Feasibility study of a MERCOSUR-Korea Free Trade Agreement: Impact analysis for Argentina

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Abstract

This paper assesses how a free trade agreement between the MERCOSUR country members and Korea would possibly affect Argentina. To that aim, different methodologies were combined. In the first place, both direct and indirect effects of such agreement were captured by a general equilibrium simulation model. As usual, general equilibrium results have little sectoral disaggregation. Consequently, partial equilibrium approaches were also used: trade indicators, sectoral analysis and a simulation model. At the aggregate level, the results showed that a MERCOSUR-Korea agreement might be beneficial to Argentina as long as the agricultural sector takes part in the negotiation. At the sector level, the results obtained were as expected: given that recent trade between Argentina and Korea has been inter-industrial, the opportunities for Argentine exports concentrate in agricultural products and, in turn, the threats to domestic output and sales to MERCOSUR concentrate in industrial products. Lastly, there is a detailed analysis of some productive sectors. This paper only considers the effects that can be directly attributable to trade; changes in investment flows were not taken into account.

1. Introduction

In order to negotiate a trade preference agreement, it is necessary to have a set of previous information referred to trade between the potential partners to the agreement, the different measures that can impede bilateral trade and an assessment of the likely impact that a reduction or elimination of such measures may have on trade and output. This means that it is necessary to know which the situation is at the starting point and the likely consequences of its modification. Impact assessments of trade agreements provide this type of information.

To that aim, different methods were developed, which combine quantitative and qualitative approaches with different degrees of specificity and sophistication that make it possible to analyse several aspects of the likely effects an agreement would have on the economy as a whole and on a particular sector or product as well[3]. These studies have become increasingly regular not only within the academia but also within the spheres of the public bodies in charge of trade negotiations, both in developed and developing countries.

Conversations between MERCOSUR and the Republic of Korea have been taking place since 1997, which have resulted in exchange of information and the analysis of ways of enhancing mutual knowledge as well as increasing bilateral trade.

In November 2004, when South Korean president Roh Moo-hyun visited Argentina and Brazil, announcements were made on the execution of a joint study on the viability of a trade agreement between Korea and MERCOSUR. In May 2005, the governments of Korea and of MERCOSUR countries approved the terms of reference of a Joint Feasibility Study on a Trade Agreement[4]. The study was concluded in October 2006, during the fourth meeting of the Joint Study Group gathered to carry out the assessment, and it was officially submitted to the governments at the Sixth Consultation Meeting MERCOSUR-Korea in October 2007 in Montevideo. In December 2007, it was introduced to the Argentine private sector to be commented on.

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[2] The authors would like to thank the comments made by Paula Español, Pablo Ducros, Verónica Fossati, Sebastián Laffaye and Hernán Sarmiento. The authors have also benefited from the discussions held during the meeting of the Joint Study Group on the Feasibility of a Free Trade Agreement between Korea and MERCOSUR.

[3] A summary of the quantitative methods is presented in Cicowiez (2006).

[4] The terms of reference approved took as a basis the proposal made by the Argentine delegation.

The study consists of three parts: the first goes through the bilateral economic relations; the second includes the impact evaluation itself; and the third comments on alternatives to enhance bilateral economic relations. Impact evaluations for each of the five countries are included as an annexe to the study.

Technical teams of the following institutions worked in the preparation of the section dealing with impact assessment: on behalf of Korea, from Inha University; on behalf of Argentina, from the Centre for International Economy and the Centre for Production Studies; on behalf of Brazil, from the Ministry of Agriculture and the Instituto de Pesquisa Econômica Aplicada; on behalf of Paraguay, from the Ministry of Finance; and on behalf of Uruguay, from the Ministry of Economy and Finance.

This study presents two typical features that differenciate it from the rest of the ordinary ex ante impact assessments, that is, on the feasibility of a trade agreement. The first feature is that it was jointly prepared by both parties involved[5]; the second is the fact that it includes an analysis with different approaches: general equilibrium, trade indicators, partial equilibrium and sectoral analysis when it is most common to follow only one of them, particularly that of general equilibrium. The joint use of four different methods enables a more comprehensive view of the impact, at a different level of disaggregation, and the combination of quantitative information with that of a more qualitative type. As a consequence, an assessment can be made taking into account the sectoral interrelations, enabling the identification of products in detail, showing quantitative results with a different level of disaggregation, and offering an analysis of the main sectors with higher chances of modifying their trade level as a result of a trade agreement.

This paper constitutes a summary of the impact study for Argentina that is part of the Annexes to the Report on the Joint Study MERCOSUR-Korea, which, it is worth pointing out, represents the first feasibility study jointly performed by MERCOSUR. The paper is organised as follows: section 2 describes Argentine-Korean trade, paying special attention to the stylized facts that account for the results obtained in subsequent sections of the analysis; section 3 gives estimates by means of the computable general equilibrium method; section 4 uses the method of trade indicators; section 5 makes an assesses with the computable partial equilibrium method; section 6—prepared by the Centre for Production Studies (CEP)—makes a more detailed analysis of some sectors that might be affected by the agreement.

The statistical information has been updated in relation to that contained in the Joint Study, except when refering to the impact simulation results in sections 3 to 5, for which data from the 2003–2004 period was used.

2. Argentine trade with Korea

2.1. Aggregate trade

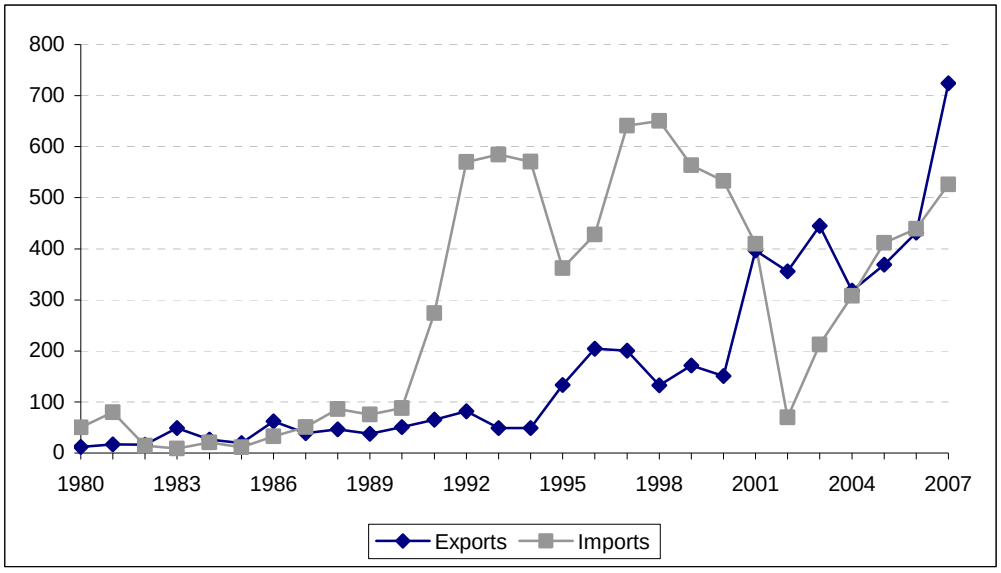
Between 1990 and 1998, Argentine imports from Korea increased from USD 88 million to USD 650 million. However, between 1999 and 2002, they fell from USD 564 million to USD 70 million. Similarly, exports remained at around USD 50 million until 1995, and then gradually increased to reach USD 370 million in 2001. After overcoming the 2001–2002 Argentine crisis in our country, a trade surplus was reached. In 2007, Argentine trade with Korea amounted to USD 724 million in exports and USD 526 million in imports (Graph 1). In turn, Korea's share in Argentine overall exports and imports has ranged from 1% to 1.5% in recent years (Graph 2).

[5] The fact that these studies were jointly performed by the potential partners makes it possible to reduce the costs of data collection and analysis of tariffs and of other trade measures as well, which are important costs existing from the beginning of any trade negotiation.

Graph 1

Argentine trade with Korea

in millons of USD

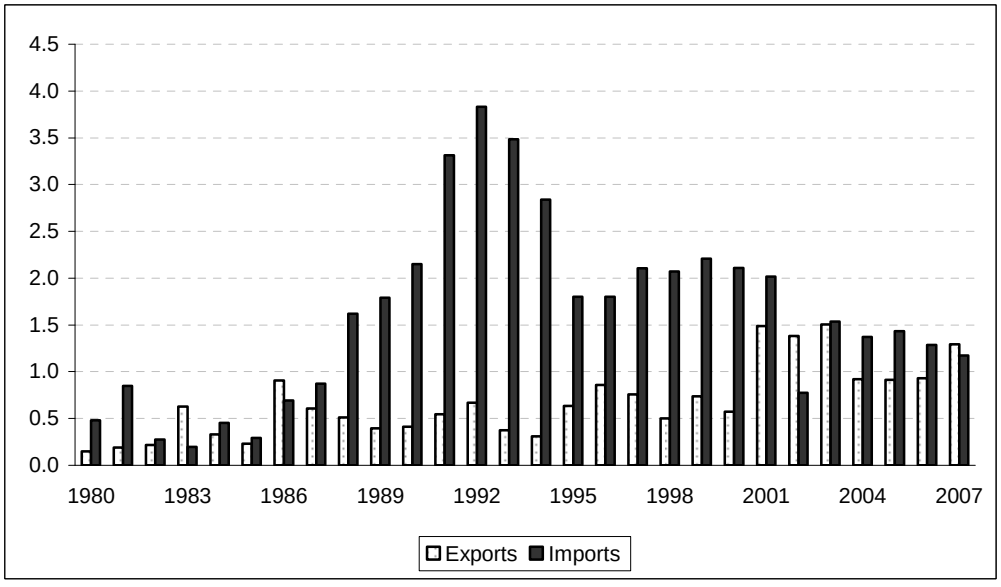


Source: Centre for International Economy based on INDEC.

