

# Technical Note

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## **ECONOMIC IMPACTS OF A FREE TRADE AGREEMENT BETWEEN BRAZIL AND RUSSIA: A GENERAL EQUILIBRIUM APPROACH**

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**CONTENTS**

**1 INTRODUCTION..... 5**

**2 FEATURES OF THE SIMULATIONS..... 5**

**3 RESULTS ..... 7**

**4 CONCLUSIONS ..... 14**

**REFERENCES..... 14**



## 1 INTRODUCTION

The bilateral relationship between Brazil and Russia was not much significant until the year 2000, but they grew rapidly in the following decade, as both countries benefited from the commodities supercycle, accelerated GDP growth rates and the deepening of their integration in the world economy. Brazilian exports to Russia reached a peak of US\$ 4.6 billion in 2008, while Russian exports to Brazil reached US\$ 2.0 billion in the same year. Unfortunately, they were not able to sustain those trends. In 2020, Brazilian exports have been reduced to US\$ 1.5 billion, a third of the record registered in 2008, and Russian exports had large fluctuations, with yearly amounts staying around US\$ 2 billion. They had an impressive growth in 2019-2020, reaching its historical record of almost US\$ 3 billion, but it's too early to say that's a sustainable movement.

Anyway, it seems clear that bilateral trade is well beyond its potential, what can be assessed by the low share of the countries in each other's total trade flows and by the small diversification of the trade bill. The share of the countries in each other's export bill is less than 1%, and Brazilian market-share in Russian imports is also below 1% (though it has already reached 2% to 3% shares between 2001 and 2010). The share of Russia in Brazilian imports is somewhat higher, of 1.8%, but  $\frac{3}{4}$  refers to fertilizers, a crucial input for the dynamic agricultural sector in Brazil. These products, added to crude oil and fuel oils, has represented 80% to 90% of Russian exports to Brazil during the last decades. The degree of concentration is also high on the Brazilian side, with 80% to 90% of the exports related to agricultural and food products, especially meat, sugar, coffee and soybeans.

Even considering the geographical distance and differences in cultural and historical backgrounds, it is possible to claim that Brazil and Russia have space to strengthen their trade ties, as both have huge economies and, though both have clear comparative advantages in commodities, they also possess reasonably diversified productive structures, including in various industrial activities. The aim of this paper is to assess the possible economic impacts of a free trade agreement between Russia and Brazil – in fact, between Eurasian Economic Union and Mercosur, so that, as customs unions, any trade agreement must be negotiated by all the members. The simulations are made using a computable general equilibrium model based on GTAP database, version 10. The next section presents the features of the simulations, and the results are discussed in section 3. Finally, section 4 summarizes the main conclusions.

## 2 FEATURES OF THE SIMULATIONS<sup>1</sup>

The simulations of the effects of a trade agreement between Brazil and Russia are made with the computable general equilibrium model GTAP (Global Trade Analysis Project), in its 10<sup>th</sup> version, calibrated with data for 2014, encompassing 141 countries/regions and 65 sectors. The complete documentation of this model is presented in Hertel (1997) and all the information about databases and the characteristics of GTAP version 10 can be found in Aguiar et al. (2019). The theoretical structure of the dynamic GTAP model is described in detail in Ianchovichina and McDougall (2000) and Ianchovichina and Walmsley (2012).

For the present purposes, the regions are aggregated in five – Brazil, Russia, other Mercosur countries (Argentina, Paraguay and Uruguay), other Eurasian Economic Union countries (Armenia, Belarus, Kazakhstan and Kyrgyzstan) and Rest of the World – and the sectors are aggregated in 23, as shown in table 1.

The simulation considers two different scenarios:

- scenario 1: 100% reduction in tariffs for all sectors, uniformly distributed in a 10-year timeframe (2021 to 2030); and
- scenario 2: 100% reduction in tariffs for all sectors and also a non-tariff barrier reduction of 25% for all sectors, uniformly distributed in the same timeframe.

