 0.47 | 0.44 | 0.45 | 0.50 | 0.45 | 0.44 | 0.48 | 0.59 |
| 7 | 8.46 | 7.30 | 9.72 | 8.88 | 10.79 | 9.03 | 10.02 | 9.83 | 10.52 | 10.19 |
| 8 | 8.73 | 7.04 | 7.13 | 7.31 | 6.76 | 6.42 | 7.08 | 5.69 | 6.00 | 5.31 |
| 9 | 0.55 | 0.49 | 0.53 | 0.65 | 0.85 | 0.67 | 0.64 | 0.62 | 0.84 | 0.85 |
| 10 | 0.00 | 0.00 | 0.00 | 0.03 | 0.04 | 0.01 | 0.02 | 0.00 | 0.08 | 0.01 |
| 11 | 2.04 | 2.51 | 3.48 | 1.74 | 1.60 | 2.03 | 2.21 | 3.16 | 3.50 | 2.76 |
| 12 | 2.36 | 2.36 | 1.57 | 0.85 | 0.92 | 0.79 | 0.76 | 0.70 | 0.75 | 0.70 |
| 13 | 12.22 | 10.82 | 10.77 | 6.09 | 6.43 | 6.46 | 4.01 | 2.55 | 4.61 | 4.98 |
| 14 | 0.64 | 0.61 | 0.78 | 0.44 | 0.47 | 0.35 | 0.35 | 0.29 | 0.47 | 0.47 |
| 15 | 3.83 | 2.90 | 1.13 | 1.00 | 1.14 | 1.45 | 1.30 | 0.95 | 0.98 | 1.45 |
| 16 | 14.74 | 15.91 | 13.85 | 12.29 | 16.24 | 14.02 | 9.86 | 11.84 | 11.89 | 11.37 |
| 17 | 0.49 | 0.66 | 0.48 | 0.48 | 0.48 | 0.44 | 0.39 | 0.40 | 0.63 | 0.88 |
| 18 | 0.00 | 0.05 | 0.02 | 0.05 | 0.11 | 0.10 | 0.08 | 0.13 | 0.13 | 0.08 |
| 19 | 0.20 | 0.19 | 0.28 | 0.25 | 0.28 | 0.29 | 0.31 | 0.35 | 0.43 | 0.44 |
| 20 | 4.01 | 3.63 | 3.32 | 3.39 | 3.77 | 3.54 | 2.96 | 2.76 | 2.65 | 2.91 |
| 21 | 1.00 | 1.18 | 1.23 | 1.02 | 1.35 | 1.11 | 0.91 | 0.89 | 0.85 | 0.82 |
| 22 | 0.54 | 0.30 | 0.29 | 0.21 | 0.25 | 0.19 | 0.20 | 0.17 | 0.20 | 0.22 |
| 23 | 1.09 | 1.20 | 0.79 | 1.04 | 1.59 | 1.86 | 1.01 | 1.33 | 1.18 | 1.65 |
| 24 | 0.00 | 0.00 | 0.00 | 0.32 | 0.45 | 0.37 | 0.47 | 0.11 | 0.64 | 1.40 |
| 25 | 20.97 | 20.35 | 23.14 | 40.56 | 17.68 | 26.79 | 31.76 | 33.00 | 25.91 | 20.97 |
| 26 | 1.27 | 1.75 | 1.68 | 0.91 | 1.22 | 0.96 | 0.73 | 0.90 | 0.85 | 0.84 |
| 27 | 0.43 | 0.28 | 0.31 | 0.26 | 0.28 | 0.23 | 0.27 | 0.35 | 0.45 | 0.38 |
| 28 | 11.62 | 12.03 | 11.25 | 19.57 | 11.33 | 13.61 | 14.04 | 12.12 | 10.91 | 10.87 |
| 29 | 0.02 | 0.02 | 0.02 | 0.03 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 |
| 30 | 0.10 | 0.10 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.16 | 0.19 | 0.16 |
| 31 | 15.04 | 17.53 | 23.07 | 14.81 | 15.17 | 24.48 | 26.35 | 28.39 | 26.33 | 27.08 |
| 32 | 0.09 | 0.10 | 0.12 | 0.11 | 0.17 | 0.16 | 0.17 | 0.18 | 0.21 | 0.23 |
| 33 | 0.55 | 0.66 | 0.65 | 0.70 | 0.74 | 0.70 | 0.67 | 0.50 | 0.58 | 0.60 |
| 34 | 0.55 | 0.51 | 0.46 | 0.56 | 0.74 | 0.67 | 0.65 | 0.46 | 0.32 | 0.23 |
| 35 | 0.04 | 0.04 | 0.01 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 |
| 36 | 0.00 | 0.10 | 0.21 | 0.01 | 0.02 | 0.51 | 0.40 | 0.72 | 1.36 | 0.66 |
| 37 | 0.01 | 0.01 | 0.01 | 0.03 | 0.04 | 0.04 | 0.03 | 0.02 | 0.01 | 0.02 |
| 38 | 0.05 | 0.02 | 0.02 | 0.07 | 0.04 | 0.06 | 0.05 | 0.04 | 0.04 | 0.06 |
| 39 | 0.13 | 0.10 | 0.17 | 0.18 | 0.20 | 0.20 | 0.18 | 0.16 | 0.15 | 0.20 |
| 40 | 0.12 | 0.08 | 0.06 | 0.04 | 0.11 | 0.22 | 0.23 | 0.28 | 0.19 | 0.14 |
| 41 | 0.41 | 0.60 | 0.71 | 0.71 | 0.99 | 0.92 | 1.64 | 1.45 | 1.54 | 1.43 |
| 42 | 1.61 | 1.55 | 1.23 | 0.99 | 1.20 | 1.06 | 0.79 | 0.81 | 0.74 | 0.71 |
| 43 | 0.01 | 0.02 | 0.05 | 0.24 | 0.41 | 0.55 | 0.51 | 0.24 | 0.12 | 0.11 |
| 44 | 0.33 | 0.38 | 0.39 | 0.28 | 0.15 | 0.19 | 0.17 | 0.15 | 0.10 | 0.11 |
| 45 | 9.74 | 8.83 | 8.47 | 6.41 | 6.85 | 6.48 | 5.36 | 6.93 | 7.86 | 8.99 |
| 46 | 2.19 | 2.27 | 2.27 | 1.20 | 1.66 | 1.95 | 1.78 | 1.39 | 1.51 | 1.91 |
| 47 | 1.98 | 1.77 | 1.71 | 1.08 | 1.49 | 2.22 | 1.09 | 1.15 | 0.15 | 0.07 |
| 48 | 0.23 | 0.24 | 0.32 | 0.17 | 0.23 | 0.25 | 0.32 | 0.32 | 0.40 | 0.41 |
| 49 | 0.09 | 0.27 | 0.27 | 0.13 | 0.14 | 0.13 | 0.12 | 0.09 | 0.11 | 0.40 |

## Annex IV. RCA Index for Morocco (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 0.01 | 0.05 | 0.15 | 0.07 | 0.15 | 0.04 | 0.13 | 0.01 | 0.03 | 0.04 |
| 51 | 0.30 | 0.31 | 0.41 | 0.33 | 0.64 | 0.71 | 0.31 | 0.60 | 0.64 | 0.85 |
| 52 | 0.69 | 0.88 | 0.92 | 1.18 | 1.15 | 0.74 | 0.70 | 0.63 | 0.56 | 0.11 |
| 53 | 0.12 | 0.29 | 0.23 | 0.18 | 0.42 | 0.13 | 0.20 | 0.14 | 0.10 | 0.29 |
| 54 | 0.17 | 0.24 | 0.18 | 0.15 | 0.20 | 0.21 | 0.27 | 0.19 | 0.26 | 0.22 |
| 55 | 1.27 | 1.40 | 1.35 | 0.91 | 1.16 | 0.82 | 0.93 | 0.56 | 0.72 | 0.80 |
| 56 | 0.05 | 0.05 | 0.10 | 0.09 | 0.25 | 0.33 | 0.43 | 0.41 | 0.41 | 0.47 |
| 57 | 1.65 | 1.54 | 1.17 | 0.82 | 0.91 | 0.77 | 0.67 | 0.66 | 0.73 | 0.81 |
| 58 | 0.60 | 0.77 | 0.89 | 0.61 | 0.86 | 0.62 | 0.85 | 1.13 | 1.18 | 1.10 |
| 59 | 2.35 | 3.70 | 6.57 | 4.95 | 3.15 | 0.03 | 0.08 | 0.11 | 0.21 | 0.08 |
| 60 | 0.16 | 0.45 | 0.75 | 0.42 | 0.41 | 0.32 | 0.39 | 0.18 | 0.38 | 0.28 |
| 61 | 5.71 | 5.30 | 5.24 | 3.80 | 4.44 | 3.91 | 3.78 | 3.84 | 3.26 | 3.08 |
| 62 | 13.11 | 14.68 | 13.94 | 10.84 | 12.66 | 10.74 | 9.52 | 10.35 | 9.65 | 8.56 |
| 63 | 0.96 | 0.99 | 0.99 | 0.76 | 2.51 | 3.92 | 3.98 | 3.61 | 3.02 | 3.24 |
| 64 | 3.47 | 3.56 | 3.83 | 3.10 | 3.84 | 3.07 | 2.76 | 2.19 | 2.20 | 1.90 |
| 65 | 1.32 | 1.45 | 1.18 | 1.02 | 1.17 | 0.85 | 0.65 | 0.46 | 0.49 | 0.54 |
| 66 | 0.27 | 0.40 | 2.79 | 2.55 | 0.26 | 0.01 | 0.08 | 0.04 | 0.05 | 0.03 |
| 67 | 0.01 | 0.12 | 0.02 | 0.03 | 0.02 | 0.02 | 0.05 | 0.04 | 0.02 | 0.03 |
| 68 | 0.47 | 1.30 | 0.55 | 0.45 | 0.62 | 0.68 | 0.56 | 0.51 | 0.54 | 0.68 |
| 69 | 1.31 | 1.22 | 1.10 | 1.04 | 0.99 | 0.86 | 0.91 | 0.82 | 0.85 | 0.77 |
| 70 | 0.14 | 0.15 | 0.17 | 0.10 | 0.09 | 0.10 | 0.10 | 0.18 | 0.17 | 0.20 |
| 71 | 0.34 | 0.42 | 0.34 | 0.31 | 0.42 | 0.74 | 0.48 | 0.32 | 0.18 | 0.25 |
| 72 | 0.64 | 0.62 | 0.46 | 0.37 | 0.32 | 0.33 | 0.36 | 0.34 | 0.31 | 0.17 |
| 73 | 0.18 | 0.19 | 0.35 | 0.23 | 0.34 | 0.21 | 0.25 | 0.27 | 0.23 | 0.27 |
| 74 | 0.80 | 0.80 | 0.87 | 0.74 | 0.96 | 1.25 | 1.84 | 1.15 | 0.96 | 0.81 |
| 75 | 0.01 | 0.01 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.01 | 0.02 | 0.06 |
| 76 | 0.31 | 0.36 | 0.36 | 0.29 | 0.36 | 0.40 | 0.48 | 0.61 | 0.57 | 0.57 |
| 78 | 14.87 | 11.88 | 14.12 | 10.18 | 11.85 | 11.43 | 8.95 | 4.41 | 2.25 | 1.75 |
| 79 | 0.17 | 0.17 | 0.21 | 0.13 | 0.15 | 0.19 | 0.23 | 0.37 | 0.28 | 0.26 |
| 80 | 0.01 | 0.00 | 0.08 | 0.05 | 0.04 | 0.00 | 0.02 | 0.01 | 0.00 | 0.01 |
| 81 | 3.23 | 2.73 | 4.89 | 4.46 | 4.46 | 3.44 | 2.58 | 1.98 | 1.96 | 2.04 |
| 82 | 0.08 | 0.03 | 0.06 | 0.02 | 0.07 | 0.14 | 0.30 | 0.14 | 0.05 | 0.07 |
| 83 | 0.29 | 0.18 | 0.11 | 0.09 | 0.16 | 0.10 | 0.12 | 0.20 | 0.17 | 0.15 |
| 84 | 0.05 | 0.06 | 0.06 | 0.06 | 0.11 | 0.12 | 0.10 | 0.10 | 0.13 | 0.12 |
| 85 | 1.03 | 1.10 | 1.09 | 1.03 | 1.10 | 1.14 | 1.23 | 1.09 | 1.16 | 1.23 |
| 86 | 0.11 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.58 | 0.10 | 0.06 |
| 87 | 0.07 | 0.11 | 0.13 | 0.13 | 0.23 | 0.19 | 0.27 | 0.63 | 1.02 | 1.34 |
| 88 | 0.08 | 0.09 | 0.16 | 0.28 | 1.00 | 1.27 | 1.17 | 1.42 | 1.89 | 1.41 |
| 89 | 0.08 | 0.36 | 0.23 | 0.16 | 0.06 | 0.12 | 0.04 | 0.10 | 0.02 | 0.08 |
| 90 | 0.08 | 0.08 | 0.07 | 0.07 | 0.11 | 0.08 | 0.04 | 0.03 | 0.04 | 0.05 |
| 91 | 0.42 | 0.44 | 0.33 | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 |
| 92 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 |
| 93 | 0.00 | 0.00 | 0.00 | 0.11 | 0.01 | 0.21 | 0.18 | 0.00 | 0.00 | 0.00 |
| 94 | 0.42 | 0.45 | 0.45 | 0.35 | 0.41 | 0.41 | 0.33 | 0.47 | 0.36 | 0.36 |
| 95 | 0.03 | 0.08 | 0.08 | 0.07 | 0.12 | 0.13 | 0.12 | 0.11 | 0.10 | 0.09 |
| 96 | 0.38 | 0.35 | 0.36 | 0.29 | 0.29 | 1.00 | 0.15 | 0.74 | 0.38 | 0.18 |
| 97 | 0.08 | 0.06 | 0.07 | 0.05 | 0.06 | 0.19 | 0.26 | 0.07 | 0.16 | 0.18 |
| 99 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Source: Authors' calculation.