Graph 2

Korea's share in Argentine trade

in percentage

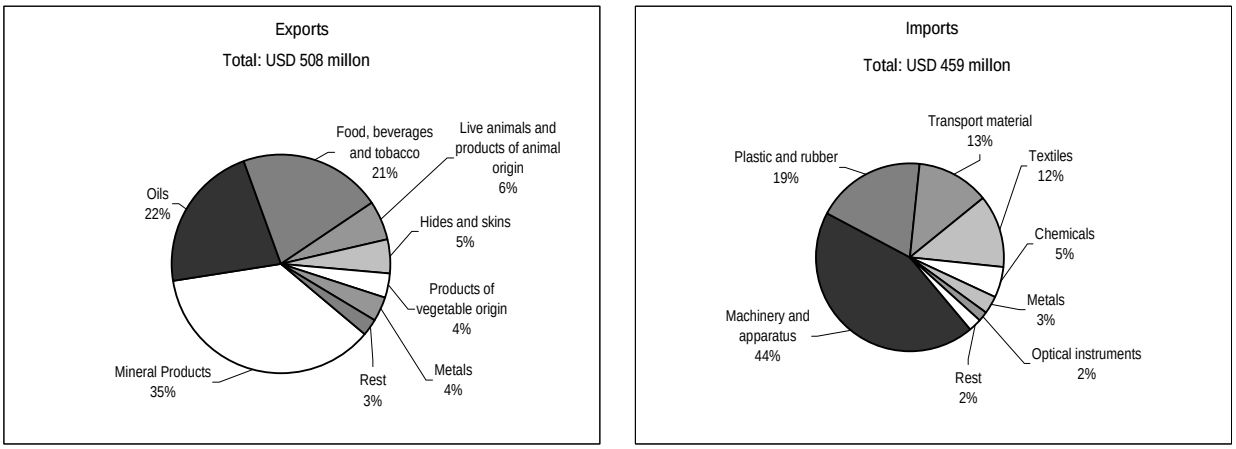


Source: Centre for International Economy based on INDEC.

2.2. Sectoral trade

Minerals was the main Argentine export to Korea by USD 185 million on average during the 2005–2007 period (Graph 3). Other important sectors were Oils, Food and Live animals. The main Argentine imports from Korea were Machines and apparatus. Other important sectors were Plastics, Transport equipment and Textiles.

Graph 3
Sectoral composition of Argentine trade with Korea, 2005-2007 average
in percentage



Source: Centre for International Economy based on INDEC.

In summary, trade between Argentina and Korea, though not much relevant, has grown in recent years after the 2001–2002 Argentine crisis. At the sectoral level, exports from our country concentrate in primary manufactures, whereas imports concentrate in manufactures of industrial origin.

3. General equilibrium estimates

This section uses a computable general equilibrium model to capture, within a consistent framework, the likely effects of implementing a free trade agreement between the MERCOSUR country members and Korea.

3.1. The model

In simple terms, a CGE model is the representation, in programming language, of a real economy that includes consumers, producers, primary factors of production, intermediate inputs, the government, and investment. It is assumed that the economic agents behave in accordance with the optimization principles of microeconomic theory. The economy as a whole is modelled contemplating the interrelationships between its components. As a consequence, both the direct and indirect effects of a tariff reduction can be captured. It is useful to assess alternative economic policies since it makes it possible to answer questions such as: who wins? who loses? how much?

Currently, the CGE models are broadly used for the quantitative analysis of several trade liberalization agreements both at regional and multilateral levels. The fact of this tool being so flexible enables the simulation of different variations of the same trade integration scenario. For instance, it is possible to capture the sensitivity of the results to the exclusion of certain sectors from the negotiation.

The general equilibrium model used is quite standard. It consists in a multi-country and multisector extension of the 1-2-3 model introduced by de Melo and Robinson (1989). A simple model only capturing the direct effects of tariff reduction was the one used. Thus, it is possible to isolate the “pure” effect of tariff reduction. The starting point for the simulations is a “picture” of the world economy. The results obtained pertain to changes in relative prices, wellbeing

(e.g., standard of living), sectoral (production, returns, employment) and macroeconomic changes. For a more detailed presentation of the model, see Cicowiez (2006).

3.2. Database

The basic information input for the construction of a CGE model is a social accounting matrix (SAM). A SAM matrix summarizes all the transactions that took place in a given economy during a given year. The social accounting matrices of each country included in the model are related by means of trade flows. As is usually the case for this type of studies, the last version available—the sixth—of the Global Trade Analysis Project (GTAP; Dimaranan and McDougall, 2006) was used[6].

The sectors and countries included in the model are shown in Table 1. The choice of sectors was made considering the share each has for in exports of MERCOSUR country members. The choice of countries was made considering the importance each has as export destination and as the origin of imports from MERCOSUR country members.

In terms of the sectors identified in the model, the main casecaseproducts Argentina exports to Korea are Minerals, Wheat, maize and other cereals, Vegetable oils and fats, Energy products, and Other agricultural products.

The tariffs contained in the GTAP database originate from the MAcMap database documented in Bouët et al. (2004)[7]. Graph 4 compares the bilateral tariffs mutually imposed by Argentina and Korea for all the products included in the model. The tariffs of the GTAP database are trade-weighted average tariffs.

Korea imposes high tariffs on agrifood products and low tariffs on manufactures. The opposite can be seen in the case of Argentina. This, together with those sectors previously pointed out as main exporters to Korea, would a priori determine a possible pattern of winner and loser sectors in a trade negotiation between MERCOSUR and Korea. That is to say, due to the change in relative prices eventually generated by the tariff reduction, Argentina would increase its exports of manufactures of agricultural origin and its imports of manufactures of industrial origin.

According to the MAcMap database information, Korea is among those countries in the world that grant the greatest protection to the agricultural sector. Particularly, all the agricultural sectors identified in the model, except for Sugar, contain at least one tariff line with a tariff-rate quota (TRQ). The sectors having a TRQ are those in which, according to the information on trade flows previously introduced, Argentina would have the greatest trade opportunities after a MERCOSUR-Korea agreement.

[6] This section uses the year 2001 as a basis.
[7] The information contained in MAcMap can be consulted at *www.cepii.org*.

Table 1

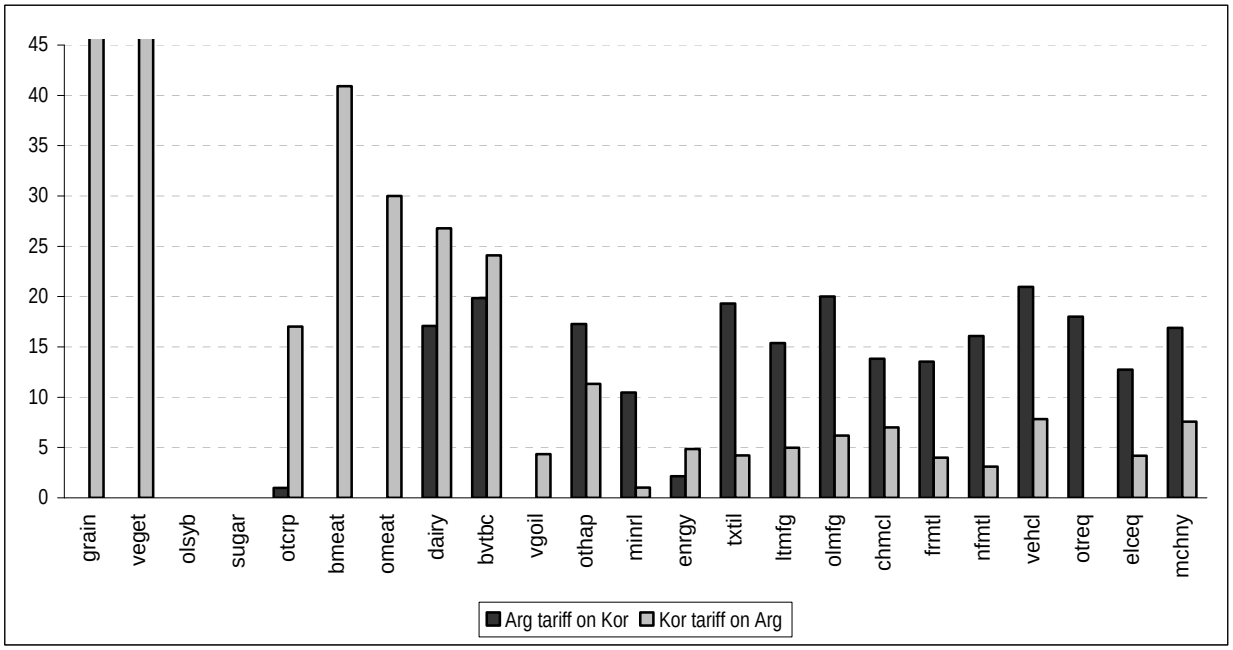
Sectors and countries in the computable general equilibrium model

Sectors		Countries	
Abbreviation	Description	Abbreviation	Description
grain	Wheat, maize and other cereals	arg	Argentina
veget	Fruits and vegetables	bra	Brazil
olsyb	Oil seeds	ury	Uruguay
sugar	Sugar	rest_latam	Rest of Latin America
otcrp	Coffee, rice and other crops	usa	United States
bmeat	Bovine meat products	eu15	European Union 15
omeat	Other meat products	chn	China
dairy	Dairy products	jpn	Japan
bvtbc	Beverages and tobacco	kor	Korea
vgoil	Vegetable fats and oils	rest_asia	Rest of Asia
othap	Other agricultural products	row	Rest of the World
minrl	Ores		
enrgy	Energy products		
txtil	Textiles adn clothing		
ltmfg	Leather, wood and paper		
olmfg	Other light manufactures		
chmcl	Chemicals and plastics		
frmtl	Ferrous metals		
nfmtl	Non-ferrous metals		
vehcl	Vehicles		
otreq	Other transport equipment		
elceq	Electrical equipment		
mchny	Machinery		
utlty	Public utilities		
servc	Trade and services		

Graph 4

Argentina-Korea bilateral tariffs [1]

in percentage



1. Bilateral-trade weighted tariffs.

Source: Centre for International Economy based on GTAP.

3.3. Scenarios

Three variants of tariff reduction between the MERCOSUR country members and Korea were simulated:

i) 100%,

ii) 80%,

iii) 50%.

The three cases exclude from the agreement those sectors that Korea reveals as very sensitive due to the fact that it imposes tariff-rate quotas with extremely high extra-quota tariffs. Particularly, there is no change in tariffs on Wheat, maiz and other cereals, Vegetables and fruits, and Oilseeds.[8] The only instruments of trade policy that are modified in the three scenarios are tariff rates.