The inclusion of non-tariff barriers on the simulations is an essential feature once an array of studies have been showing that non-tariff barriers are becoming a more important restriction to trade flows than tariffs (Marks and Rahardja, 2012; Kee, Nicita and Olarreaga, 2009; Niu et al., 2018). In fact, as tariffs had been reduced in recent decades, non-tariff barriers are rising in almost all countries, mostly after the 2008 financial crises, as shown by some estimates of *ad valorem* equivalent (Kee, Nicita and Olarreaga, 2009; Niu et al., 2018). Hence, almost all free trade agreements have clauses aimed at reducing non-tariff barriers between the parties, especially the

1. This section replicates most of the content of section 3 of another paper by the same author: Ribeiro (2021).

ones related to the reduction or elimination of quantitative restrictions, the simplification of customs procedures, the harmonization of rules and technical requirements etc.

In the GTAP model, tariff reductions are modelled directly, by applying reduction shocks in the variable *tms*, the power of tariff in sector *i*, calculated as  $[1 + t_i/100]$ , where *i* is the sector and *t* is the initial tariff level in percentage points. The initial tariff used in the simulations are the effectively applied tariffs by country A on imports from country B in the base year of GTAP version 10 (2014). These are calculated from the input-output tables available in GTAP database, and are calculated by dividing the amount of import tariffs effectively charged by country A on imports products of sector *i* came from country B by the total amount of imports by country A of products of sector *i* came from country B. Table 1 shows the initial tariffs applied by Brazil and Russia on each sectors' products.

In order to simulate the effects of changes in other factors that affect imports, like non-tariff barriers or trade costs in general, the variable *ams* is commonly used, which is defined as "Iceberg Trade Costs import-augmenting 'tech change' variable" that can be used to consider "efficiency-enhancing measures that serve to reduce the effective price of goods and services imports".<sup>2</sup> In the simulations made in this article, the shocks on *ams* were calculated by taking the *ad valorem* equivalent (AVE) of non-tariff barriers for each of the sectors considered and applying a moderate (albeit arbitrary) reduction of them, in an uniform manner throughout ten years (as with tariffs). Once the reduction of non-tariffs barriers brings an increase in the efficiency of imports (and/or a reduction in prices of goods and services), the percentage change of *ams* for each sector in each year has the opposite sign of the corresponding AVE reduction.

The initial AVE's for the sectors are obtained from the estimations made by Niu *et. al.* (2018), that uses the methodology first developed by Kee, Nicita and Olarreaga (2009). The authors calculate AVE's for a large sample of countries, for products at 6-digit level of the Harmonized system (HS) international classification, and for some years between 1997 and 2015. For this article, the most recent estimations were used, referred to Brazil, Russia, Argentina (as a proxy for AVE's for the other Mercosur countries) and Kazakhstan (as a proxy for AVE's for the other EAEU countries). The average AVE for each GTAP sector considered in the simulations is obtained by using a table of concordance that links each HS-6 item to one of the GTAP sectors, provided in GTAP website.<sup>3</sup> The initial average AVE's for the sectors considered in the simulations in Brazil and Russia are shown in table 1.

Choosing the magnitude of the reduction on AVE's is quite an arbitrary decision, but it seems reasonable to apply just a moderate reduction, in order to not overestimate the effects, and considering that there are many non-tariff barriers that are not (or cannot be) reduced by the agreement's provisions. In this article, it has been applied a 25% reduction on AVE's over ten years. It's important to keep in mind that a larger (smaller) reduction would imply a greater (smaller) impact on growth of bilateral trade.

The reductions in AVE's are calculated by the same way as tariffs, by first obtaining the initial power of tariffs (defined as  $1+t_i/100$ , where *i* is the sector e *t* is the initial level of AVE in percentage points) and the final power of tariffs (that is  $1+(t_i \times 0,75)/100$  in the case of AVEs). Then the percentage change between final and initial power of tariffs are obtained and this change is uniformly distributed throughout ten years.

The simulations are made for the period 2021 to 2035, so as to consider the ten years in which the policy shocks are applied (2021 to 2030) and some years ahead, to capture some important lagged effects of the shocks. The simulations were made using the software RunDynam and all the results are presented as deviations from the baseline simulation, say, the evolution for all the variables that would prevail if there were no policy shocks.