## Annex V. CR Index for Brazil (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.65 | 24.05 | 26.59 | 12.98 | 17.87 | 53.56 | 29.93 | 62.97 | 92.48 | 35.17 |
| 2 | 73.18 | 86.43 | 80.94 | 79.76 | 65.52 | 56.45 | 46.85 | 39.36 | 42.40 | 32.34 |
| 3 | 1.36 | 0.82 | 0.52 | 0.36 | 0.25 | 0.21 | 0.17 | 0.16 | 0.15 | 0.13 |
| 4 | 1.32 | 1.12 | 2.00 | 2.79 | 1.09 | 0.86 | 0.45 | 0.39 | 0.37 | 1.16 |
| 5 | 2.69 | 2.58 | 2.63 | 2.32 | 2.52 | 3.20 | 2.95 | 3.47 | 3.97 | 3.63 |
| 6 | 4.92 | 3.69 | 3.27 | 2.52 | 1.58 | 1.08 | 0.79 | 0.65 | 0.57 | 0.51 |
| 7 | 0.08 | 0.09 | 0.21 | 0.05 | 0.12 | 0.03 | 0.06 | 0.07 | 0.05 | 0.12 |
| 8 | 3.10 | 2.43 | 2.74 | 2.39 | 1.94 | 1.54 | 1.17 | 1.08 | 1.06 | 0.91 |
| 9 | 118.39 | 145.36 | 105.03 | 105.45 | 88.20 | 96.71 | 98.80 | 82.04 | 68.99 | 74.14 |
| 10 | 0.22 | 0.47 | 1.12 | 0.82 | 0.92 | 1.26 | 1.70 | 2.79 | 2.27 | 1.86 |
| 11 | 0.12 | 0.13 | 0.11 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.09 | 0.10 |
| 12 | 42.40 | 76.16 | 63.56 | 74.98 | 75.58 | 61.86 | 93.70 | 52.84 | 72.79 | 51.46 |
| 13 | 0.87 | 0.77 | 0.81 | 0.79 | 0.71 | 0.80 | 1.00 | 0.79 | 0.69 | 0.84 |
| 14 | 2.24 | 2.63 | 1.20 | 1.30 | 3.54 | 4.08 | 6.89 | 7.00 | 1.93 | 2.43 |
| 15 | 7.03 | 4.69 | 4.21 | 4.03 | 2.45 | 2.21 | 2.46 | 2.65 | 1.94 | 1.56 |
| 16 | 82.62 | 64.85 | 77.56 | 75.23 | 58.07 | 29.75 | 26.16 | 19.99 | 12.46 | 14.06 |
| 17 | 166.00 | 214.64 | 130.52 | 98.69 | 193.49 | 210.53 | 190.97 | 108.42 | 106.20 | 94.80 |
| 18 | 3.39 | 2.79 | 1.72 | 1.86 | 1.29 | 1.50 | 1.62 | 0.97 | 1.33 | 1.04 |
| 19 | 1.24 | 1.46 | 3.88 | 4.89 | 2.59 | 1.61 | 1.28 | 1.04 | 0.73 | 0.75 |
| 20 | 8.40 | 8.90 | 10.18 | 6.86 | 5.69 | 4.19 | 5.31 | 5.20 | 3.88 | 3.46 |
| 21 | 5.71 | 4.71 | 4.91 | 4.52 | 3.66 | 3.81 | 3.17 | 2.98 | 2.69 | 2.42 |
| 22 | 4.63 | 6.83 | 5.20 | 7.73 | 4.18 | 2.31 | 1.13 | 2.37 | 2.99 | 1.26 |
| 23 | 23.98 | 19.15 | 19.12 | 22.37 | 29.07 | 25.44 | 26.55 | 28.38 | 26.08 | 25.98 |
| 24 | 76.78 | 58.14 | 53.29 | 55.82 | 45.31 | 37.49 | 76.64 | 78.57 | 63.08 | 51.64 |
| 25 | 1.92 | 2.23 | 1.72 | 0.50 | 1.28 | 0.99 | 0.71 | 0.71 | 0.81 | 0.84 |
| 26 | 10.11 | 6.57 | 7.57 | 12.16 | 18.35 | 24.29 | 29.64 | 35.30 | 25.98 | 22.77 |
| 27 | 0.53 | 0.62 | 0.60 | 0.55 | 0.72 | 0.66 | 0.64 | 0.66 | 0.39 | 0.46 |
| 28 | 1.13 | 1.47 | 1.44 | 1.04 | 1.25 | 1.52 | 1.51 | 1.25 | 1.18 | 1.56 |
| 29 | 0.44 | 0.44 | 0.42 | 0.34 | 0.35 | 0.38 | 0.38 | 0.34 | 0.32 | 0.30 |
| 30 | 0.23 | 0.24 | 0.21 | 0.23 | 0.24 | 0.21 | 0.22 | 0.22 | 0.20 | 0.21 |
| 31 | 0.08 | 0.07 | 0.06 | 0.05 | 0.06 | 0.06 | 0.04 | 0.04 | 0.05 | 0.04 |
| 32 | 0.49 | 0.52 | 0.47 | 0.42 | 0.38 | 0.34 | 0.35 | 0.32 | 0.30 | 0.28 |
| 33 | 1.53 | 1.48 | 1.30 | 1.43 | 1.25 | 1.04 | 1.01 | 0.83 | 0.67 | 0.76 |
| 34 | 0.86 | 0.89 | 0.81 | 0.75 | 0.77 | 0.75 | 0.61 | 0.64 | 0.51 | 0.51 |
| 35 | 1.47 | 1.45 | 1.27 | 1.10 | 1.25 | 0.98 | 0.98 | 1.01 | 1.08 | 0.88 |
| 36 | 3.68 | 4.43 | 2.52 | 2.09 | 1.69 | 1.40 | 1.82 | 1.61 | 1.62 | 3.18 |
| 37 | 0.56 | 0.40 | 0.40 | 0.34 | 0.29 | 0.26 | 0.21 | 0.21 | 0.25 | 0.27 |
| 38 | 0.37 | 0.44 | 0.40 | 0.34 | 0.29 | 0.31 | 0.30 | 0.26 | 0.20 | 0.18 |
| 39 | 0.71 | 0.75 | 0.69 | 0.48 | 0.58 | 0.49 | 0.49 | 0.46 | 0.40 | 0.41 |
| 40 | 0.90 | 0.88 | 0.86 | 0.66 | 0.72 | 0.53 | 0.51 | 0.54 | 0.44 | 0.47 |
| 41 | 10.88 | 13.03 | 13.88 | 12.58 | 18.50 | 20.96 | 35.25 | 58.05 | 130.38 | 101.80 |
| 42 | 1.61 | 1.01 | 0.69 | 0.46 | 0.38 | 0.23 | 0.14 | 0.12 | 0.10 | 0.10 |
| 43 | 22.87 | 56.29 | 59.23 | 37.60 | 42.37 | 54.48 | 22.70 | 24.79 | 30.38 | 25.16 |
| 44 | 38.27 | 28.70 | 25.00 | 15.97 | 15.39 | 14.46 | 10.77 | 11.26 | 13.87 | 14.89 |
| 45 | 0.31 | 0.31 | 0.27 | 0.25 | 0.27 | 0.26 | 0.26 | 0.28 | 0.25 | 0.23 |
| 46 | 0.07 | 0.05 | 0.04 | 0.04 | 0.03 | 0.01 | 0.02 | 0.04 | 0.02 | 0.02 |
| 47 | 9.67 | 11.67 | 13.01 | 14.28 | 13.71 | 13.22 | 13.36 | 13.87 | 15.40 | 15.26 |
| 48 | 2.10 | 1.67 | 1.57 | 1.34 | 1.54 | 1.30 | 1.25 | 1.20 | 1.29 | 1.30 |
| 49 | 0.53 | 0.51 | 0.38 | 0.31 | 0.26 | 0.21 | 0.23 | 0.23 | 0.14 | 0.17 |