3.4. Results

In general terms, it is expected that any trade liberalization carried out should bring about, at least, three effects on Argentina's trade flows. In the first place, the exports of some sectors will increase due to the preferential access obtained. In the second place, the increase in imports will make Argentine producers face a greater competitiveness in the domestic market. Lastly, since the agreement includes the four MERCOSUR country members, Argentine exports to the Members of said bloc can be threatened by the competition posed by Korea. The estimates made in this section take these three effects into account.

[8] Including these sectors in the agreement makes both Argentina and Brazil remarkably specialize in their production, due to the high initial tariffs. When all bilateral tariffs are eliminated, it can be observed that Korea only increases its production of goods that intensively use Wheat, maize and other cereals as intermediate inputs. This is so due to the fact that Korea imposes a 438% tariff on its imports of said product, which when eliminated, generates a notable reduction in domestic prices. As a consequence, the output of the products that use said good as an intermediate input increases as a result of the important reduction in their costs.

3.4.1. Aggregate results

Table 2 shows the aggregate results after simulating the three variants of the MERCOSUR-Korea agreement previously mentioned. The aggregate result shows a fall in the standard of living (namely, well-being) of Argentina, as measured by the equivalent variation.[9] This result derives from excluding from the agreement those sectors in which Argentina a priori has the most important trade opportunities. Regarding trade volume, insignificant changes can be observed since, at the starting point, Korea was a trade partner of little importance to Argentina. The negative impact on welfare is also taking place in the rest of the MERCOSUR country members included in the model. In turn, Korea shows a positive aggregate effect in any of the three simulated scenarios.

Table 2

Aggregate results for Argentina

in percentage

Indicator	Scenario		
	100%	80%	50%
Equivalent change (millions of USD)	-46.21	-19.35	-0.66
Real GDP	-0.01	0.00	0.00
Export volume	0.38	0.24	0.11
Import volume	0.35	0.23	0.11
Terms of trade	-0.10	-0.06	-0.03

Source: Centre for International Economy.

The international prices of industrial manufactures sold by our country show a slight fall as a result of the MERCOSUR-Korea agreement. This is originated by the displacement of Argentine products in the Brazilian market. As a consequence, there is a diminishment in Argentina's terms of trade, which also helps to explain the negative impact on our country's welfare.

So as to tell the winner from the loser production factors, the percentage change in the real remuneration of each of them was calculated. As expected, the winning factor of production is that one intensively used for the production of agricultural goods (namely, land). In the case of Korea, this factor appears as the main loser in a MERCOSUR-Korea agreement. As a consequence, Korean farmers are expected to oppose a MERCOSUR-Korea free trade agreement.

3.4.2. Sectoral results

This section shows results with sectoral disaggregation. It assesses which the "winner" and "loser" sectors in trade liberalization are, that is, those whose production level and exports increase, and those in which they decrease. Table 3 shows the percentage change in the volume produced by each of the productive sectors identified in the model. The results confirm that the sectors that appear as winners in terms of production levels are concentrated in agrifood. Particularly, Vegetable oils and fats, Wheat, Maize and other cereals, Energy products and Minerals stand out. Among the sectors showing the most noticeable reductions in their production levels, Electrical equipment, Vehicles, Textiles and clothing, and Machinery stand out. In no case are there highly relevant effects, due to the reasons previously expressed.

The analysis of intersectoral transactions shows that the increses in the production of Wheat, maize and other cereals and Oilseeds become increases in exports of Other agricultural products and Vegetable oils and fats respectively. That is to say, the results show an increase in processed agrifood exports. This result stems from the input-output relationships between said products.

[9] The equivalent variation responds to the question of how much money the simulated tariff reduction is equivalent to.

Argentine exports to Korea would increase while those to MERCOSUR would diminish (Graph 5). As for imports, our country would increase its imports from Korea while it would diminish those originating in MERCOSUR.

Korea would increase its importance as destination of Argentine exports of Vegetable oils and fats, Other agricultural products and Energy products. Changes have little magnitude for the rest of the products.

Estimates show that in percentage terms, imports would grow more than exports. Said result is accounted for by the relatively high tariffs that our country imposes on imports from Korea. Consequently, the change in the price of Korean exports in higher than the change in the price of Argentine exports. This is translated into more relevant changes in the export volume.[10]

At the sectoral level, the increase in imports from Korea is focused on the following manufactures: Textiles and clothing, Other light manufactures, Ferrous metals, Vehicles, Electrical equipment and Machinery.

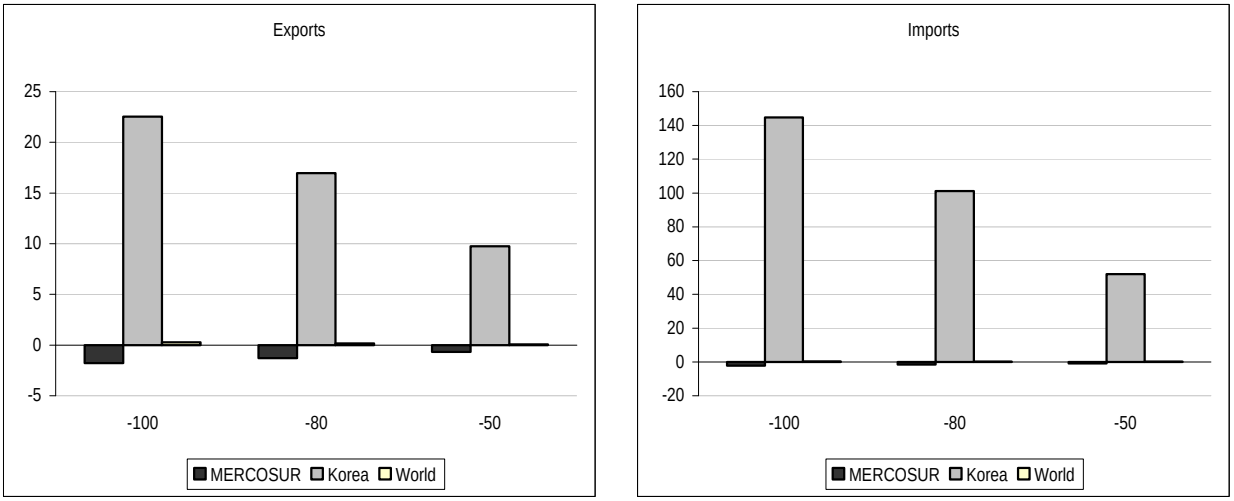
[10] See that the model assumes the result of the current account of the balance of payments as constant. The balancing variable is the real exchange rate.

Table 3
Sectoral results for Argentina
in percentage

Sector	Output			Export volume			Import volume		
	-100%	-80%	-50%	-100%	-80%	-50%	-100%	-80%	-50%
Wheat, maize and other cereals	0.28	0.18	0.08	0.32	0.20	0.08	0.19	0.13	0.07
Fruits and vegetables	0.08	0.05	0.03	0.14	0.08	0.03	-0.03	-0.01	0.00
Oil seeds	0.29	0.20	0.10	0.01	-0.01	-0.02	0.54	0.40	0.22
Sugar	0.13	0.09	0.04	0.55	0.35	0.15	-0.32	-0.20	-0.09
Coffee, rice and other crops	0.16	0.11	0.05	0.47	0.29	0.13	0.10	0.08	0.05
Bovine meat products	0.10	0.06	0.03	1.67	0.97	0.40	-0.62	-0.35	-0.13
Other meat products	0.14	0.09	0.04	2.14	1.27	0.53	-0.45	-0.29	-0.13
Dairy products	0.07	0.04	0.02	1.03	0.65	0.29	-0.31	-0.17	-0.06
Beverages and tobacco	0.00	0.01	0.00	0.48	0.32	0.16	0.00	0.02	0.02
Vegetable fats and oils	0.59	0.42	0.23	0.89	0.63	0.34	0.00	0.01	0.02
Other agricultural products	0.22	0.15	0.08	0.97	0.69	0.37	0.06	0.06	0.04
Ores	0.13	0.09	0.04	1.00	0.69	0.35	-0.16	-0.10	-0.04
Energy products	0.24	0.17	0.08	0.58	0.41	0.21	0.44	0.33	0.19
Textiles and clothing	-1.09	-0.78	-0.42	-4.22	-3.21	-1.82	3.72	2.41	1.11
Leather, wood and paper	0.16	0.10	0.05	1.13	0.74	0.35	-0.12	-0.07	-0.03
Other light manufactures	-0.04	-0.03	-0.01	2.42	1.68	0.86	0.85	0.51	0.21
Chemicals and plastics	-0.04	-0.05	-0.04	0.31	0.16	0.04	0.19	0.14	0.07
Ferrous metals	0.02	-0.02	-0.04	1.25	0.85	0.42	1.27	0.90	0.47
Non-ferrous metals	0.03	0.01	-0.01	1.88	1.29	0.65	0.09	0.04	0.01
Vehicles	-1.23	-0.83	-0.41	-3.26	-2.16	-1.04	0.56	0.36	0.17
Other transport equipment	0.63	0.43	0.21	2.14	1.44	0.70	-0.15	-0.11	-0.06
Electrical equipment	-1.56	-1.14	-0.63	0.43	0.18	0.01	1.71	1.17	0.57
Machinery	-0.79	-0.59	-0.33	-0.53	-0.45	-0.28	0.62	0.37	0.14

Source: Centre for International Economy.

Graph 5
Change in Argentine trade, by destination in the three scenarios
in percentage



Source: Centre for International Economy.

4. Analysis using trade indicators

This section sets out the impact analysis of a MERCOSUR-Korea agreement by means of trade indicators. The trade complementarity index (TCI) is used together with information on tariff rates and trade. The TCI enables the determination of the degree of overlap between the exports of one country and the imports of another country[11]. In this case, the analysis is made at a disaggregate level, in contrast with the general equilibrium approach. Particularly, trade opportunities and threats are identified at the level of the subheadings of the Harmonized System (6 digits). Nevertheless, on the other hand, the methodology used in this section does not make it possible to quantify how much the trade flows between the countries involved in the MERCOSUR-Korea agreement could be modified. For instance, only the potential market to which Argentine products would have preferential access is quantified, although the likely response of Argentine exporters is not obtained as a result. The information on foreign trade used was that corresponding to the annual average for the 2003–2004 period obtained from COMTRADE, which was the one used to perform the Feasibility Study.