2. Available at: <<https://bit.ly/3luF7g6>>.

3. Available at: <<https://bit.ly/3CcOckw>>.

TABLE 1

Initial tariffs and *ad valorem* equivalent of non-tariff barriers in Brazil and Russia, by GTAP sectors

(In %)

Sector	Brazil		Russia	
	Tariffs	AVEs of NTMs	Tariffs	AVEs of NTMs
Cereals	2.37	7.26	0.00	7.29
Other agriculture and forestry	3.28	58.64	0.22	37.78
Oil seeds	0.00	28.34	0.00	18.12
Oil and gas	0.00	37.72	0.00	0.00
Minerals	0.15	83.42	3.68	29.90
Meat	0.00	43.84	22.38	45.53
Food and beverages	14.17	73.47	17.35	48.73
Textiles and apparel	32.78	68.48	12.99	58.74
Leather and shoes	0.00	57.69	8.57	56.01
Wood products	10.07	45.45	12.54	43.30
Paper	7.79	97.88	5.36	58.60
Oil products	0.46	69.95	0.00	18.03
Chemicals	0.96	59.08	5.37	47.18
Pharmaceuticals	3.00	35.35	6.95	34.20
Rubber and plastics	15.90	112.23	7.31	86.73
Mineral and metals products	6.39	68.61	5.61	58.98
Electronic equipment	10.66	120.94	4.74	98.66
Electric equipment	11.35	82.03	3.60	89.13
Machinery and equipment	14.90	101.12	3.96	99.29
Vehicles and parts	20.86	72.29	6.23	71.74
Other transport equipment	0.00	67.32	8.98	49.04
Other manufactures	6.89	79.92	5.60	55.15
Services	0.00	n.d.	0.00	n.d.

Sources: GTAP and Niu et al. (2018).

### 3 RESULTS

#### 3.1 Macroeconomic variables

The effects of a trade agreement between Mercosur and Russia on selected macroeconomic variables for Brazil and Russia are shown in table 2, for the two scenarios described in the previous section. The results are presented as deviations from the baseline scenario, showing the cumulative change until 2035.

For Brazil, the numbers are positive for GDP, investment, real wages, exports, imports and terms of trade, with the exception of GDP growth in scenario 1 and Brazilian negative trade balance in both scenarios. The changes in all variables are higher in scenario 2.

For Russia, there are gains in GDP, exports and imports in both scenarios. In contrast, the effects in investments, real wages and trade balance are negative, and Russia also suffers a loss on terms of trade. The GDP growth would be higher in scenario 2, but import and export growth rates would be very similar in both scenarios, with a modest increase in overall trade balance in the two cases.

The effects on GDP growth would be modest, an expected result once bilateral trade is very low as compared to both economies size, but not negligible, especially in scenario 2. And the gain would be much higher in Russia than

in Brazil. The negative effect on Brazilian GDP in scenario 1 is not a common result in general equilibrium simulations of tariff reductions. Probably, the efficiency gains and the cost reducing effects of the agreement would not be enough to counteract the production reducing effects due to the substitution of imported products for domestic ones. Anyway, the GDP effect turns positive in scenario 2, what highlights the importance of including measures to reduce non-tariff barriers and other bilateral trade costs in Mercosur-Russia FTA.

In terms of investment, the trade agreement would be more helpful to Brazil than to Russia, so that investment gains in this country would be very low. It probably reflects the fact that Brazil, and Mercosur in general, is not a competitive supplier of capital goods, so Russia would not retain significant gains from improving imports of this kind of goods under the FTA. In terms of foreign trade, exports and imports growth rates would be much higher in Russia than in Brazil than in Russia, a feature that will be best understood when sectoral trade numbers are considered. Anyway, the free trade agreement would have a positive effect on total trade flows in both countries.

TABLE 2

Macroeconomic effects on Brazil and Russia of a Mercosur-EAEU FTA

Variables	Brazil		Russia	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
GDP (%)	0.01	0.03	0.05	0.13
GDP deflator (%)	0.47	0.69	-0.33	-0.47
Investment (%)	0.66	1.08	-0.20	-0.24
Real wages (%)	0.49	0.75	-0.22	-0.27
Export quantity (%)	-0.03	0.09	0.73	1.11
Export value (%)	0.35	0.64	0.61	0.97
Import quantity (%)	0.72	1.27	1.00	1.54
Import value (%)	0.73	1.33	1.04	1.62
Trade balance (US\$ 1 million)	-628.7	-1.169.9	-405.8	-435.8
Terms of trade	0.37	0.48	-0.16	-0.22

Author's elaboration.

Obs.: Percentage deviation from the baseline, cumulative until 2035.