## Annex V. CR Index for Brazil (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 5.02 | 8.14 | 4.62 | 2.63 | 2.39 | 2.53 | 1.71 | 1.23 | 1.38 | 2.02 |
| 51 | 1.29 | 1.64 | 1.46 | 1.02 | 1.67 | 1.74 | 1.67 | 1.83 | 2.80 | 2.96 |
| 52 | 8.08 | 3.04 | 3.02 | 2.02 | 3.21 | 1.70 | 1.92 | 6.30 | 3.64 | 4.26 |
| 53 | 6.82 | 4.66 | 5.41 | 2.01 | 2.47 | 1.13 | 1.15 | 1.40 | 1.71 | 2.62 |
| 54 | 0.22 | 0.17 | 0.14 | 0.12 | 0.11 | 0.08 | 0.07 | 0.06 | 0.06 | 0.06 |
| 55 | 0.50 | 0.38 | 0.30 | 0.26 | 0.16 | 0.22 | 0.14 | 0.13 | 0.17 | 0.13 |
| 56 | 1.62 | 1.58 | 1.37 | 1.42 | 1.54 | 1.21 | 1.17 | 1.05 | 1.12 | 1.00 |
| 57 | 1.45 | 0.97 | 0.73 | 0.43 | 0.36 | 0.32 | 0.25 | 0.20 | 0.17 | 0.13 |
| 58 | 0.70 | 0.95 | 1.76 | 0.90 | 0.54 | 0.40 | 0.34 | 0.27 | 0.28 | 0.32 |
| 59 | 0.64 | 0.59 | 0.46 | 0.39 | 0.43 | 0.44 | 0.49 | 0.49 | 0.39 | 0.34 |
| 60 | 1.78 | 0.88 | 0.25 | 0.25 | 0.10 | 0.10 | 0.12 | 0.11 | 0.12 | 0.10 |
| 61 | 2.78 | 1.52 | 0.97 | 0.58 | 0.30 | 0.19 | 0.15 | 0.09 | 0.08 | 0.07 |
| 62 | 0.97 | 0.52 | 0.33 | 0.21 | 0.15 | 0.10 | 0.07 | 0.05 | 0.05 | 0.04 |
| 63 | 12.46 | 6.57 | 3.95 | 2.19 | 2.05 | 1.28 | 0.48 | 0.35 | 0.30 | 0.20 |
| 64 | 16.22 | 13.18 | 9.17 | 6.20 | 4.57 | 4.42 | 3.04 | 2.10 | 1.92 | 1.95 |
| 65 | 0.54 | 0.37 | 0.33 | 0.17 | 0.10 | 0.10 | 0.07 | 0.07 | 0.06 | 0.07 |
| 66 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 67 | 0.02 | 0.03 | 0.04 | 0.04 | 0.01 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| 68 | 4.82 | 5.42 | 4.48 | 3.39 | 3.31 | 2.80 | 2.09 | 1.87 | 2.00 | 2.17 |
| 69 | 5.37 | 5.69 | 3.62 | 2.21 | 1.67 | 1.05 | 0.72 | 0.69 | 0.67 | 0.89 |
| 70 | 1.13 | 1.03 | 0.96 | 0.59 | 0.59 | 0.48 | 0.37 | 0.31 | 0.29 | 0.32 |
| 71 | 3.54 | 3.32 | 2.87 | 2.83 | 4.71 | 4.03 | 4.25 | 4.99 | 5.92 | 5.40 |
| 72 | 10.05 | 6.34 | 5.25 | 3.87 | 3.07 | 1.78 | 3.04 | 2.91 | 2.58 | 2.84 |
| 73 | 1.20 | 1.16 | 0.86 | 0.79 | 0.73 | 0.48 | 0.48 | 0.46 | 0.39 | 0.55 |
| 74 | 0.50 | 0.60 | 0.51 | 0.40 | 0.46 | 0.27 | 0.34 | 0.26 | 0.45 | 0.38 |
| 75 | 1.57 | 2.20 | 2.28 | 2.11 | 3.16 | 3.98 | 4.27 | 4.27 | 4.38 | 2.77 |
| 76 | 4.11 | 4.67 | 3.43 | 2.86 | 2.66 | 1.54 | 1.07 | 1.13 | 0.95 | 0.60 |
| 78 | 0.01 | 0.01 | 0.03 | 0.01 | 0.00 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |
| 79 | 2.65 | 2.38 | 1.23 | 0.97 | 1.94 | 1.42 | 1.39 | 0.87 | 0.60 | 0.81 |
| 80 | 2.06 | 2.12 | 3.44 | 5.51 | 7.26 | 1.63 | 1.91 | 9.48 | 13.00 | 16.93 |
| 81 | 0.57 | 0.48 | 0.46 | 0.36 | 0.44 | 0.55 | 0.75 | 1.04 | 1.10 | 0.98 |
| 82 | 1.42 | 1.22 | 1.01 | 0.87 | 0.89 | 0.70 | 0.65 | 0.58 | 0.60 | 0.66 |
| 83 | 0.79 | 0.96 | 0.63 | 0.68 | 1.73 | 1.54 | 1.45 | 1.57 | 1.25 | 1.41 |
| 84 | 0.84 | 0.80 | 0.62 | 0.49 | 0.39 | 0.38 | 0.42 | 0.40 | 0.36 | 0.40 |
| 85 | 0.52 | 0.49 | 0.42 | 0.34 | 0.33 | 0.22 | 0.20 | 0.19 | 0.17 | 0.16 |
| 86 | 1.22 | 0.87 | 1.39 | 0.47 | 0.87 | 0.53 | 0.34 | 0.14 | 0.31 | 0.13 |
| 87 | 2.72 | 2.18 | 1.62 | 1.14 | 0.74 | 0.73 | 0.61 | 0.59 | 0.63 | 0.50 |
| 88 | 3.41 | 2.79 | 2.64 | 2.06 | 1.90 | 1.91 | 1.73 | 1.80 | 1.52 | 1.58 |
| 89 | 8.86 | 1.22 | 13.16 | 21.51 | 0.46 | 0.79 | 3.81 | 5.69 | 12.50 | 2.33 |
| 90 | 0.18 | 0.19 | 0.16 | 0.14 | 0.14 | 0.13 | 0.15 | 0.14 | 0.13 | 0.14 |
| 91 | 0.04 | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 | 0.02 | 0.01 | 0.01 | 0.02 |
| 92 | 0.24 | 0.20 | 0.15 | 0.09 | 0.07 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 |
| 93 | 21.47 | 9.87 | 21.35 | 12.15 | 12.14 | 4.46 | 8.27 | 11.51 | 8.44 | 4.95 |
| 94 | 5.37 | 3.85 | 3.01 | 1.96 | 1.76 | 1.20 | 1.03 | 0.99 | 0.61 | 0.73 |
| 95 | 0.31 | 0.19 | 0.14 | 0.11 | 0.09 | 0.07 | 0.05 | 0.04 | 0.03 | 0.04 |
| 96 | 1.23 | 1.18 | 1.07 | 0.74 | 0.69 | 0.55 | 0.51 | 0.55 | 0.47 | 0.51 |
| 97 | 1.97 | 2.08 | 0.61 | 0.83 | 6.32 | 2.54 | 3.42 | 1.20 | 2.34 | 1.24 |
| 99 | - | - | - | 7473.36 | 244807.39 | 908.99 | - | 119.56 | 1346834.71 | 830.46 |

Source: Authors' calculation.