The following three types of product were identified: i) those representing opportunities for Argentine exports to Korea; ii) those posing threats to Argentine exports to the MERCOSUR country members; and iii) those representing opportunities for Korean exports to Argentina (namely, an increase in Argentine imports). The main results are commented hereinafter. More detailed information can be found in CEI–CEP (2007).

4.1. Opportunities for Argentine exports to Korea

The following three criteria should be met in order to qualify a product as an opportunity to increase exports to Korea: i) Korea imposes a high tariff (namely, higher than 5%) from imports from Argentina; ii) there is trade complementarity between Argentine exports and Korean imports; and iii) Korea is currently a destination for Argentine exports.

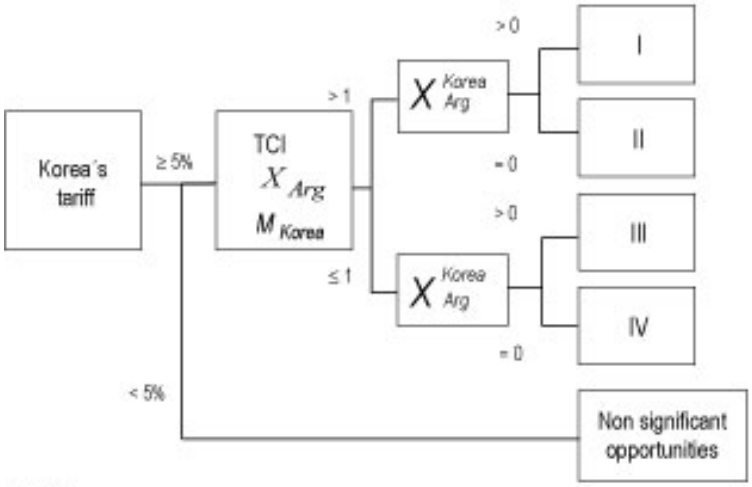
The three criteria as a whole make it possible to classify the opportunities into five categories, where the first four meet the first criterion, which marks the products that could eventually benefit from a tariff reduction. When considering this criterion, it can be seen that Argentine exports to Korea that face tariffs of at least 5%, amounted to USD 130 million on average over a total of USD 291 million during the 2003–2004 period. Consequently, 55% of the the total exported from Argentina to Korea would not benefit from a MERCOSUR-Korea agreement that only eliminates tariffs.

Category I encompasses those products with a greater potential to increase their trade volume because the Korean tariff is higher than 5%, there is trade complementarity between Argentine exports and Korean imports and Argentina is already exporting to Korea (Figure 1) In this case, the tariff elimination could give rise to a greater trade volume due to the fact that: i) the higher the initial tariff, the higher the impact of its elimination; ii) the presence of complementarity indicates more chances of trade in this product; and iii) the fact that it is already being sold indicates that it is not necessary to start to develop a new market.

[11] For a detailed description of the methodology used in this section and of the results, see CEI–CEP (2007).

Figure 1

Identification of trade opportunities for Argentine exports to Korea



Source: CEI.

Manufactures of agricultural origin as well as primary products are in category I. Soybean oil is an example of this, our country being an important supplier of the Korean market—accounting for 86% of its imports. Other products within this category are maize, fish, hides, wood manufactures and tobacco.

Agricultural and industrial manufactures are among the subheadings that make up category III—those exported from Argentina to Korea but in which there is no trade complementarity. Korea constitutes an important destination for Argentine exports of heterocyclic compounds, Fresh cheese, chocolates and Organic and inorganic compounds.

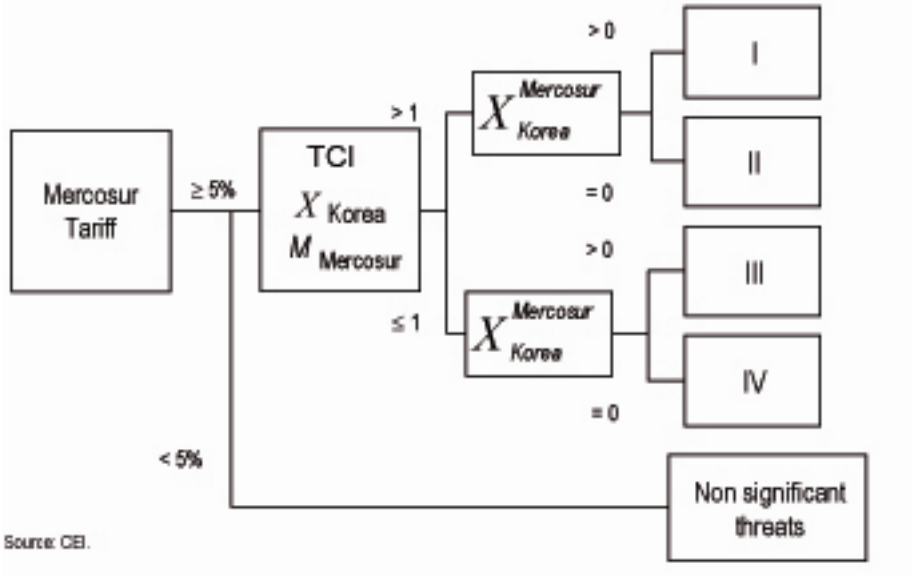
4.2. Threats to Argentine exports to the MERCOSUR country members

The fact that Korea could displace Argentina as MERCOSUR country members' supplier in case of a MERCOSUR-Korea free trade agreement represents a menace to Argentine exports.

In order to determine whether a subheading is threatened, the analysis considers whether: i) MERCOSUR's common external tariff is higher than 5%; ii) there is trade complemetarity between MERCOSUR country members' imports and Korea's exports; and iii) Korea is currently a supplier of Argentina's partners in MERCOSUR. Those products facing tariff barriers to access MERCOSUR can be classified into five groups according to the potential displacement that Argentine exports could undergo as of the implementation of a MERCOSUR-Korea agreement (Figure 2).

Figure 2

Identification of trade threats for Argentine exports to MERCOSUR



Source: CEI.

In aggregate terms, due to the erosion of the tariff preferences existing between MERCOSUR country members, the MERCOSUR-Korea agreement poses a potential threat to 19.3% of the total exported by our country to MERCOSUR.[12]

Argentine exports of the subheadings classified in category I—those representing the highest potential threat—to MERCOSUR, reached USD 827 million on average for the 2003–2004 period. In turn, Korean exports of the same subheadings to the rest of MERCOSUR country members amounted to USD 961 million for the same period.

Threatened Argentine exports to each of the MERCOSUR country members are analysed separately as follows: in terms of export value, the greatest threat is posed on exports to Brazil, followed by those to Uruguay and Paraguay in turn.

Brazil. Industrial manufactures, such as plastics and vehicles—Category I—are within the group of products posing the greatest potential threat to Argentine exports to Brazil, accounting for almost half of their exports. For both sectors, Brazil constitutes an important destination for our country's exports. However, Korean exports to Brazil were of rather little importance for the main subheadings selected, for which reason, it would be necessary to see a substantial increase in Korean sales for the impact to become relevant. On the other hand, Brazil receives 29% of the Argentine exports that correspond to the subheadings included in category III—subheadings with no MERCOSUR-Korea trade complementarity but in which Korea competes with Argentina in the MERCOSUR country members. Those products under threat belong to manufactures of agricultural and industrial origin. Vehicles, plastics and fungicides stand out among these.

Paraguay. In the case of Paraguay, the threats included in category I represent 2.7% of total Argentine exports of said products. The main products included are industrial manufactures, such as vehicle spare parts and plastics, and foodstuffs. Paraguay is an important destination for some products within this category. For instance, 24% of exports of non-alcoholic beverage other than juices have Paraguay as their destination.

[12] This figure corresponds to the total of the four categories of threats identified, that is, from I to IV.

Paraguay is the destination of only 1.1% of the Argentine exports included in category III. The subheadings under threat concentrate in bakers' wares, pastries or biscuits, plastics and chemicals.

Uruguay. As for Uruguay, Korea threatens 5.5% of total exports included in category I. Industrial manufactures such as plastics, diapers, sanitary towels and tampons, and food preparations are the most menaced. Uruguay is an important customer for Argentina for some of the products in this category. For instance, agricultural or horticultural machinery and mechanical appliances for pulverization (75%) and plastic articles for the conveyance or packing of goods (50%).

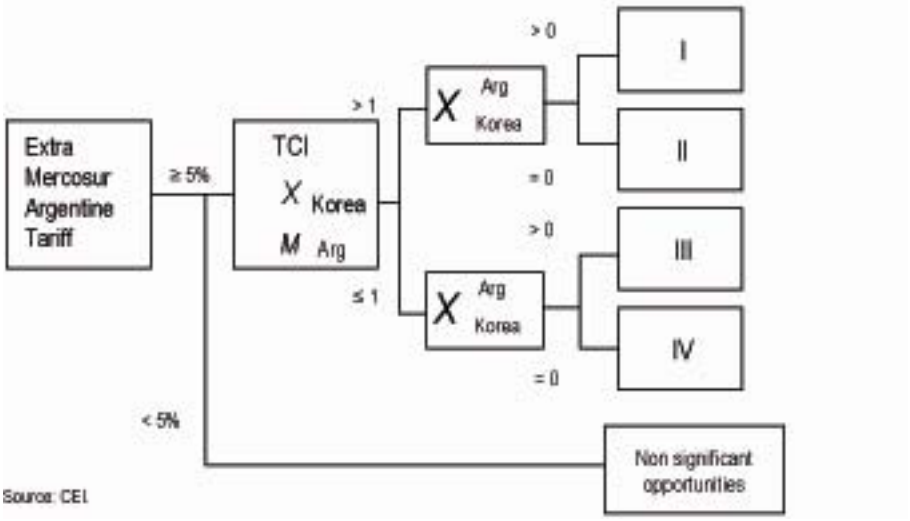
The subheadings included in category III concentrate in industrial manufactures, such as tensoactive preparations for washing and vehicles. In this case as well, the amount of Argentine exports is of relatively little importance.