### 3.2 Welfare analysis

Traditional trade theory predicts that a reduction in import tariffs lowers the domestic price of goods, what raises the so-called “consumer surplus”. And this gain is commonly higher than the reduction of “producer surplus” (because of lower selling prices) and of the government revenue (because of the lower tariff rate). On general equilibrium analysis, the welfare effects are somewhat more complex, being derived from the allocation of national income between private consumption, government consumption and savings. Hanslow (2000) argues that welfare effects of a trade policy change depend on what the change does to its national income and on the effect of the policy change on prices, and hence the purchasing power of that income.

In general, welfare changes depend mainly on four factors (Hanslow, 2000): i) endowment contributions from changes in the availability of primary factors, such as the stock of machinery, buildings and agricultural land; ii) technical efficiency contributions from changes in the use of available inputs in production, such as improvements in labor productivity; iii) allocative efficiency contributions relative to pre-existing distortions; and iv) terms of trade effects, once an increase in these means an increase in purchasing power.

Table 3 shows that the Mercosur-Russia FTA would bring significant welfare gains for Brazil, of US\$ 3.0 billion in scenario 1 and US\$ 5.0 billion in scenario 2. These are related mainly to technical change and to terms of trade gains. In Russia, there would be a US\$ 1.6 billion gain in welfare in scenario 2, due to allocative effects and to technical change effects. In scenario 1 the welfare would suffer a small loss. This means that simply reducing tariffs would not be enough to bring welfare gains to the. The elimination of non-tariff barriers would be crucial.



TABLE 3

## Welfare changes and decomposition for Brazil and Russia, resulting from a Mercosur-EAEU FTA

(In US\$ 1 million, deviation from the baseline, cumulative until 2035)

Variable	Brazil		Russia	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
<b>Total</b>	<b>3,037.6</b>	<b>4,995.2</b>	<b>-129.8</b>	<b>1,606.0</b>
Endowment effects	-672.8	-1,045.7	-64.7	-75.7
Allocative effects	115.8	126.3	378.1	760.4
Technical change	1,800.9	3,403.0	-512.5	710.2
Terms of trade	1,599.3	2,172.0	-750.5	-833.6
Other effects	194.3	339.6	819.8	1,044.7

Author's elaboration.

## 3.3 Main sectoral variables

The FTA would have a negative effect on production levels of almost all sectors in Brazil, as can be seen on table 4. In fact, only three sector would benefit from the agreement: Meat Other agricultural and forestry and Food and beverages. And the picture is very similar in scenarios 1 and 2. The sectors with higher production losses would be Wood Products, Minerals and metals products, Chemicals, Oil Seeds, Electric equipment and Leather and shoes.

The effect on Russia is a mirror image of what happens in Brazil. Almost all sectors would have production gains, except for Meat, Other agricultural and forestry and Food and beverages (and also Oil seed in scenario 2). The greater production gains would attain to Chemicals, Minerals and metals products, Electric equipment and Electronic equipment.

TABLE 4

## Impacts on sectoral production of Brazil and Russia of a Mercosur-EAEU FTA

(In % deviation from the baseline, cumulative until 2035)

Sector	Brazil		Russia	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Meat	7.7	10.5	-8.8	-13.9
Other agricultural and forestry	1.7	2.4	-1.2	-1.9
Food and beverages	0.1	0.2	-0.3	-0.6
Oil products	-0.1	-0.1	0.2	0.7
Cereals	-0.2	-0.2	0.5	0.7
Rubber and plastics	-0.2	-0.2	0.3	0.4
Other manufactures	-0.2	-0.3	0.2	0.3
Vehicles and parts	-0.3	-0.3	0.3	0.5
Oil and gas	-0.2	-0.3	0.3	0.5
Electronic equipment	-0.3	-0.4	0.7	1.0
Textiles and apparel	-0.3	-0.4	0.5	0.7
Minerals	-0.3	-0.5	0.4	0.7
Pharmaceuticals	-0.6	-0.8	0.4	0.5
Other transport equipment	-0.7	-0.9	0.8	1.1
Paper	-0.7	-0.9	0.4	0.6
Machinery and equipment	-0.9	-1.0	0.4	0.5
Wood Products	-0.8	-1.1	0.5	0.7
Minerals and metals products	-0.9	-1.2	0.7	1.1

(Continues)

(Continued)

Sector	Brazil		Russia	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Chemicals	-0.6	-1.4	0.8	3.2
Oil seeds	-1.1	-1.4	0.4	-0.5
Electric equipment	-1.3	-1.7	0.6	1.0
Leather and shoes	-1.4	-1.7	0.7	0.8

Author's elaboration.