## Annex VI. CR Index for Morocco.

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.07 | 0.09 | 0.04 | 0.06 | 0.06 | 0.05 | 0.06 | 0.13 | 0.11 | 0.11 |
| 2 | 0.00 | 0.02 | 0.01 | 0.40 | 0.02 | 0.04 | 0.01 | 0.04 | 0.01 | 0.03 |
| 3 | 18.58 | 13.94 | 17.20 | 19.37 | 10.33 | 6.98 | 6.04 | 6.63 | 6.33 | 5.44 |
| 4 | 0.55 | 0.73 | 0.47 | 0.34 | 0.49 | 0.40 | 0.34 | 0.46 | 0.49 | 0.36 |
| 5 | 1.11 | 1.36 | 0.99 | 0.59 | 1.18 | 1.18 | 0.48 | 0.47 | 0.34 | 0.49 |
| 6 | 0.33 | 0.31 | 0.28 | 0.27 | 0.28 | 0.33 | 0.28 | 0.25 | 0.27 | 0.33 |
| 7 | 7.29 | 7.41 | 7.55 | 8.16 | 7.63 | 10.36 | 12.06 | 12.06 | 11.99 | 9.43 |
| 8 | 11.28 | 8.20 | 6.48 | 6.75 | 4.37 | 4.60 | 5.89 | 4.66 | 5.22 | 4.15 |
| 9 | 0.08 | 0.07 | 0.08 | 0.13 | 0.13 | 0.15 | 0.13 | 0.11 | 0.13 | 0.17 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| 11 | 3.28 | 5.42 | 3.25 | 3.30 | 2.22 | 2.97 | 3.57 | 6.60 | 9.78 | 5.83 |
| 12 | 0.32 | 0.37 | 0.25 | 0.24 | 0.24 | 0.30 | 0.44 | 0.46 | 0.57 | 0.47 |
| 13 | 10.85 | 10.50 | 7.47 | 6.88 | 5.97 | 6.75 | 5.33 | 3.97 | 4.72 | 4.86 |
| 14 | 0.64 | 0.30 | 0.54 | 0.28 | 0.39 | 0.45 | 0.39 | 0.55 | 0.56 | 0.67 |
| 15 | 0.61 | 0.41 | 0.15 | 0.15 | 0.15 | 0.30 | 0.25 | 0.19 | 0.21 | 0.32 |
| 16 | 52.92 | 39.29 | 28.82 | 21.58 | 15.00 | 34.55 | 40.70 | 82.10 | 51.60 | 30.05 |
| 17 | 0.08 | 0.08 | 0.06 | 0.06 | 0.04 | 0.06 | 0.04 | 0.04 | 0.08 | 0.14 |
| 18 | 0.01 | 0.05 | 0.02 | 0.05 | 0.11 | 0.12 | 0.09 | 0.13 | 0.12 | 0.08 |
| 19 | 0.19 | 0.13 | 0.16 | 0.22 | 0.21 | 0.25 | 0.27 | 0.31 | 0.39 | 0.40 |
| 20 | 6.25 | 5.67 | 4.43 | 5.06 | 4.70 | 3.10 | 2.99 | 2.89 | 2.55 | 3.48 |
| 21 | 0.91 | 1.24 | 1.25 | 1.08 | 1.14 | 0.98 | 0.82 | 0.80 | 0.78 | 0.75 |
| 22 | 1.04 | 0.58 | 0.50 | 0.35 | 0.34 | 0.34 | 0.37 | 0.37 | 0.36 | 0.46 |
| 23 | 0.35 | 0.33 | 0.13 | 0.20 | 0.38 | 0.32 | 0.15 | 0.20 | 0.19 | 0.29 |
| 24 | 0.00 | 0.00 | 0.00 | 0.12 | 0.15 | 0.18 | 0.25 | 0.06 | 0.23 | 0.47 |
| 25 | 1.69 | 2.07 | 1.86 | 1.39 | 2.47 | 2.60 | 1.89 | 1.91 | 2.27 | 1.59 |
| 26 | 4.08 | 8.52 | 3.03 | 2.14 | 4.37 | 2.88 | 3.69 | 5.00 | 72.40 | 56.48 |
| 27 | 0.13 | 0.09 | 0.09 | 0.09 | 0.07 | 0.07 | 0.08 | 0.10 | 0.13 | 0.11 |
| 28 | 3.88 | 4.40 | 4.02 | 7.34 | 3.51 | 4.09 | 3.34 | 2.62 | 2.58 | 2.51 |
| 29 | 0.02 | 0.02 | 0.02 | 0.03 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 |
| 30 | 0.12 | 0.12 | 0.14 | 0.15 | 0.12 | 0.12 | 0.11 | 0.17 | 0.19 | 0.18 |
| 31 | 3.85 | 3.61 | 5.66 | 5.08 | 4.38 | 8.38 | 9.03 | 12.58 | 7.16 | 8.03 |
| 32 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.06 | 0.06 | 0.07 | 0.07 | 0.09 |
| 33 | 0.42 | 0.39 | 0.33 | 0.38 | 0.31 | 0.33 | 0.32 | 0.23 | 0.27 | 0.30 |
| 34 | 0.40 | 0.35 | 0.29 | 0.39 | 0.38 | 0.34 | 0.32 | 0.22 | 0.16 | 0.12 |
| 35 | 0.02 | 0.02 | 0.00 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 |
| 36 | 0.00 | 0.09 | 0.15 | 0.02 | 0.02 | 0.61 | 0.53 | 1.05 | 1.47 | 1.26 |
| 37 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.01 | 0.02 |
| 38 | 0.02 | 0.01 | 0.01 | 0.04 | 0.02 | 0.03 | 0.02 | 0.02 | 0.02 | 0.03 |
| 39 | 0.07 | 0.05 | 0.07 | 0.08 | 0.08 | 0.09 | 0.08 | 0.06 | 0.06 | 0.08 |
| 40 | 0.09 | 0.06 | 0.03 | 0.03 | 0.05 | 0.14 | 0.14 | 0.17 | 0.09 | 0.07 |
| 41 | 0.13 | 0.17 | 0.21 | 0.24 | 0.25 | 0.29 | 0.57 | 0.59 | 0.60 | 0.60 |
| 42 | 2.61 | 2.25 | 1.45 | 1.54 | 1.42 | 1.62 | 0.97 | 0.88 | 0.85 | 0.67 |
| 43 | 0.18 | 0.20 | 0.43 | 1.26 | 1.46 | 1.87 | 1.39 | 1.50 | 0.81 | 0.86 |
| 44 | 0.10 | 0.10 | 0.09 | 0.07 | 0.03 | 0.05 | 0.04 | 0.04 | 0.03 | 0.04 |
| 45 | 12.02 | 25.55 | 6.05 | 8.18 | 7.67 | 8.48 | 3.96 | 10.19 | 12.69 | 28.12 |
| 46 | 8.46 | 14.16 | 11.10 | 5.09 | 5.37 | 8.51 | 9.45 | 7.02 | 9.62 | 9.70 |
| 47 | 2.63 | 2.96 | 3.00 | 2.15 | 2.02 | 4.83 | 2.24 | 2.27 | 0.22 | 0.10 |
| 48 | 0.11 | 0.11 | 0.13 | 0.07 | 0.08 | 0.09 | 0.11 | 0.11 | 0.13 | 0.14 |
| 49 | 0.04 | 0.11 | 0.10 | 0.06 | 0.06 | 0.06 | 0.05 | 0.04 | 0.05 | 0.18 |

## Annex VI. CR Index for Morocco (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.01 | 0.03 | 0.00 | 0.01 | 0.01 |
| 51 | 0.05 | 0.04 | 0.06 | 0.05 | 0.11 | 0.15 | 0.08 | 0.14 | 0.16 | 0.21 |
| 52 | 0.05 | 0.07 | 0.06 | 0.10 | 0.10 | 0.08 | 0.08 | 0.08 | 0.08 | 0.02 |
| 53 | 0.01 | 0.03 | 0.02 | 0.02 | 0.04 | 0.02 | 0.03 | 0.02 | 0.01 | 0.04 |
| 54 | 0.04 | 0.05 | 0.03 | 0.03 | 0.03 | 0.05 | 0.05 | 0.04 | 0.05 | 0.05 |
| 55 | 0.10 | 0.10 | 0.09 | 0.07 | 0.07 | 0.07 | 0.08 | 0.04 | 0.05 | 0.05 |
| 56 | 0.01 | 0.01 | 0.02 | 0.02 | 0.04 | 0.06 | 0.08 | 0.07 | 0.07 | 0.09 |
| 57 | 4.49 | 3.23 | 1.66 | 0.88 | 0.38 | 0.39 | 0.34 | 0.25 | 0.29 | 0.26 |
| 58 | 0.05 | 0.07 | 0.08 | 0.07 | 0.08 | 0.06 | 0.08 | 0.11 | 0.11 | 0.11 |
| 59 | 0.73 | 0.92 | 1.26 | 1.22 | 0.74 | 0.01 | 0.03 | 0.04 | 0.05 | 0.02 |
| 60 | 0.02 | 0.05 | 0.06 | 0.04 | 0.03 | 0.03 | 0.04 | 0.02 | 0.04 | 0.03 |
| 61 | 5.03 | 5.62 | 6.81 | 7.23 | 9.75 | 10.74 | 9.35 | 8.37 | 7.49 | 6.37 |
| 62 | 18.13 | 21.21 | 16.96 | 12.15 | 11.93 | 10.98 | 9.52 | 9.39 | 11.54 | 10.39 |
| 63 | 1.35 | 1.52 | 1.24 | 0.95 | 1.93 | 3.56 | 4.35 | 3.63 | 3.16 | 3.59 |
| 64 | 3.59 | 3.44 | 3.46 | 3.67 | 3.48 | 3.17 | 2.66 | 1.98 | 2.02 | 1.83 |
| 65 | 2.56 | 2.59 | 1.49 | 2.15 | 1.42 | 1.36 | 1.16 | 0.91 | 0.71 | 0.77 |
| 66 | 0.31 | 0.53 | 3.43 | 2.98 | 0.15 | 0.01 | 0.07 | 0.05 | 0.07 | 0.04 |
| 67 | 0.01 | 0.22 | 0.03 | 0.05 | 0.04 | 0.06 | 0.21 | 0.26 | 0.15 | 0.15 |
| 68 | 0.36 | 0.86 | 0.31 | 0.23 | 0.20 | 0.23 | 0.17 | 0.16 | 0.18 | 0.25 |
| 69 | 0.69 | 0.58 | 0.45 | 0.41 | 0.22 | 0.28 | 0.28 | 0.22 | 0.24 | 0.21 |
| 70 | 0.09 | 0.09 | 0.09 | 0.06 | 0.04 | 0.06 | 0.05 | 0.08 | 0.08 | 0.07 |
| 71 | 1.73 | 3.10 | 2.26 | 3.45 | 4.62 | 14.56 | 9.26 | 8.15 | 4.88 | 1.47 |
| 72 | 0.20 | 0.19 | 0.15 | 0.11 | 0.08 | 0.13 | 0.13 | 0.12 | 0.09 | 0.06 |
| 73 | 0.09 | 0.11 | 0.18 | 0.12 | 0.15 | 0.10 | 0.12 | 0.12 | 0.10 | 0.13 |
| 74 | 0.44 | 0.42 | 0.37 | 0.37 | 0.40 | 0.64 | 0.84 | 0.52 | 0.39 | 0.34 |
| 75 | 0.08 | 0.29 | 0.02 | 0.02 | 0.09 | 0.03 | 0.04 | 0.06 | 0.30 | 1.02 |
| 76 | 0.21 | 0.20 | 0.19 | 0.18 | 0.16 | 0.23 | 0.23 | 0.29 | 0.25 | 0.27 |
| 78 | 102.77 | 89.04 | 68.05 | 73.43 | 66.84 | 153.38 | 3.27 | 64.18 | 29.64 | 45.19 |
| 79 | 0.06 | 0.07 | 0.06 | 0.05 | 0.06 | 0.10 | 0.11 | 0.24 | 0.18 | 0.17 |
| 80 | 0.02 | 0.01 | 0.33 | 0.24 | 0.14 | 0.00 | 0.19 | 0.10 | 0.01 | 0.07 |
| 81 | 48.39 | 62.79 | 38.25 | 33.32 | 18.36 | 15.61 | 14.79 | 6.48 | 5.01 | 5.55 |
| 82 | 0.05 | 0.02 | 0.04 | 0.02 | 0.04 | 0.09 | 0.18 | 0.10 | 0.04 | 0.06 |
| 83 | 0.20 | 0.12 | 0.05 | 0.04 | 0.05 | 0.04 | 0.06 | 0.08 | 0.08 | 0.07 |
| 84 | 0.04 | 0.04 | 0.04 | 0.03 | 0.05 | 0.07 | 0.06 | 0.06 | 0.08 | 0.08 |
| 85 | 0.79 | 0.86 | 0.67 | 0.73 | 0.72 | 0.89 | 0.91 | 0.98 | 0.91 | 0.96 |
| 86 | 0.65 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.19 | 0.03 | 0.03 |
| 87 | 0.06 | 0.08 | 0.07 | 0.07 | 0.08 | 0.09 | 0.15 | 0.30 | 0.47 | 0.73 |
| 88 | 0.07 | 0.05 | 0.13 | 0.23 | 0.27 | 0.60 | 0.44 | 1.07 | 1.18 | 0.76 |
| 89 | 0.08 | 0.39 | 0.47 | 0.23 | 0.21 | 0.30 | 0.15 | 0.30 | 0.05 | 0.36 |
| 90 | 0.08 | 0.12 | 0.09 | 0.10 | 0.14 | 0.10 | 0.06 | 0.05 | 0.05 | 0.07 |
| 91 | 0.48 | 0.44 | 0.35 | 0.06 | 0.04 | 0.03 | 0.03 | 0.02 | 0.03 | 0.04 |
| 92 | 0.06 | 0.04 | 0.04 | 0.02 | 0.03 | 0.02 | 0.03 | 0.02 | 0.01 | 0.01 |
| 93 | 0.00 | 0.01 | 0.00 | 0.05 | 0.00 | 0.07 | 0.02 | 0.00 | 0.00 | 0.00 |
| 94 | 0.46 | 0.42 | 0.33 | 0.26 | 0.20 | 0.25 | 0.20 | 0.28 | 0.26 | 0.27 |
| 95 | 0.05 | 0.16 | 0.15 | 0.15 | 0.18 | 0.25 | 0.20 | 0.19 | 0.16 | 0.12 |
| 96 | 0.09 | 0.08 | 0.05 | 0.04 | 0.03 | 0.15 | 0.03 | 0.15 | 0.07 | 0.04 |
| 97 | 3.32 | 0.15 | 4.10 | 2.17 | 1.45 | 5.47 | 2.09 | 1.29 | 3.11 | 5.23 |
| 99 | - | 1.00 | 0.00 | 0.00 | 1.00 | - | - | - | 1.00 | 68.32 |

Source: Authors' calculation.