4.3. Opportunities for Korean exports to Argentina

A MERCOSUR-Korea agreement is expected to increase Argentina's imports from Korea. While on the one hand, the new imports might displace other suppliers, on the other hand, they might affect sales of local producers. So as to identify the products, at the six-digit level of the Harmonized System, the following criteria were taken into account: i) Argentina's extra-zone tariff is higher than 5%; ii) there is trade complementarity between Korean exports and Argentine imports; and iii) it is assumed that the potential to increase imports from Korea is greater once imports have already been reported during the last years, to which aim, those subheadings in which Argentina recorded imports from Korea in the 2003–2004 period are taken into account. The subheadings subject to tariff barriers are classiffied into four categories according to the potential to increase Argentine imports from Korea, as was done in both previous cases (Figure 3).

Figure 3

Identification of trade opportunities for Korean exports to Argentina



In the 2003–2004 period, trade opportunities for Korean exports to Argentina reached USD 185 million on average. The latter accounts for 92% of Korean exports to Argentina, for which reason, most of these exports would benefit from the preferential access of a MERCOSUR-Korea agreement.

The products classified within the group with the greatest potential to increase exports from Korea to Argentina—namely, category I—are industrial manufactures. Nevertheless, in none of the cases does Argentina currently constitute a customer of importance to Korea. Thus, a priori, Korean exports of the products in this category could considerably increase, since a small displacement of total Korean sales would represent a high percentage in relation to current sales to Argentina. Plastics, electronic/electrical equipment and textile fibres are the products that stand out.

To conclude with, the subheadings classified under category III—that is those recording sales from Korea to Argentina but with no trade complementarity—are also concentrated in industrial manufactures like parts of air conditioning systems, televisions and motor vehicles.

4.4. Abstract

The main products for which opportunities and threats can be identified are summarized in the following table.

Table 4.1
Opportunies and threats: main products

Opportunities for Argentine exports to Korea	Soya oil
	Maize
	Cheese
	Chocolate
	Frozen fish
	Tobacco
	Leather
	Wooden manufactures
	Organic-inorganic compounds
	Other nucleic acids and their salts
Threats to Argentine exports to MERCOSUR	Plastics
	Motor vehicles
	Agrochemicals
Opportunities for Korean exports to Argentina	Plastics (polyethylene)
	Cell phones
	Mechanical and electrical machinery (air conditioners)
	Electronic equipment (television sets)
	Motor vehicles
	Textile threads

Source: Centre for International Economy.

5. Partial equilibrium estimates

The partial equilibrium method is suitable to make a detailed analysis of trade policy instruments since it is focused on a limited set of factors. For that reason, it enables modelling the trade policy at considerably more disaggregate levels (e.g. subheading of the Harmonized System) than general equilibrium models, but, unlike the latter, it does not take into account the interrelation between sectors.

This section in the paper introduces the results of simulating the creation of a free trade area between the MERCOSUR country members and Korea employing a partial equilibrium model.[13] Estimates are made for three groups of products: i) offering opportunities for Argentina in Korea; ii) posing a threat to Argentina in MERCOSUR; and iii) offering opportunities for Korea in Argentina. It thus complements the analysis made by means of trade indicators with results deriving from quantitative changes in the levels of trade in the products under analysis.

The information used to make the model operational (to calibrate it) corresponds to the bilateral trade flows recorded in 2004 between the following countries: Argentina, Brazil, China, the European Union of 15 members, Japan, Korea, Paraguay, Uruguay and the United States. Two elements were taken into account for the choice of countries: i) which our country's main customers are; and ii) which the most important exporters and importers of the products under analysis in the world market are. The tariff rates used were those in force during 2004.

The analysis is made at the level of subheadings. The selection of the subheadings included in each group was made on the basis of the criteria used in the previous section.[14] In particular,

- Opportunities for Argentina in Korea: i) Korea's tariff higher than or equal to 5%; and ii) existence of Argentine exports to Korea. Two hundred and thirteen subheadings were selected.

- Threats to Argentina in MERCOSUR: i) MERCOSUR tariff higher than or equal to 5%; ii) exports from Korea to MERCOSUR; and iii) Argentine exports to MERCOSUR. Nine hundred and thirty-five subheadings were chosen.

- Opportunities for Korea in Argentina: i) Argentina's tariff higher than or equal to 5%; and ii) Korean exports to Argentina. Seven hundred and thirty-seven subheadings were selected.

In the model, the price in country r of its imports from country r' is calculated as

$$PM_{r'r} = PE_{r'r}\left(1+\tau_{r'r}\right)$$

where $PM_{r'r}$ is the price in country r of the imports from country r'; $PE_{r'r}$ is the price given to exporters from country r' in the market of country r; and $\tau_{r'r}$ is the tariff rate imposed by country r to imports from country r'. In the simulation exercises shown below, the value of $\tau_{r'r}$ between the MERCOSUR country members and Korea is reduced.

5.1. Scenarios

Like in the general equilibrium simulations, for each subheading selected, three scenarios of tariff reduction between the MERCOSUR country members and Korea were simulated: by 100%, 80% and 50%.

5.2. Results

The expected result has two components. On the one hand, exports to Korea are expected to rise since this country is granting preferences to Argentina. On the other hand, a fall is expected to take place in exports to countries where the free trade agreement "cuts" the preferences currently received by Argentina, where the most important case is

[13] A complete description of the model used can be consulted at CEI (2004).

[14] Excluded from the analysis were the subheadings that face tariff-rate quotas to access the Korean market, as well as those subheadings with exports lower than USD 100 thousand.

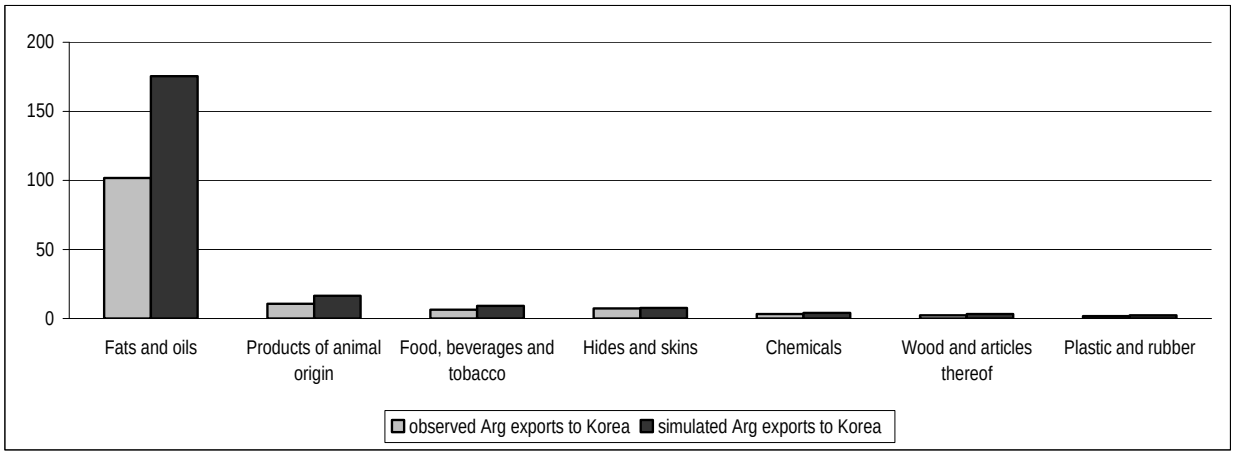
naturally Brazil. Shown here are aggregate results classified according to sections of the Harmonized System for each of the three groups identified above (Table 4).[15]

5.2.1. Opportunities for Argentina in Korea

The increase in Argentine exports will be greater if: i) Korean consumers are willing to substitute the origin of their imports; ii) Argentina can supply the greater demand import demand from the countries included in the model; iii) there is an important reduction in the tariffs applied to Argentine products; iv) Korea is an important customer for Argentina at the starting point; and v) Korea's consumption of the products under analysis increases.

The addition of the partial equilibrium results for the products selected shows that Argentine exports of these products to Korea would increase by a little more than USD 86 million (see Graph 6). Part of this increase would be compensated for by a reduction in exports both to MERCOSUR country members and to countries excluded from the agreement. There is clearly a concentration of trade opportunities for Argentina in some agrifood products such as Vegetable or animal fats and oils, whose exports to Korea would increase by slightly more than 70%, turning from USD 101.8 million to USD 175.4 million. Nevertheless, total exports of said product to the world would increase by USD 22.4 million. That is, our country's exports would be re-directed.

Graph 6
Opportunities for Argentina in Korea: partial equilibrium results
in millons of USD



Source: Centre for International Economy.

In all products, Argentine exports to MERCOSUR, as well as to the rest of the world, undergo a reduction due to the relative improvement in access conditions to Korea with respect to other markets. The positive result for the set of Argentine exports is accounted for by Crude soya bean oil, subheading 150710. For the rest of the subheadings under analysis there are no important increases in the values exported to Korea. As mentioned before, Argentine exports to Korea are concentrated in a few products.

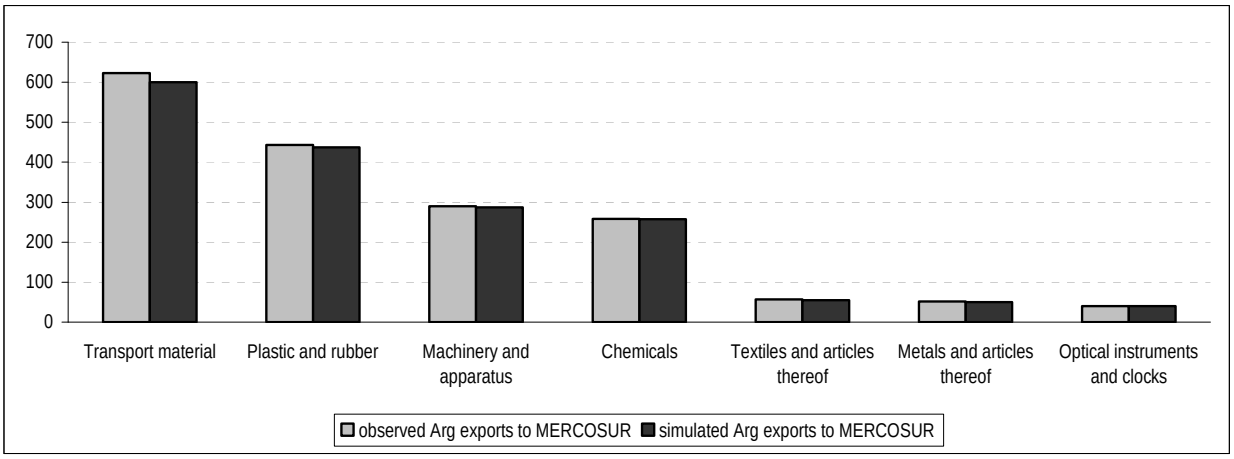
5.2.2. Threats to Argentina in MERCOSUR

The displacement of Argentine exports to MERCOSUR—especially Brazil—will be greater if: i) Brazilian consumers are willing to substitute the origin of their imports; ii) Korea can supply MERCOSUR's demand for imports; iii) the reduction in MERCOSUR's common external tariff is important; iv) Brazil is currently a relevant customer for Korea, and v) MERCOSUR's consumption of the sector under analysis increases.