Table 5 shows the results of the trade agreement on Brazilian total exports, imports and trade balance by sector. In both scenarios, just two sectors would expand its exports: Meat (with very high percentage gains). In the other sectors, many would have significant export losses, like Cereals, Wood Products, Electronic equipment, Electric equipment, Other Manufactures, Leather and shoes and Pharmaceuticals. In contrast, imports would grow in almost all sectors, except for Minerals and Oil Products. Trade balance would deteriorate in almost all sectors, with three major exceptions: Meat, Food and beverages and Oil products.

Table 6 shows what would happen to sectoral trade in Russia. Exports would grow in all sectors in both scenarios, with more significant gains in Chemicals, Electric equipment, Textiles and apparel, Minerals and metals products, Machinery and Equipment, Electronic equipment and Oil Seeds. Imports, otherwise, would grow in only five sectors: Meat, Food and beverages, Minerals, Oil products and Oil and gas. Trade balance would have a positive change, except in Meat and Food and beverages.

TABLE 5

Impacts on sectoral trade in Brazil of a Mercosur-EAEU FTA

Sector	Exports (%)		Imports (%)		Trade balance (US\$ 1 million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Meat	25.2	34.6	2.7	3.8	7,147.1	9,820.5
Food and beverages	0.8	1.5	1.1	1.6	360.2	722.6
Minerals	-0.1	-0.1	-0.5	-1.2	-45.8	-51.8
Oil products	-0.2	-0.2	-0.2	-0.3	1.5	47.3
Minerals and metals products	-1.9	-2.3	1.3	3.0	-1,347.2	-1,861.9
Chemicals	-1.6	-1.7	0.6	2.2	-806.9	-1,583.1
Machinery and equipment	-2.2	-2.4	1.3	1.9	-589.4	-729.4
Electronic equipment	-2.5	-3.1	1.0	1.6	-349.5	-496.2
Paper	-1.8	-2.6	1.0	1.5	-333.2	-474.9
Leather and shoes	-2.5	-3.0	1.4	2.0	-359.0	-438.6
Vehicles and parts	-0.9	-1.0	0.5	0.7	-329.1	-417.7
Electric equipment	-2.5	-3.1	1.1	1.6	-293.6	-399.9
Other agricultural and forestry	-2.1	-2.8	2.3	3.3	-283.9	-384.4
Oil seeds	-1.7	-2.3	1.1	1.6	-274.8	-375.9
Pharmaceuticals	-2.2	-3.0	1.0	1.4	-258.9	-362.9
Rubber and plastics	-1.6	-1.9	1.1	1.7	-186.9	-245.8
Oil and gas	-0.5	-0.4	0.0	0.3	-181.2	-228.5
Textiles and apparel	-1.5	-1.5	1.3	1.9	-165.2	-223.7
Other manufactures	-2.3	-3.1	1.7	2.5	-145.6	-203.1
Other transport equipment	-1.0	-1.4	0.7	1.1	-134.0	-193.9
Cereals	-2.5	-3.6	1.5	2.2	-115.1	-165.7
Wood products	-2.5	-3.5	1.7	2.6	-101.6	-145.5

Author's elaboration.

Obs.: Percentage deviation from the baseline, cumulative until 2035.