## Annex VI. Brazil's Strong Points in Trade

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | - | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 2 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 3 | - | - | - | - | - | - | - | - | - | - |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 5 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 6 | - | - | - | - | - | - | - | - | - | - |
| 7 | - | - | - | - | - | - | - | - | - | - |
| 8 | Strong | Strong | Strong | Strong | - | - | - | - | - | - |
| 9 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 10 | - | - | Strong | - | - | Strong | Strong | Strong | Strong | Strong |
| 11 | - | - | - | - | - | - | - | - | - | - |
| 12 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 13 | - | - | - | - | - | - | - | - | - | - |
| 14 | - | Strong | - | Strong | - | Strong | Strong | Strong | - | - |
| 15 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 16 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 17 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 18 | Strong | Strong | Strong | Strong | - | - | - | - | - | - |
| 19 | - | - | - | - | - | - | - | - | - | - |
| 20 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 21 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 22 | Strong | Strong | Strong | Strong | Strong | - | Strong | Strong | Strong | - |
| 23 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 24 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 25 | Strong | Strong | Strong | - | Strong | - | - | - | - | - |
| 26 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 27 | - | - | - | - | - | - | - | - | - | - |
| 28 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 29 | - | - | - | - | - | - | - | - | - | - |
| 30 | - | - | - | - | - | - | - | - | - | - |
| 31 | - | - | - | - | - | - | - | - | - | - |
| 32 | - | - | - | - | - | - | - | - | - | - |
| 33 | - | - | - | - | - | - | - | - | - | - |
| 34 | - | - | - | - | - | - | - | - | - | - |
| 35 | Strong | Strong | Strong | Strong | Strong | - | - | Strong | Strong | - |
| 36 | - | - | - | - | - | - | - | - | - | - |
| 37 | - | - | - | - | - | - | - | - | - | - |
| 38 | - | - | - | - | - | - | - | - | - | - |
| 39 | - | - | - | - | - | - | - | - | - | - |
| 40 | - | - | - | - | - | - | - | - | - | - |
| 41 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 42 | - | - | - | - | - | - | - | - | - | - |
| 43 | - | - | - | - | - | - | - | - | - | - |
| 44 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 45 | - | - | - | - | - | - | - | - | - | - |
| 46 | - | - | - | - | - | - | - | - | - | - |
| 47 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 48 | - | - | - | - | - | - | - | - | - | - |
| 49 | - | - | - | - | - | - | - | - | - | - |

## Annex VI. Brazil's Strong Points in Trade (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | - | Strong | - | - | - | - | - | - | - | - |
| 51 | - | - | - | - | - | - | - | - | - | - |
| 52 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 53 | Strong | Strong | Strong | Strong | - | - | - | Strong | - | Strong |
| 54 | - | - | - | - | - | - | - | - | - | - |
| 55 | - | - | - | - | - | - | - | - | - | - |
| 56 | - | - | - | Strong | Strong | - | - | - | - | - |
| 57 | - | - | - | - | - | - | - | - | - | - |
| 58 | - | - | - | - | - | - | - | - | - | - |
| 59 | - | - | - | - | - | - | - | - | - | - |
| 60 | - | - | - | - | - | - | - | - | - | - |
| 61 | - | - | - | - | - | - | - | - | - | - |
| 62 | - | - | - | - | - | - | - | - | - | - |
| 63 | Strong | - | - | - | - | - | - | - | - | - |
| 64 | Strong | Strong | Strong | Strong | Strong | Strong | - | - | - | - |
| 65 | - | - | - | - | - | - | - | - | - | - |
| 66 | - | - | - | - | - | - | - | - | - | - |
| 67 | - | - | - | - | - | - | - | - | - | - |
| 68 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 69 | Strong | Strong | Strong | - | - | - | - | - | - | - |
| 70 | - | - | - | - | - | - | - | - | - | - |
| 71 | - | - | - | - | - | - | - | - | - | - |
| 72 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 73 | - | - | - | - | - | - | - | - | - | - |
| 74 | - | - | - | - | - | - | - | - | - | - |
| 75 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | - |
| 76 | Strong | Strong | Strong | Strong | Strong | - | - | - | - | - |
| 78 | - | - | - | - | - | - | - | - | - | - |
| 79 | - | - | - | - | - | - | - | - | - | - |
| 80 | Strong | Strong | Strong | Strong | Strong | - | - | Strong | Strong | Strong |
| 81 | - | - | - | - | - | - | - | - | Strong | - |
| 82 | - | - | - | - | - | - | - | - | - | - |
| 83 | - | - | - | - | Strong | Strong | Strong | Strong | Strong | Strong |
| 84 | - | - | - | - | - | - | - | - | - | - |
| 85 | - | - | - | - | - | - | - | - | - | - |
| 86 | - | - | - | - | - | - | - | - | - | - |
| 87 | Strong | Strong | - | - | - | - | - | - | - | - |
| 88 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 89 | - | - | - | - | - | - | - | - | Strong | Strong |
| 90 | - | - | - | - | - | - | - | - | - | - |
| 91 | - | - | - | - | - | - | - | - | - | - |
| 92 | - | - | - | - | - | - | - | - | - | - |
| 93 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 94 | - | - | - | - | - | - | - | - | - | - |
| 95 | - | - | - | - | - | - | - | - | - | - |
| 96 | - | - | - | - | - | - | - | - | - | - |
| 97 | - | - | - | - | - | - | - | - | - | - |
| 99 | - | - | - | - | - | - | - | - | - | - |

Source: Authors' calculation.

## Annex VII. Morocco's Strong Points in Trade

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | - | - | - | - | - | - | - | - | - |
| 2 | - | - | - | - | - | - | - | - | - | - |
| 3 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 4 | - | - | - | - | - | - | - | - | - | - |
| 5 | Strong | Strong | - | - | Strong | Strong | - | - | - | - |
| 6 | - | - | - | - | - | - | - | - | - | - |
| 7 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 8 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 9 | - | - | - | - | - | - | - | - | - | - |
| 10 | - | - | - | - | - | - | - | - | - | - |
| 11 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 12 | - | - | - | - | - | - | - | - | - | - |
| 13 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 14 | - | - | - | - | - | - | - | - | - | - |
| 15 | - | - | - | - | - | - | - | - | - | - |
| 16 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 17 | - | - | - | - | - | - | - | - | - | - |
| 18 | - | - | - | - | - | - | - | - | - | - |
| 19 | - | - | - | - | - | - | - | - | - | - |
| 20 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 21 | - | Strong | Strong | Strong | Strong | - | - | - | - | - |
| 22 | - | - | - | - | - | - | - | - | - | - |
| 23 | - | - | - | - | - | - | - | - | - | - |
| 24 | - | - | - | - | - | - | - | - | - | - |
| 25 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 26 | Strong | Strong | Strong | - | Strong | - | - | - | - | - |
| 27 | - | - | - | - | - | - | - | - | - | - |
| 28 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 29 | - | - | - | - | - | - | - | - | - | - |
| 30 | - | - | - | - | - | - | - | - | - | - |
| 31 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 32 | - | - | - | - | - | - | - | - | - | - |
| 33 | - | - | - | - | - | - | - | - | - | - |
| 34 | - | - | - | - | - | - | - | - | - | - |
| 35 | - | - | - | - | - | - | - | - | - | - |
| 36 | - | - | - | - | - | - | - | - | Strong | - |
| 37 | - | - | - | - | - | - | - | - | - | - |
| 38 | - | - | - | - | - | - | - | - | - | - |
| 39 | - | - | - | - | - | - | - | - | - | - |
| 40 | - | - | - | - | - | - | - | - | - | - |
| 41 | - | - | - | - | - | - | - | - | - | - |
| 42 | Strong | Strong | Strong | - | Strong | Strong | - | - | - | - |
| 43 | - | - | - | - | - | - | - | - | - | - |
| 44 | - | - | - | - | - | - | - | - | - | - |
| 45 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 46 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 47 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | - | - |
| 48 | - | - | - | - | - | - | - | - | - | - |
| 49 | - | - | - | - | - | - | - | - | - | - |

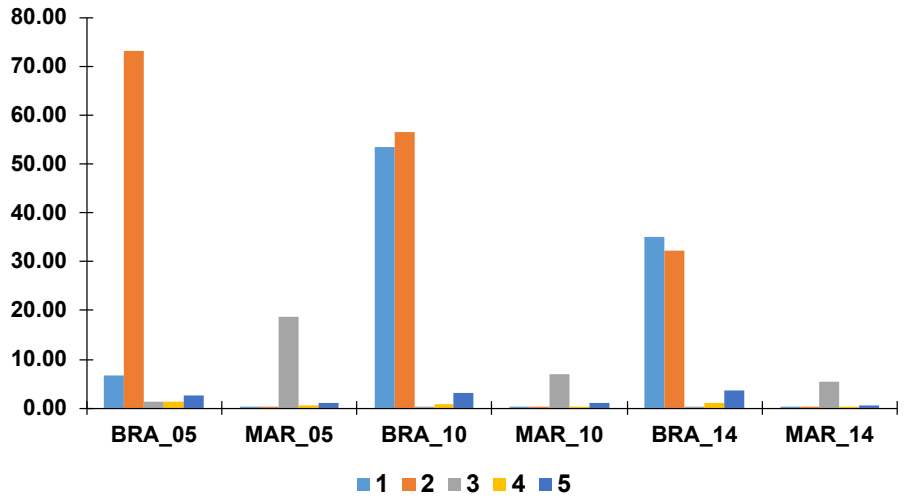
## Annex VII. Morocco's Strong Points in Trade (cont.)