[15] More detailed results are shown in CEI-CEP (2007) and can also be requested from CEI.

Argentine exports to MERCOSUR would be reduced by slightly more than 2%. The most important falls are seen in the motor vehicle sector (see Graph 7).

Graph 7
Threats for Argentina in MERCOSUR: partial equilibrium results
in millons of USD



Source: Centre for International Economy.

In 2004, Korea was not a noteworthy supplier of the subheadings selected for MERCOSUR country members. As a consequence, at least in the medium run, Korea poses a weak threat. For instance, for the subheading Dumpers having a gross vehicle weight not exceeding 5 tonnes (870421), the displacement of Argentine exports to Brazil would reach USD 12.4 million. Korean exports to Brazil would turn from USD 5.5 million to USD 22 million.

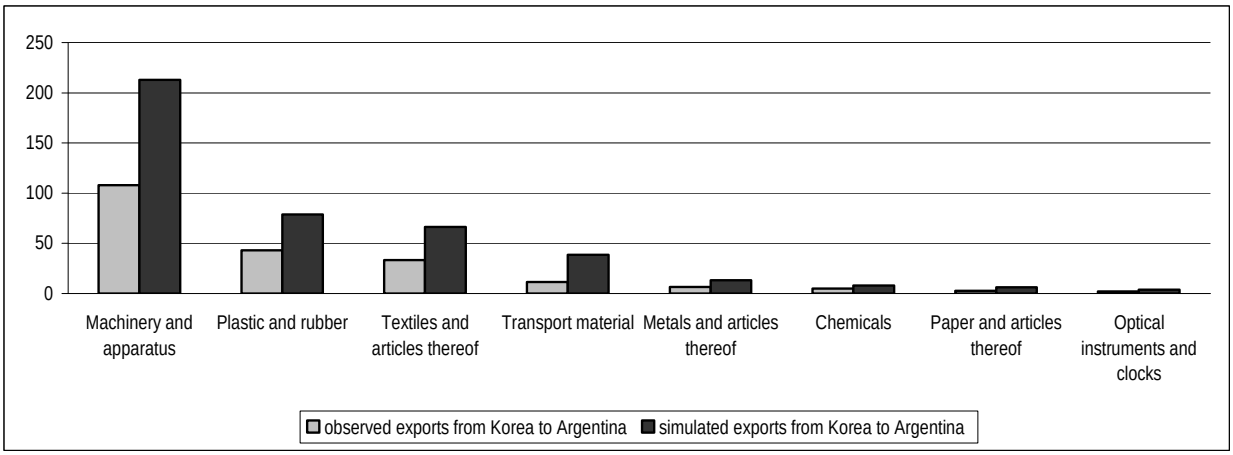
In summary, there would not be any relevant impact at the level of the subheadings analysed. Nevertheless, it is worth noting that this results from the analysis of data corresponding to the year 2004.

5.2.3. Opportunities for Korea in Argentina

This section analyses the impact a MERCOSUR-Korea agreement would have on Argentine imports. The increase in Korean exports to Argentina will be greater if: i) Argentine consumers are willing to substitute the origin of their imports; ii) Korea can supply the greater demand for imports in the countries included in the model; iii) the reduction in the tariffs applied to Korean products is important; iv) Argentina is an important customer for Korea at the starting point; and v) Argentina's is consumption of the products under analysis increases.

The estimates made show that exports of the 737 subheadings selected from Korea to Argentina would double, turning from USD 214 million to USD 433 million. The increase in Argentine imports appears concentrated in Machinery and apparatus (see Graph 8). Taking MERCOSUR as a whole, Korean exports would increase by USD 1.2 billion. Like in the Argentine case, Korea's total exportes would increase by a lower figure: Korean exports to the world would increase, though less than to MERCOSUR. That is, Korea diminishes its exports to countries excluded from the free trade agreement.

Graph 8
Opportunities for Korea in Argentina: partial equilibrium results
in millons of USD



Source: Centre for International Economy.

The disaggregate partial equilibrium analysis makes it possible to detect winning products within the sectors identified as losers in the general equilibrium approach. However, in general terms, the results of both approaches coincide. That is, most of the trade opportunities for our country derived from a MERCOSUR-Korea free trade agreement are concentrated in agrifood.

The results presented in this section must be accompanied by sectoral studies that make it possible to analyse how feasible it is to modify trade patterns in the direction indicated by the results of the model. The following section analyses some selected products.

6. Sectoral analysis[16]

With the aim of making a first assessment of whether Argentine producers will be able to profit from the trade opportunities that a MERCOSUR-Korea agreement would offer, and of which the consequences of the threats probably posed by this could be, this section delves into five products identified in section 4.[17] Out of those products with opportunities for Argentine exports to Korea, two were selected: bovine tanned hides and skins and wood products; out of those posing threats to Argentine exports to MERCOSUR, four were chosen: polyethylene and polyethylene terephthalate, fungicides, and motor vehicles, utility vehicles and motor vehicles for the transport of goods.

6.1. Opportunities for Argentine exports to Korea

6.1.1. Bovine tanned hides and skins[18]

[16] This section was prepared by the Centre for Production Studies (CEP) of the Secretariat of Industry, Trade and Small and Medium-Sized Enterprises of the Ministry of Economy.
[17] This selection corresponds to products of the industrial sector that, according to the method of trade indicators, are among those most prone to modify their trade flow.
[18] Sector corresponding to HS Code 4104 (Harmonized Description and Coding System).

Between the years 1997 and 2002 production was reduced—it went down from 320 thousand tonnes to 256 thousand tonnes—as observed in Table 5. After 2002, the trend was reversed and, until 2006, it recorded a 32% increase, reaching a production of 346 thousand tonnes, a higher level than that in 1997. Domestic consumption—calculated as apparent consumption[19]—also followed the evolution of the improved sectoral activity, but there was no substitution of imports after the peso devaluation in 2002, since imported skins represented a very little share of consumption.

Table 5
Output, consumption and trade in bovine tanned skins

Years	Tonnes							Interannual variation			
	Output	Imports from the World	Exports to the World	Apparent consumption	Imports /Apparent Consumption	Apparent consumption/ Output	Exports / Output	Output	Imports from the World	Exports to the World	Apparent consumption
1997	319,918	2,062	109,788	212,192	1.0%	66.3%	34.3%				
1998	267,866	4,409	91,248	181,027	2.4%	67.6%	34.1%	-16.3%	113.8%	-16.9%	-14.7%
1999	279,706	7,493	102,210	184,988	4.1%	66.1%	36.5%	4.4%	70.0%	12.0%	2.2%
2000	283,016	4,212	118,842	168,386	2.5%	59.5%	42.0%	1.2%	-43.8%	16.3%	-9.0%
2001	261,711	2,389	111,400	152,700	1.6%	58.3%	42.6%	-7.5%	-43.3%	-6.3%	-9.3%
2002	256,683	2,587	101,821	157,450	1.6%	61.3%	39.7%	-1.9%	8.3%	-8.6%	3.1%
2003	287,937	2,831	91,074	199,693	1.4%	69.4%	31.6%	12.2%	9.4%	-10.6%	26.8%
2004	333,689	5,059	100,511	238,237	2.1%	71.4%	30.1%	15.9%	78.7%	10.4%	19.3%
2005	336,083	4,076	105,725	234,434	1.7%	69.8%	31.5%	0.7%	-19.4%	5.2%	-1.6%
2006	346,371	5,692	107,003	245,060	2.3%	70.8%	30.9%	3.1%	39.6%	1.2%	4.5%

Source: CEP based on INDEC.

The sectoral analysis shows that this is not a purely exporting sector but rather, that most of its output is for the domestic market: in 2006, 70% was allocated to domestic consumption. The share allocated to exports grew during the recession—it was at 42% in 2000 and 2001—though when domestic consumption volume recovered, output increased at the same time as the sector's exporting orientation was reduced. Consequently, the increase in output has not yet implied greater export availabilities because exports have not yet reached their level before 2002.

Regarding the destination of foreign sales, their main markets were the countries of the Asian–Pacific region, accounting for 44% of exports in 2006, followed by the European Union with 23%. In the last years, the role of the Korean market has been showing a growing tendency: it turned from 0.4% of export share in 2003 to 4.3% in 2006, a 144% increase. At the same time, Argentina has been improving its role as Korea's supplier, having gone down from the seventh position in 2005 to the third position in 2006. The United States (USD 36 million), Brazil (USD 29 million), Argentina (USD 23 million), Bangladesh (USD 20 million), China (USD 15 million) and Italy (USD 11.6 million) were the main origins of Korean imports of leather in 2006.