TABLE 6

## Impacts on sectoral trade in Russia of a Mercosur-EAEU FTA

Sector	Exports (%)		Imports (%)		Trade balance (US\$ 1 million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Chemicals	0.9	4.4	-0.1	0.1	629.2	2,863.8
Minerals and metals products	1.5	2.7	-0.2	-0.0	1,199.1	1,979.1
Oil and gas	0.5	0.3	0.1	0.5	2,062.4	1,458.7
Oil products	0.2	0.3	0.1	0.8	358.2	472.3
Machinery and equipment	1.6	2.5	-0.5	-0.6	296.5	367.8
Electronic equipment	1.6	2.6	-0.4	-0.4	252.8	341.9
Other agricultural and forestry	1.1	1.7	-1.2	-1.8	202.0	305.0
Electric equipment	1.8	3.3	-0.4	-0.5	175.8	254.1
Other manufactures	1.5	2.0	-0.6	-0.7	140.9	180.9
Wood products	1.3	1.8	-0.6	-0.7	126.6	171.3
Cereals	1.3	1.9	-1.0	-1.6	115.7	169.6
Paper	1.2	1.8	-0.5	-0.7	110.5	165.3
Vehicles and parts	0.7	1.1	-0.2	-0.2	141.7	159.6
Rubber and plastics	1.2	2.5	-0.3	-0.3	83.4	130.3
Textiles and apparel	2.0	3.3	-0.2	-0.2	85.8	103.4
Other transport equipment	1.0	1.4	-0.3	-0.3	73.9	94.7
Pharmaceuticals	0.8	1.0	-0.2	-0.2	48.1	49.9
Leather and shoes	1.7	2.4	-0.2	-0.1	35.5	34.5
Oil seeds	1.3	2.6	-0.8	-1.0	17.3	27.2
Minerals	0.1	0.2	0.4	0.7	10.0	14.6
Food and beverages	1.0	1.5	2.2	3.2	-451.3	-650.7
Meat	1.5	2.3	55.3	79.7	-7,399.2	-10,665.8

Author's elaboration.

Obs.: Percentage deviation from the baseline, cumulative until 2035.

### 3.4 Bilateral trade

Brazilian exports to Russia (table 7) would grow at a strong pace in almost all sectors in both scenarios, except for Cereals and Oil and gas (products that are not imported). In absolute terms, though, almost all the increase would refer to only two sectors: Meat (almost US\$ 1 billion in scenario 2) and Food and beverages (US\$ 2.0 billion), although there would be some significant gains also in Machinery and Equipment, Leather and shoes, Vehicles and parts, Chemicals and Textiles and apparel.

Russia's export to Brazil (table 8) would also grow in all sectors, some of the with very high percentage rates, but in absolute terms the bulk of the gain would attain only to Chemicals (US\$ 2.1 billion in scenario 2), Minerals and metals products (US\$ 829 million), Oil and gas (US\$ 275 million) and Oil products (US\$ 137 million).

Finally, table 9 shows the absolute change of the sectoral bilateral trade balance. Brazil would have the greatest gains (US\$ 9.1 billion in scenario 1 and US\$ 10.5 billion in scenario 2), but highly concentrated in Meat and Food and beverages. Russia would improve its bilateral trade balance in Chemicals, Minerals and metals products, Oil and gas and Oil products.

TABLE 7

## Impacts on exports from Brazil to Russia of a Mercosur-EAEU FTA

Sector	Change (%)		Absolute change (US\$ 1 million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Meat	161.4	222.3	7,944.5	10,941.1
Food and beverages	90.0	142.9	1,302.9	2,070.3
Minerals and metals products	50.6	159.4	112.5	354.1
Machinery and equipment	38.4	231.6	25.2	152.2
Leather and shoes	96.7	255.8	42.3	112.0
Vehicles and parts	46.2	125.6	36.7	99.7
Chemicals	42.4	119.7	34.6	97.8
Textiles and apparel	147.8	341.7	20.4	47.1
Electric equipment	37.8	242.5	3.5	22.7
Electronic equipment	54.5	299.2	4.0	22.1
Other agricultural and forestry	-3.1	21.1	-2.7	18.1
Rubber and plastics	59.9	204.9	5.2	17.9
Pharmaceuticals	56.0	116.5	6.2	13.0
Other manufactures	51.0	161.0	3.7	11.6
Oil seeds	0.7	5.0	1.2	8.3
Wood products	122.3	234.4	4.3	8.2
Other transport equipment	108.7	283.8	1.9	4.9
Oil products	3.1	13.6	0.9	4.1
Paper	38.4	109.3	0.9	2.6
Minerals	10.3	12.4	0.3	0.4
Cereals	0.0	0.0	0.0	0.0
Oil and gas	0.0	0.0	0.0	0.0

Author's elaboration.

Obs.: Percentage deviation from the baseline, cumulative until 2035.