| Commodity Code | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|---|---|---|---|---|---|---|---|---|---|
| 50 | - | - | - | - | - | - | - | - | - | - |
| 51 | - | - | - | - | - | - | - | - | - | - |
| 52 | - | - | - | - | - | - | - | - | - | - |
| 53 | - | - | - | - | - | - | - | - | - | - |
| 54 | - | - | - | - | - | - | - | - | - | - |
| 55 | - | - | - | - | - | - | - | - | - | - |
| 56 | - | - | - | - | - | - | - | - | - | - |
| 57 | Strong | Strong | Strong | - | - | - | - | - | - | - |
| 58 | - | - | - | - | - | - | - | - | - | - |
| 59 | - | - | Strong | Strong | - | - | - | - | - | - |
| 60 | - | - | - | - | - | - | - | - | - | - |
| 61 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 62 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 63 | - | - | - | - | Strong | Strong | Strong | Strong | Strong | Strong |
| 64 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 65 | Strong | Strong | Strong | Strong | Strong | - | - | - | - | - |
| 66 | - | - | Strong | Strong | - | - | - | - | - | - |
| 67 | - | - | - | - | - | - | - | - | - | - |
| 68 | - | - | - | - | - | - | - | - | - | - |
| 69 | - | - | - | - | - | - | - | - | - | - |
| 70 | - | - | - | - | - | - | - | - | - | - |
| 71 | - | - | - | - | - | - | - | - | - | - |
| 72 | - | - | - | - | - | - | - | - | - | - |
| 73 | - | - | - | - | - | - | - | - | - | - |
| 74 | - | - | - | - | - | - | - | - | - | - |
| 75 | - | - | - | - | - | - | - | - | - | - |
| 76 | - | - | - | - | - | - | - | - | - | - |
| 78 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 79 | - | - | - | - | - | - | - | - | - | - |
| 80 | - | - | - | - | - | - | - | - | - | - |
| 81 | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong | Strong |
| 82 | - | - | - | - | - | - | - | - | - | - |
| 83 | - | - | - | - | - | - | - | - | - | - |
| 84 | - | - | - | - | - | - | - | - | - | - |
| 85 | - | - | - | - | - | - | - | - | - | - |
| 86 | - | - | - | - | - | - | - | - | - | - |
| 87 | - | - | - | - | - | - | - | - | - | - |
| 88 | - | - | - | - | - | - | - | Strong | Strong | - |
| 89 | - | - | - | - | - | - | - | - | - | - |
| 90 | - | - | - | - | - | - | - | - | - | - |
| 91 | - | - | - | - | - | - | - | - | - | - |
| 92 | - | - | - | - | - | - | - | - | - | - |
| 93 | - | - | - | - | - | - | - | - | - | - |
| 94 | - | - | - | - | - | - | - | - | - | - |
| 95 | - | - | - | - | - | - | - | - | - | - |
| 96 | - | - | - | - | - | - | - | - | - | - |
| 97 | - | - | - | - | - | - | - | - | - | - |
| 99 | - | - | - | - | - | - | - | - | - | - |

Source: Authors' calculation.

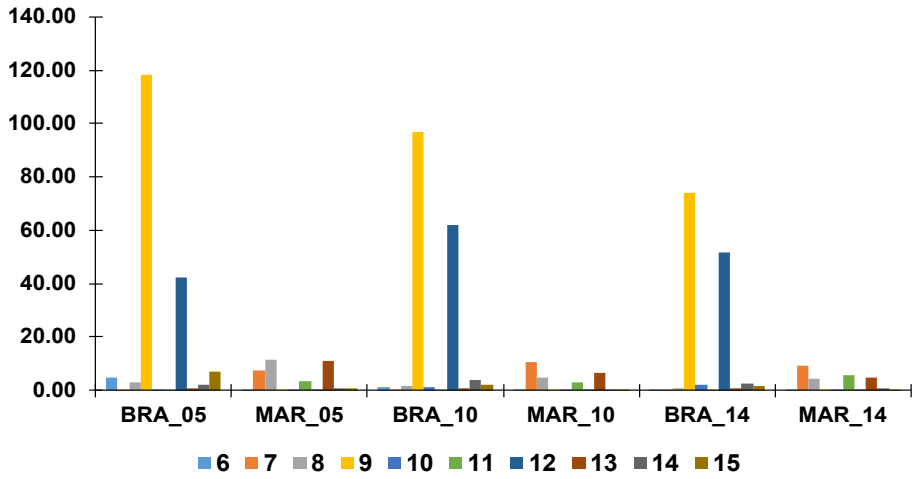
## Annex VIII. Coverage Ratio Index (Figures)

### Figure A1. CR Index – Animal & Animal Products



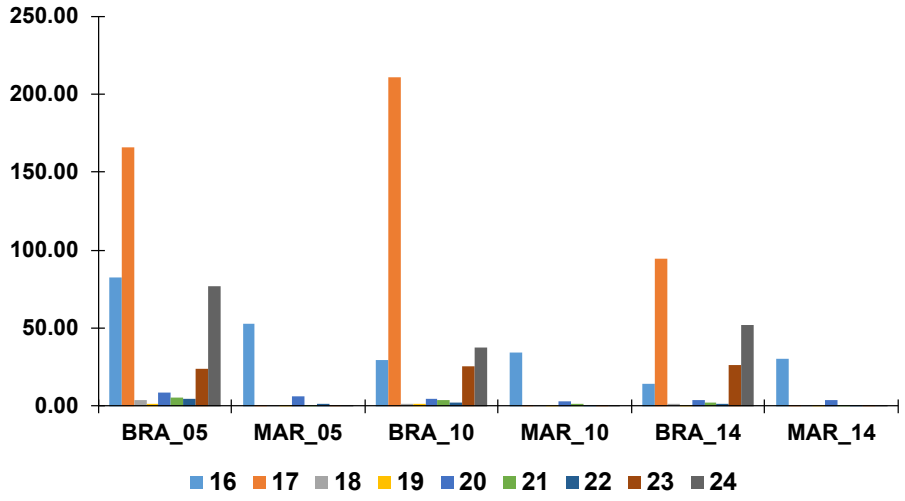

Source: Authors' calculation.

### Figure A2. CR Index – Vegetable Products



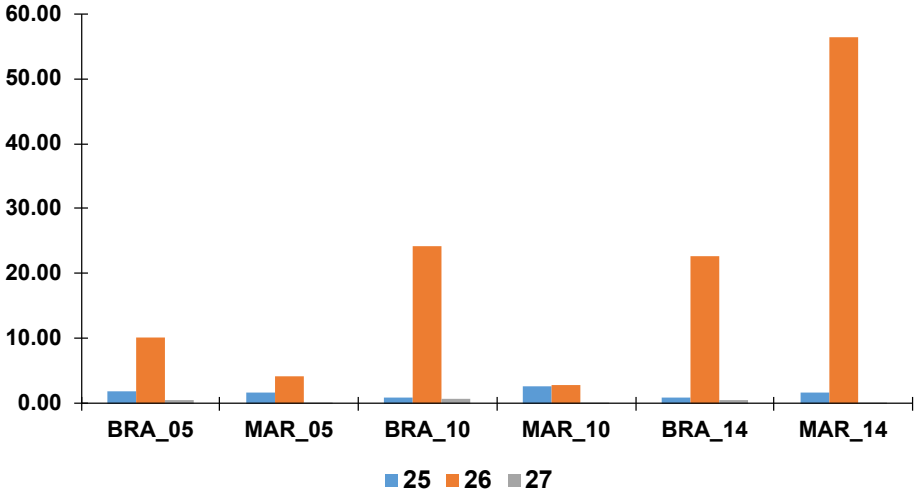

Source: Authors' calculation.

## Figure A3. CR Index – Foodstuff



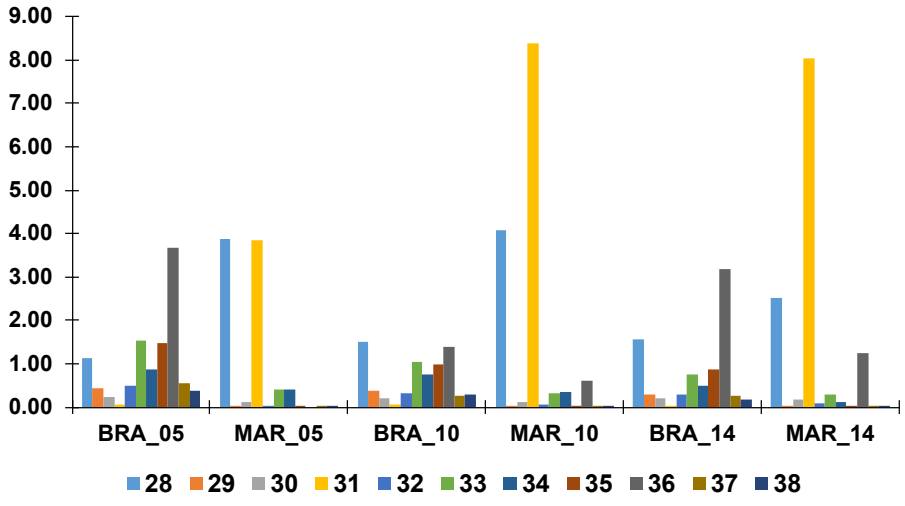

Source: Authors' calculation.

## Figure A4. CR Index – Mineral Products



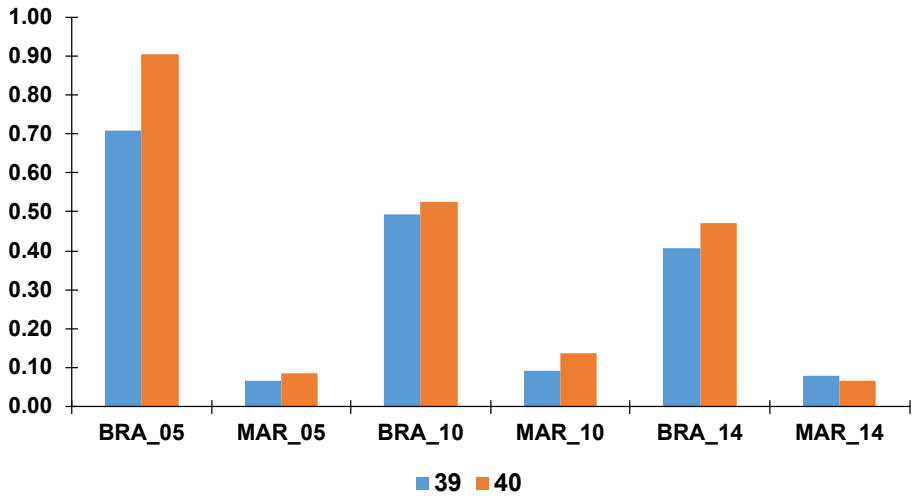

Source: Authors' calculation.