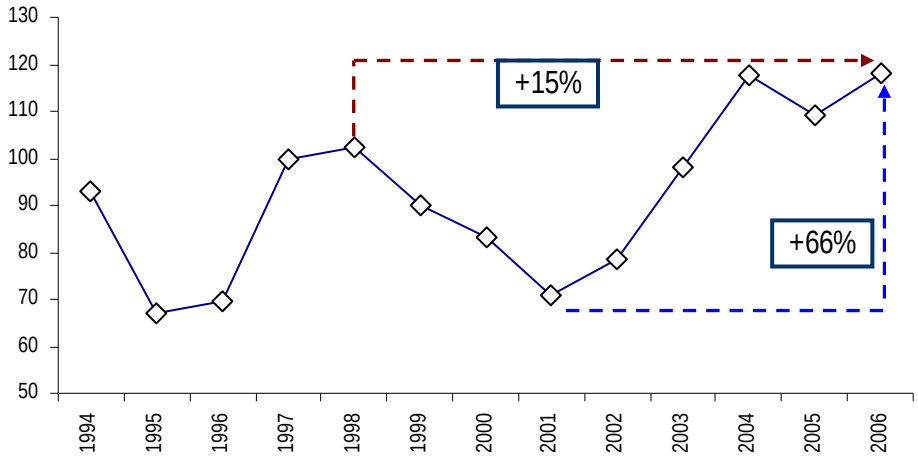
Regarding the possibility of profiting from the opportunity given by the Korean market, even when the export/output ration does not increase, the rise in output will start to generate a higher level of foreign sales, and part of this increase could be directed towards sales to Korea, as was the case in the last years.

6.1.2. Wood products[20]

This sector has been increasing its output level, its export value and its export orientation. This sector's output has been recovering in the last years. In 2006, the output level recorded a 15% improvement with respect to 1998—previous peak—and of 66% with respect to 2001—previous floor—(Graph 9).

[19] Apparent consumption is a way of approaching the calculation of domestic consumption. The calculation is the following: output + imports - exports.
[20] The following 4-digit products of the Harmonized System were analysed: 4407, 4408, 4409, 4410, 4411, 4412, 4413, 4414, 4415, 4416, 4417, 4418, 4419, 4420 and 4421, corresponding to the wood product sector.

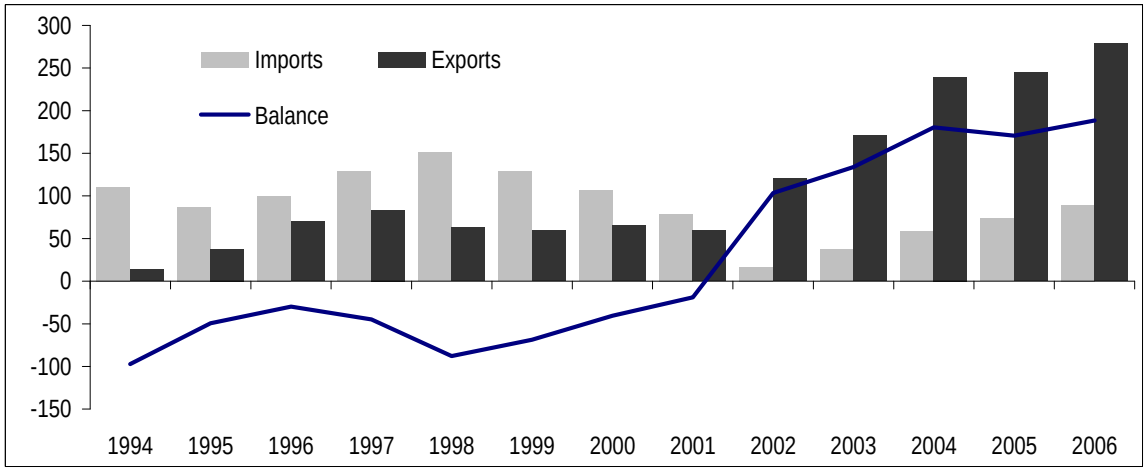
Graph 9
Wood product sector
Physical volume index. Base 1997=100



Source: CEP based on INDEC.

Exports have grown more than imports and, since 2002 the sector's trade balance has started to be positive (Graph 10). The items where exports have increased—in value—and where imports have at the same time significantly reduced were sawn wood, fibreboards of wood, and carpentry works and pieces for construction.

Graph 10
Wood products: exports, imports and balances
in millons of USD



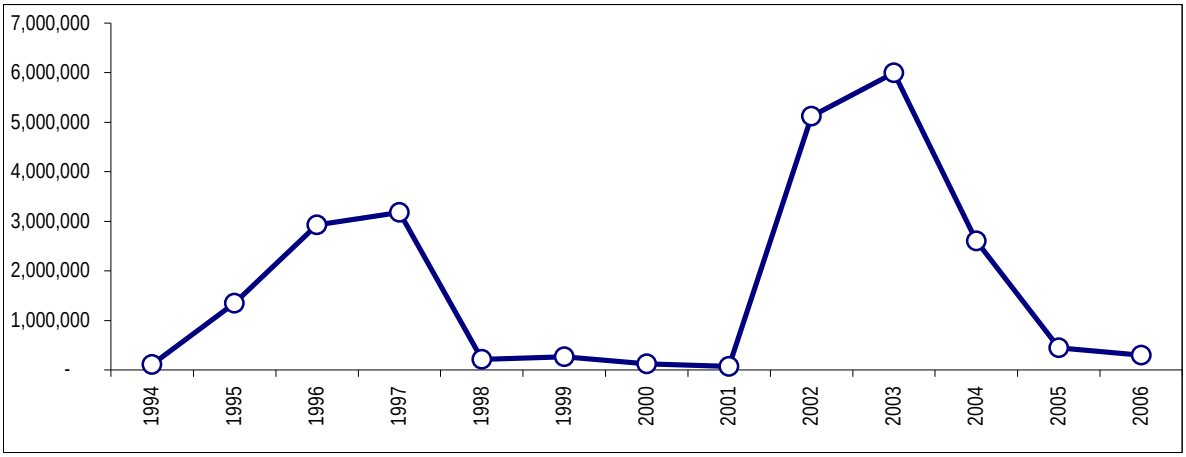
Source: CEP based on INDEC.

According to own estimates, the Exports/Gross Output Value ratio—measuring the export orientation—has increased if compared with the 90s, turning from an average 4% to 10% in 2006. On the other hand, the Imports/Apparent Consumption ratio has remained unchanged at 4% on average since 2004, a level similar to that observed during the 90s.

The main export destinations during the year 2006 were the United States (32%), Brazil (27%), South Africa (8%) and Dominican Republic (5%). In 2006, exports to Korea amounted to 0.1% of in total exports of wood products, and were constituted by products whose foreign sales have noticeably increased in the last years: Sawn wood and Fibreboards of wood. It is worth noting that overall Korean imports of these products increased during the same period. Currently, Korea is a net importer of these products. Sixty-five per cent of its imports are from New Zealand, China, Malaysia, Indonesia and the United States.

The evolution of Argentine exports to Korea is erratic, experiencing peaks of very limited sales and others of significant ones, like those in the 1996-1997 and 2002-2003 periods, which were years with strong domestic and foreign dynamism taking place after two economic crises of great magnitude (Graph 11). As a consequence, the trade pattern with Korea might look more like a placement of surplus than like a strategy for the long run.

Graph 11
Argentine exports of wood products to Korea
in USD



Source: CEP based on INDEC.

To sum up, Korea has proved to be a market for these products and there might be good opportunities to increase exports there. Nevertheless, profiting from those opportunities would not only depend on an improvement in Korean market access conditions but also on production expansion and on regarding the business of exports to said market as a consolidated and permanent strategic stake.

6.2. Threats to Argentine exports to MERCOSUR

6.2.1. High-density polyethylene and polyethylene terephthalate[21]

In recent years, the production of high-density polyethylene increased to reach, in 2006, a level of almost 248 thousand tonnes, its maximum historic level (Table 6). At the same time, the country's economic reactivation led to an increase in domestic consumption, due to the fact that it is a product used as input in other also growing industries. Plastic raw materials—PVC, various types of polysthyrenes, polyethylene and polypropylene—are used as machinery and equipment input, construction input, disposable containers and for dairy products, electronic products, CD cases, films and tubes, among others. In particular, polyethylene is used for bag film manufacturing, and for injection and blowing, method used for water and irrigation pipe manufacturing and beverage boxes.

[21] Sectors corresponding to codes 390120 and 390760 of the Harmonized System respectively.

Table 6

Output, consumption and trade in high-density polyethylene

	Tonnes							Interannual variation			
Years	Output	Imports from the World	Exports to the World	Apparent consumption	Imports /Apparent Consumption	Apparent consumption/ Output	Exports / Output	Output	Imports from the World	Exports to the World	Apparent consumption
2000	129,858	106,509	27,603	208,764	51%	161%	82%				
2001	225,812	88,476	117,850	196,438	45%	87%	52%	0.74	-0.17	3.27	-0.06
2002	203,977	48,027	125,399	126,605	38%	62%	61%	-0.10	-0.46	0.06	-0.36
2003	191,097	84,701	114,473	161,325	53%	84%	60%	-0.06	0.76	-0.09	0.27
2004	212,690	95,366	127,015	181,041	53%	85%	60%	0.11	0.13	0.11	0.12
2005	232,032	96,416	125,763	202,685	48%	87%	54%	0.09	0.01	-0.01	0.12
2006	247,919	101,303	110,103	239,119	42%	96%	44%	0.07	0.05	-0.12	0.18

Source: CEP based on CAIP and INDEC.

The increase in domestic demand for this type of input has given rise to an increase in imports, though its share in domestic consumption has diminished due to the rise in domestic production.

Regarding the performance of foreign markets, the increase in exports since the year 2001 is accounted for by the incorporation of new enterprises to the export business. That would be manifesting that, apart from the improvement in price competitiveness as a result of devaluation, the production improvement has enabled the placement of a greater volume of products in the international market, although the rise in domestic demand contributes to reduce export availabilities and to devote a lower share of production to the foreign market.

The main destination of sales is Brazil (75%), followed by Chile (15%). Particularly, MERCOSUR's share has risen by almost thirty percentage points between 2001 and 2006 (from 54% to 80%), to the detriment of the European Union. This reflects how vulnerable the sector is in the face of greater competition in the Brazilian market: roughly half of the production is exported and three thirds of those sales are intended for Brazil.