TABLE 8

## Impacts on exports from Russia to Brazil of a Mercosur-EAEU FTA

Sector	Change (%)		Absolute change (US\$ 1 million)	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Chemicals	6.3	75.0	176.6	2,092.9
Minerals and metals products	49.1	185.2	219.7	829.0
Oil and gas	0.6	167.6	1.0	274.9
Oil products	1.6	42.3	5.1	137.0
Rubber and plastics	132.7	410.6	19.1	59.1
Electric equipment	137.4	501.2	10.0	36.4
Electronic equipment	125.7	606.4	4.3	20.7
Machinery and equipment	175.2	613.0	5.4	18.8
Paper	47.3	180.3	4.8	18.3
Textiles and apparel	536.8	1,170.8	7.7	16.9

(Continues)

(Continued)

Vehicles and parts	143.0	305.6	4.3	9.2
Minerals	-0.3	8.4	-0.3	7.3
Food and beverages	60.9	137.0	2.9	6.5
Wood products	79.7	189.9	1.2	2.8
Other manufactures	59.6	244.2	0.3	1.3
Meat	12.0	112.0	0.1	1.0
Other agricultural and forestry	15.6	64.8	0.2	0.8
Pharmaceuticals	20.5	76.9	0.2	0.6
Leather and shoes	3.6	103.6	0.0	0.6
Other transport equipment	0.0	128.6	0.0	0.1
Cereals	15.0	25.0	0.0	0.1
Oil seeds	0.0	0.0	0.0	0.0

Author's elaboration.

Obs.: Percentage deviation from the baseline, cumulative until 2035.

TABLE 9

Impacts on trade balance between Brazil and Russia of a Mercosur-EAEU FTA

(In US\$ 1 million)

Sector	Absolute change	
	Scenario 1	Scenario 2
<b>Total</b>	<b>9,086.0</b>	<b>10,473.6</b>
Meat	7,944.4	10,940.1
Food and beverages	1,300.0	2,063.8
Machinery and equipment	19.8	133.3
Leather and shoes	42.3	111.4
Vehicles and parts	32.4	90.5
Textiles and apparel	12.7	30.3
Other agricultural and forestry	-2.8	17.3
Pharmaceuticals	6.1	12.4
Other manufactures	3.4	10.3
Oil seeds	1.2	8.3
Wood products	3.1	5.4
Other transport equipment	1.9	4.8
Electronic equipment	-0.3	1.4
Cereals	-0.0	-0.1
Minerals	0.6	-6.9
Electric equipment	-6.5	-13.7
Paper	-3.9	-15.7
Rubber and plastics	-13.9	-41.3
Oil products	-4.1	-133.0
Oil and gas	-1.0	-274.9
Minerals and metals products	-107.2	-474.9
Chemicals	-142.0	-1,995.1

Author's elaboration.

## 4 CONCLUSIONS

The FTA between Mercosur and EAEU would have, in general, positive macroeconomic and welfare effects for Brazil and Russia, but the results are not straightforward. The effects on GDP would be small, though more significant for Russia. Total exports and imports would grow, also with higher rates for Russia. But investment and real wages would grow in Brazil and fall in Russia, the same happening to terms of trade. Welfare gains would be higher for Brazil, and for Russia they would be positive only in scenario 2, that considers not only tariff elimination but also non-tariff barriers reductions.

Only few sectors in Brazil would really benefit from the agreement with growing domestic production and exports: Meat, Food and beverages and Other agricultural and forestry. The other sectors would see negative effects. Two effects explain these results. First, the pattern of comparative advantages means that the possibility of expanding exports to Russia are highly concentrated in a few products, and even the zeroing of tariffs and reduction of non-tariff barriers would be enough to Brazilian exports more competitive in Russian market in other sectors. Second, as the other Mercosur also eliminate tariffs to Russia (and the other EAEU countries), they would expand their imports from Russia and some of them would substitute for imports from, especially in manufacturing sectors. As a significant share of Brazilian manufacturing exports goes to Mercosul, the growth of export to Russia (and EAEU as a whole) wouldn't be enough to compensate for the losses in Mercosur.

In Russia, otherwise, almost all sectors would have production gains, except for Meat, Other agricultural and forestry and Food and beverages (and also Oil seed in scenario 2). The greater production gains would attain to Chemicals, Minerals and metals products, Electric equipment and Electronic equipment. Exports would grow in all sectors in both scenarios.

Bilateral trade between Brazil and Russia would grow much in all sectors, as typically happens in a trade agreement. But when one considers the gains in absolute values, the sectoral growth would be concentrated on Meat and Food and beverages exports from Brazil and Chemicals and Minerals and metals products exports from Russia – in fact reinforcing the current pattern of bilateral trade. But it's important to say the it's not a problem related to the FTA, being, in fact, a consequence of the productive specialization pattern of the countries – something that must be addressed by domestic policies.

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