## Figure A5. CR Index – Chemicals & Allied Industries



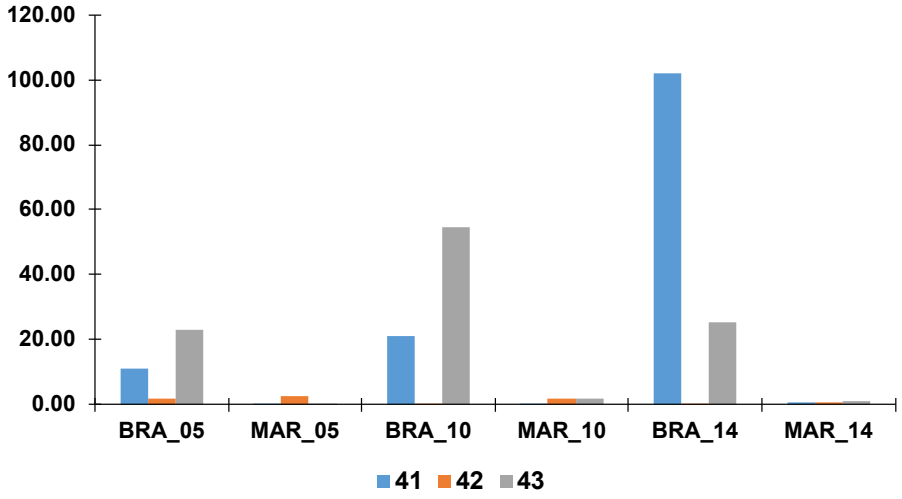

Source: Authors' calculation.

## Figure A6. CR Index – Plastics/Rubbers



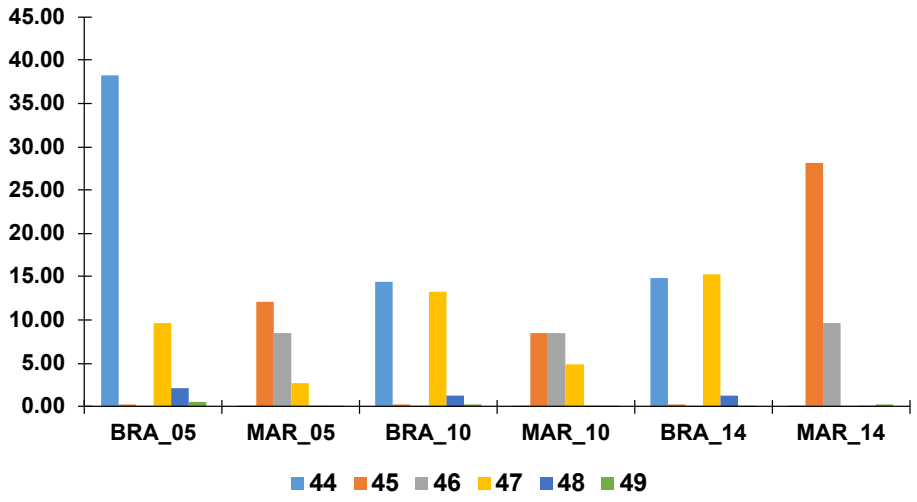

Source: Authors' calculation.

## Figure A7. CR Index – Raw Hides, Skins, Leather & Furs



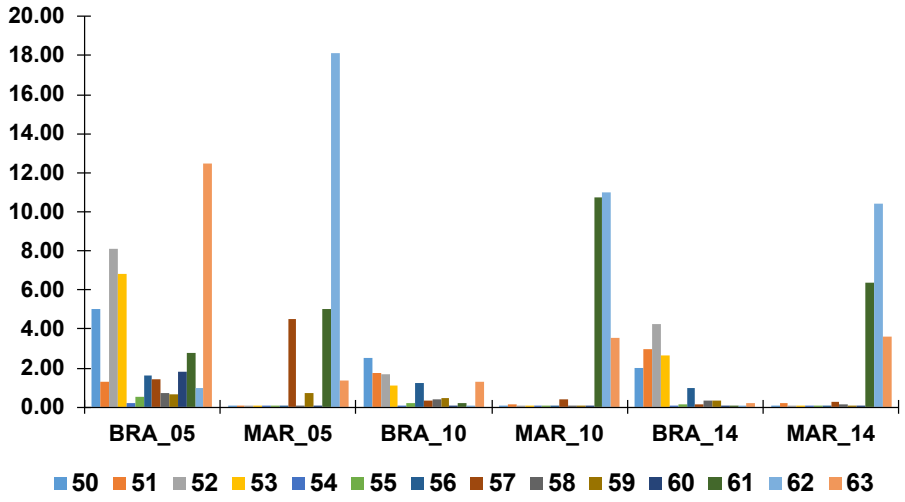

Source: Authors' calculation.

## Figure A8. CR Index – Wood & Wood Products



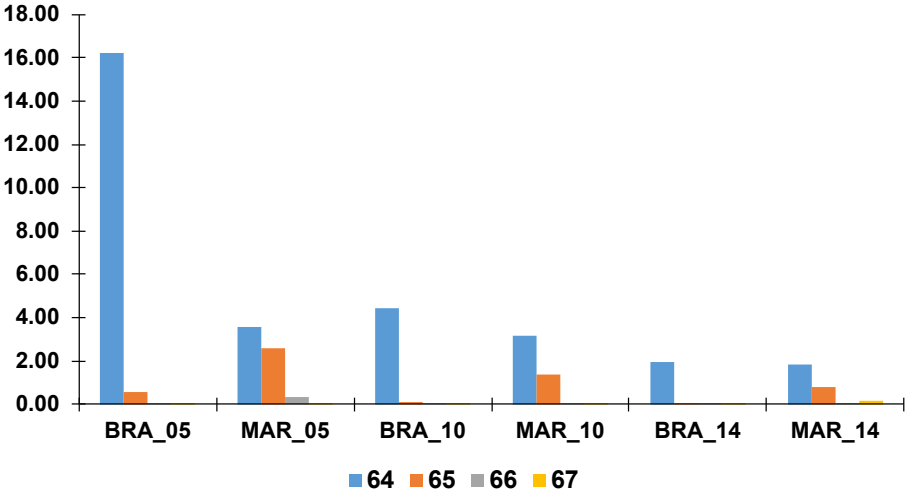

Source: Authors' calculation.

## Figure A9. CR Index – Textiles



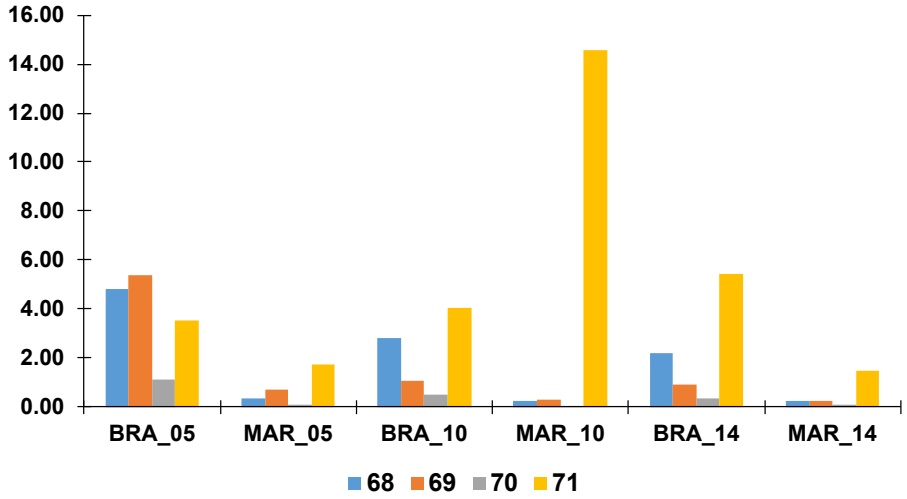

Source: Authors' calculation.

## Figure A10. CR Index – Footwear/Headgear



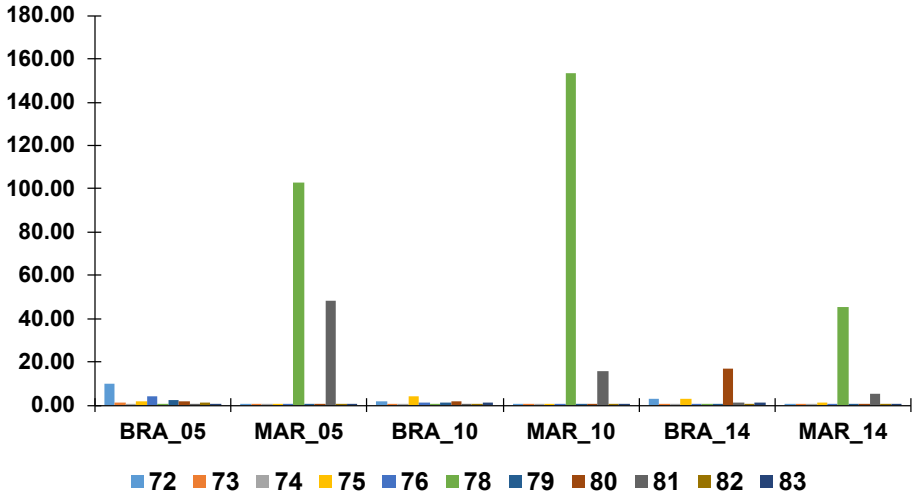

Source: Authors' calculation.

## Figure A11. CR Index – Stone/Glass



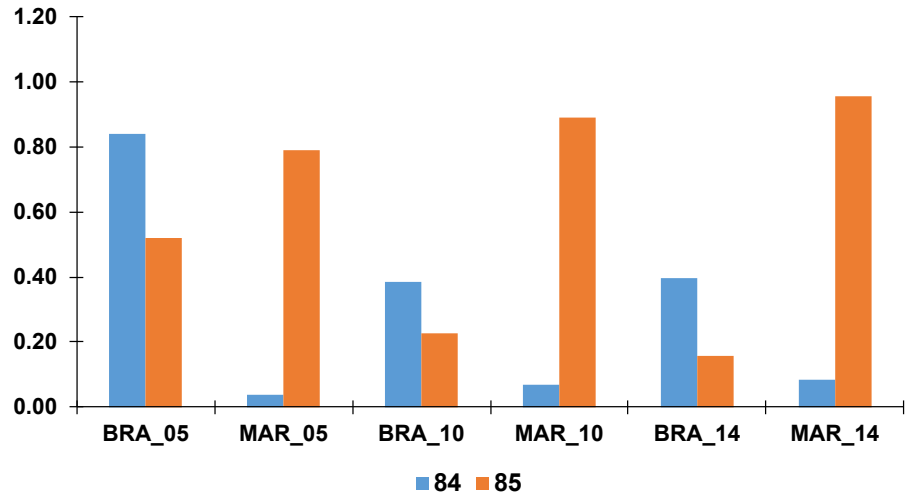

Source: Authors' calculation.

## Figure A12. CR Index – Metals



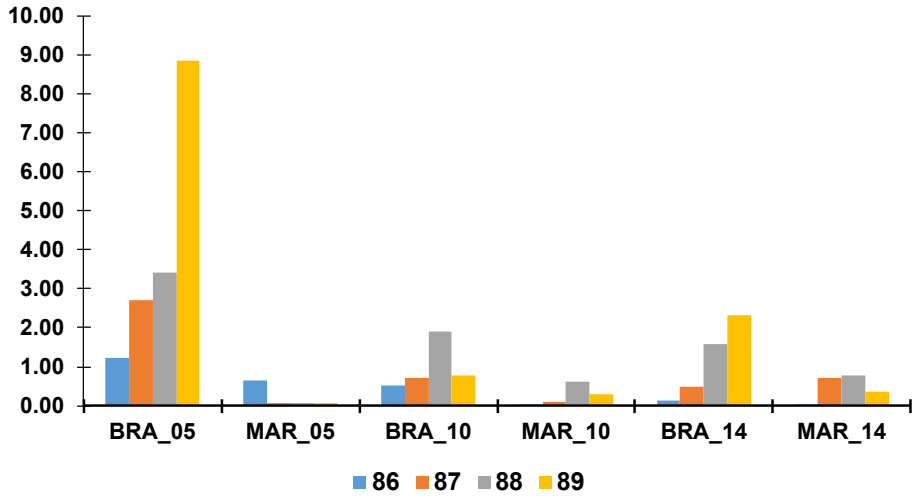

Source: Authors' calculation.

## Figure A13. CR Index – Machinery/Electrical



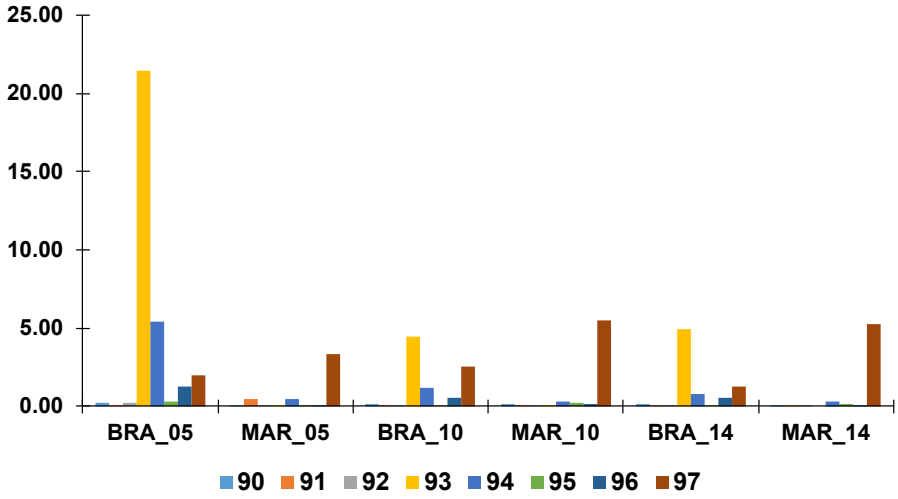

Source: Authors' calculation.

## Figure A14. CR Index – Transportation

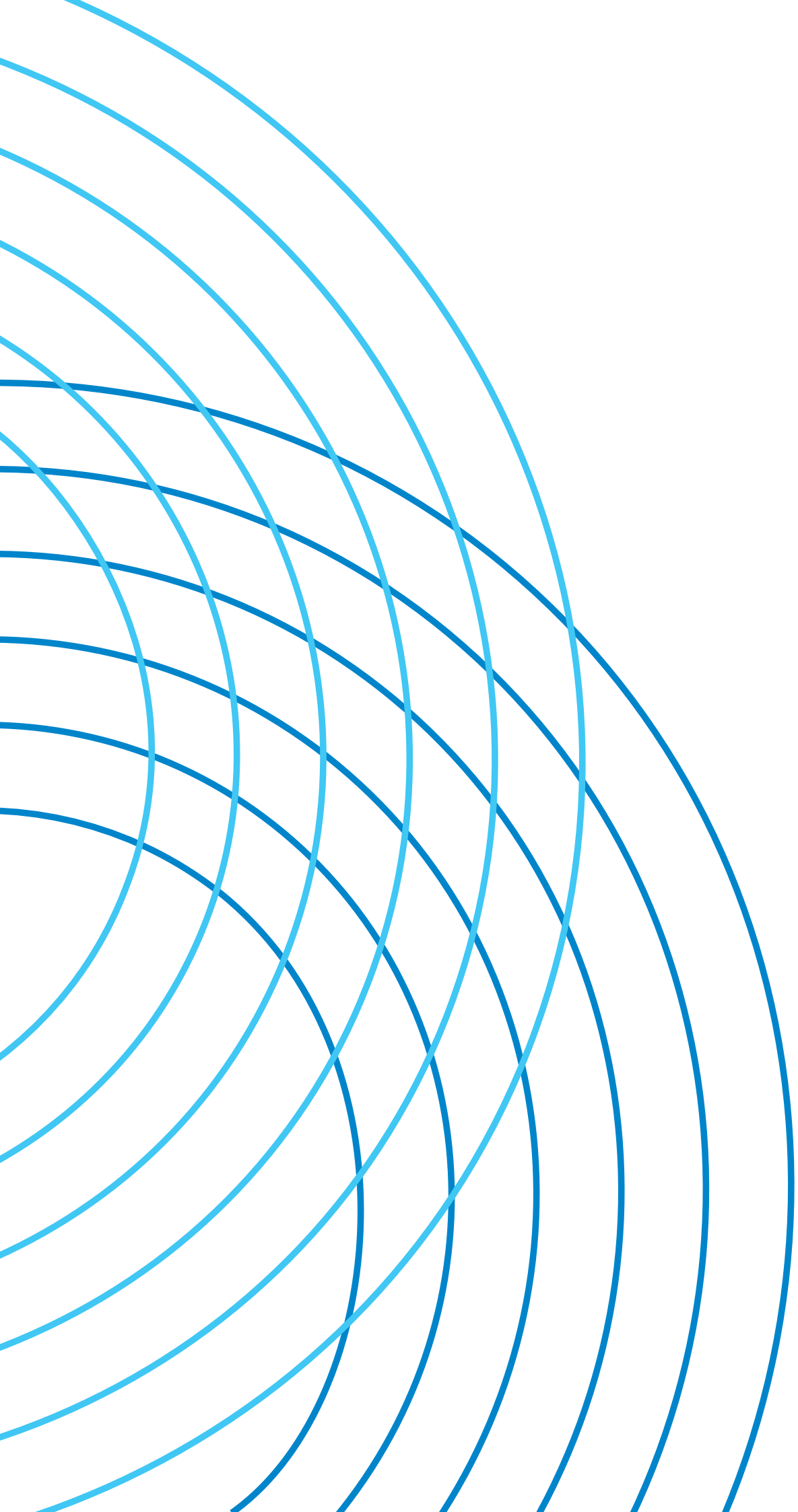


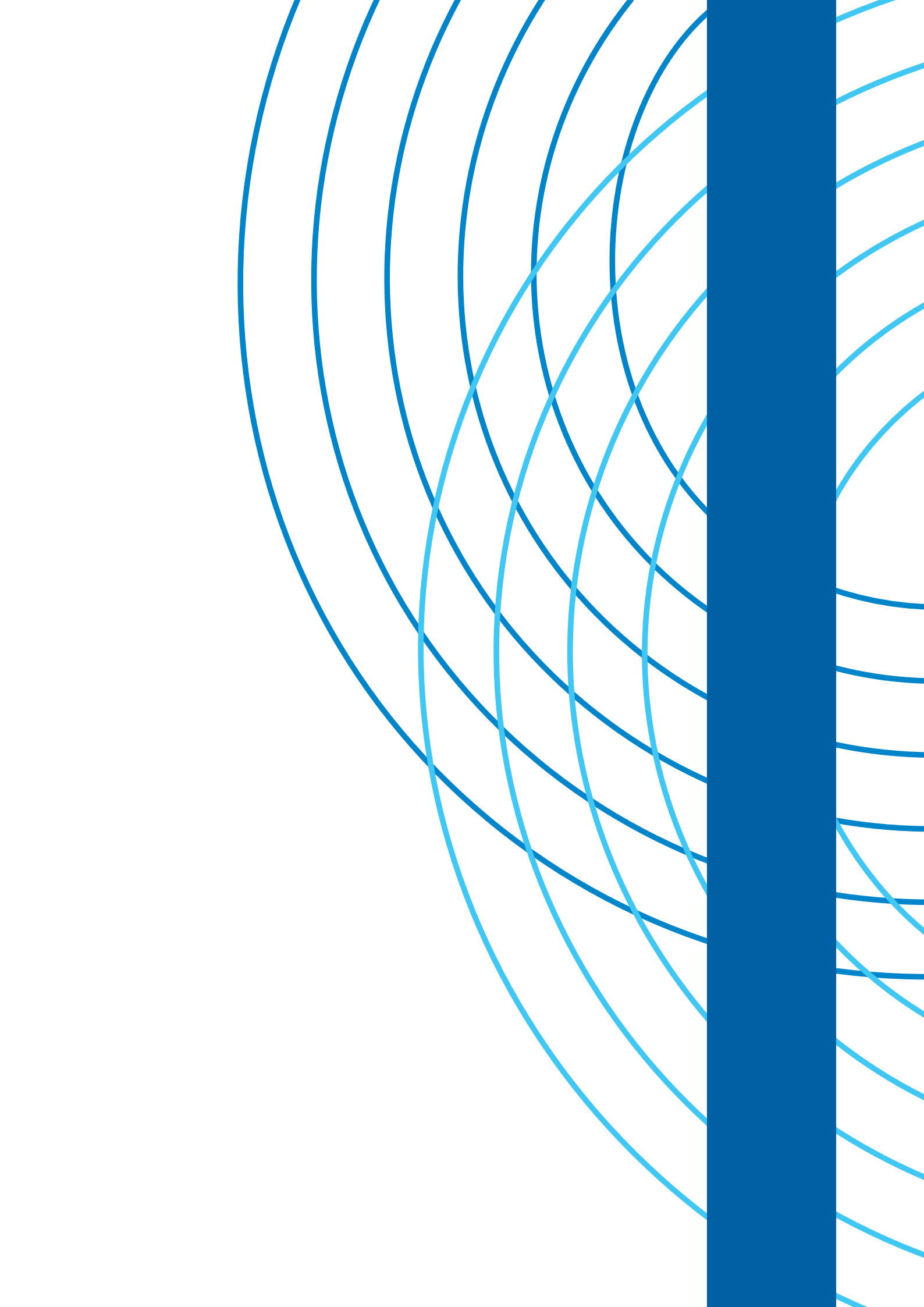

Source: Authors' calculation.

## Figure A15. CR Index – Miscellaneous




Source: Authors' calculation.





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