Regarding competition with Korean products to supply the Brazilian market, three points are worth mentioning:

i) For the time being, Korean products are not competing in the Brazilian market with those of Argentine origin: the main part of Brazil's imports is concentrated in other polyethylenes having a specific gravity of 0.94 or more—98% of Brazilian imports of high-density polyethylene—78% of which was supplied by Argentina during the 2001-2006 period, whilst just 3% was originated in Korea during the same period. The rest of the disaggregate products at 8 digits are marginal.

ii) The Brazilian market is expanding, which has not been profited from by Korea yet: total imports of high-density polyethylene from Brazil have been increasing, even from Korea, though this latter country's share has gone down from 5% in 2003 to 2% in 2006.

iii) If there were an impact on Argentine exports, it would be concentrated: only 6 Argentine companies have exported to Brazil other polyethylenes having density of 0.94 or more. This trade concentration can also be observed in polyetylenes having density of 0.94 or more, where only three companies have recorded exports to Brazil. An improvement in access conditions for Korean products into the Brazilian market could also affect the penetration of other companies that have a potential to profit from this growing market.

In turn, polyethylene terephthalate production—a type of plastic widely used in beverage containers and textiles better known as PET—has accumulated a 59% increase between 1999 and 2006 driven by the dynamism of the industries that demand this input (Table 7). As a consequence, the volumes produced expanded from 100 thousand to almost 159 thousand tonnes. In spite of this increase in production, imports continue having great relevance in

overall apparent consumption, which would show a high income elasticity of demand. On the other hand, exports decreased during 2006 as a consequence of a fall in Brazil's demand for Argentine products. Thus, exports as a percentage of output contracted to 33%, while their usual values had been ranging from 50% to 60%.

Table 7
Output, consumption and trade in polyethylene terephthalate

	Tonnes							Interannual variation			
Years	Output	Imports from the World	Exports to the World	Apparent consumption	Imports /Apparent Consumption	Apparent consumption/ Output	Exports / Output	Output	Imports from the World	Exports to the World	Apparent consumption
1999	100,000	90,860	45,768	145,092	63%	145.1%	45.8%				
2000	123,000	86,147	67,414	141,733	61%	115.2%	54.8%	23%	-5%	47%	-2%
2001	143,318	93,262	74,392	162,189	58%	113.2%	51.9%	16.5%	8.3%	10.4%	14.4%
2002	160,500	63,644	96,662	127,482	50%	79.4%	60.2%	12.0%	-31.8%	29.9%	-21.4%
2003	150,500	98,677	89,319	159,858	62%	106.2%	59.3%	-6.2%	55.0%	-7.6%	25.4%
2004	166,905	109,006	103,192	172,719	63%	103.5%	61.8%	10.9%	10.5%	15.5%	8.0%
2005	150,000	112,141	74,962	187,179	60%	124.8%	50.0%	-10.1%	2.9%	-27.4%	8.4%
2006	158,948	86,049	52,394	192,603	45%	121.2%	33.0%	6.0%	-23.3%	-30.1%	2.9%

Source: CEI based on CAIP and INDEC.

As regards foreign markets, Brazil used to be the main export destination until the year 2005, with an 82% share in the overall figure. Since that year, it represented 2%, though it went up to reach 14% in 2007. Currently, Chile and Uruguay are the main markets for Argentine sales, having a 25% average share each.

Regarding the Brazilian market, there is greater competition between the different countries that are suppliers of PET. The reduction in imports from Argentine companies—which fell from a 65% share in Brazilian imports in 2004 to 0.7% in 2006—has been compensated for by an increase in imports from Taiwan (with a 20% share in 2006), China (with 15%), Spain (with 15%), Korea (with 14.5%), Honk Kong (with 8%) and the Netherlands (with 7.5%). Consequently, since 2006 the access of these and other countries to the Brazilian market seems to have helped diversify the geographical pattern of Brazilian imports, which is harmful to Argentina with respect to its market share.

On the other hand, since the year 2005, the origins of imports of this product in Argentina have changed due to the fact that since then the main seller has been Korea (47%) thus displacing Brazil, which turned from a 41% share to a 14% share. Consequently, it can be seen that Korea has been gaining a share in MERCOSUR's imports of Polyethylene terephthalate. By virtue of that, and due to the fact that our exports have lost dynamism, a potential MERCOSUR-Korea free trade agreement might have negative effects on current Argentine exports to Brazil.

6.2.2. Fungicides [22]

Driven by the recovery in agricultural activity, fungicide production[23] has accumulated an increase higher than 60% during the 2003-2006 period (Table 8). The demand for this product is supplied both by domestic output and imports, their shares fluctuating each year as follows: during the 1998-2001 period, domestic output and imports showed similar shares; between 2003 and 2005, imports were higher, while in 2006 domestic output was greater.

[22] Sector corresponding to tariff position 380820 of the foreign trade Harmonized System.
[23] Since there is no updated data on Fungicide production, reference was made to the last series of production available ending in 2001, obtained from the Secretariat of Agriculture, Livestock, Fisheries and Food. The levels produced for the 2002-2006 period were estimated on the basis of the turnover of national products provided by the Argentine Chamber of Fertilizer and Agrochemical Industries.

Table 8
Output, consumption and foreign trade in fungicides

	Tonnes							Interannual variation			
Years	Output	Imports from the World	Exports to the World	Apparent consumption	Imports /Apparent Consumption	Apparent consumption/ Output	Exports / Output	Output	Imports from the World	Exports to the World	Apparent consumption
1998	9,400	9,653	424	18,629	52%	198%	4.5%	-7.8%	3.4%	35.6%	-3.1%
1999	8,100	9,398	808	16,690	56%	206%	10.0%	-13.8%	-2.6%	90.6%	-10.4%
2000	9,900	11,588	882	20,606	56%	208%	8.9%	22.2%	23.3%	9.2%	23.5%
2001	9,700	9,096	910	17,886	51%	184%	9.4%	-2.0%	-21.5%	3.2%	-13.2%
2002*	7,760	7,507	779	14,488	52%	193%	10.0%	-20.0%	-17.5%	-14.4%	-19.0%
2003*	7,113	9,790	2,823	14,081	70%	144%	39.7%	-8.3%	30.4%	262.6%	-2.8%
2004*	9,700	12,764	4,753	17,710	72%	139%	49.0%	36.4%	30.4%	68.4%	25.8%
2005*	9,700	11,112	2,903	17,909	62%	161%	29.9%	0.0%	-12.9%	-38.9%	1.1%
2006*	11,640	8,887	2,006	18,522	48%	208%	17.2%	20.0%	-20.0%	-30.9%	3.4%

*own estimate based on turnover data of CIAFA—Cámara de la Industria Argentina de Fertilizantes y Agroquímicos.

Source: CEP based on SAGPyA, CIAFA and INDEC.

Regarding the sector's export orientation, exports were marginal until the year 2003 when they started to account for a bigger share in local production, exporting almost half of the output in 2004 with values that soared from USD 4 million to more than USD 80 million during the same year. The increase in exports is basically accounted for by shipments to Brazil. Thus, during the 2003-2006 period, they accounted for 50% to 87% of total exports.

Korea's share in Brazilian imports of fungicides is, in the most favourable scenario, marginal—0.1% in 2006—if compared with the share of Argentine products—1.6% in 2006. Argentina does not have a dominant market share in the regional partner in spite of having tariff advantages *vis-à-vis* the most important competitors, such as the United Kingdom (36% of Brazilian imports during the 2002-2005 period) and Spain (28%). This would imply that certain tariff advantages favouring Korea might be prejudicial to exports of Argentine fungicides to Brazil, and affect the sector's new export orientation.

6.2.3. Motor vehicles, utility vehicles and motor vehicles for the transport of goods[24]

In recent years, the output, exports, imports and consumption of this sector have increased. The data shows some features of the sector's recent evolution. In the first place, as can be seen in the evolution of the volumes produced calculated by INDEC, the production of motor vehicles has been significantly growing since the year 2003, reaching, in 2006, levels similar to those recorded in the 90s. Similarly, sales in the domestic market of motor vehicles sold by the terminals set up in the country, as well as of those imported by distributors and individuals, have also increased notably in recent years (Table 9).

[24] HS tariff positions 8703 for motor vehicles and utility vehicles and 870421 for motor vehicles for the transport of goods.

Table 9

Output, consumption and foreign trade in
motor vehicles, utility vehicles and vehicles for the transport of goods

in units

A. Motor vehicles and utility vehicles (tariff position 8703)

	2004	2005	2006
Local output	244,343	299,205	408,874
Exports	133,774	165,806	218,543
Imports	173,352	218,284	250,498
Apparent consumption (output-exports+ imports)	283,921	351,683	440,829
Apparent consumption/ Output	116%	118%	108%
Exports/Output	55%	55%	53%
Imports / Apparent Consumption	61%	62%	57%
Imports/Output	71%	73%	61%

B. Transport of goods (tariff position 870421)

	2004	2005	2006
Local output	15,518	20,011	23,227
Exports	27,125	15,775	18,246
Imports	20,184	27,606	22,157
Apparent consumption (production-exports+imports)	8,577	31,842	27,138
Apparent consumption/ output	55%	159%	117%
Exports/Output	175%	79%	79%
Imports / Apparent Consumption	235%	87%	82%
Imports/Output	130%	138%	95%

Source: CEP based on ADEFA and INDEC.

In the second place, another feature is the fact that apparent consumption is higher than 100% of output and, on the other hand, the relationship of imports and exports to domestic output is very high. The latter shows the relevance of foreign trade, which is basically intra-firm (especially between Argentina and Brazil) and run by a managed trade regime, in the sector's activity.

The MERCOSUR common external tariff for motor vehicles, utility vehicles and motor vehicles for the transport of goods is 35%. Besides, in this special regime, there is a mechanism for the sector of motor vehicles and spare parts of motor vehicles—known as *Flex*—that establishes a ratio between exports and imports, which, if not accomplished, compels the importer to pay a tariff on their intra-MERCOSUR purchases.

In 2006, the main destinations of Argentine exports of motor vehicles and utility vehicles were Brazil (61%) and Mexico (18%)[25] and in the case of vehicles for the transport of goods, the main destination was Brazil (54%).

Korea's automotive sector is a relevant actor in world trade. Korean exports of these products accounted for 5.8% of world trade in motor and utility vehicles during 2006, and 3.9% of trade in motor vehicles for the transport of goods. Korea's world market share is higher than those of Argentina and Brazil, which are 0.3% and 0.9% respectively, for motor and utility vehicles, and 3% and 1.4% respectively, for motor vehicles for the transport of goods.

However, exports to MERCOSUR are of little importance to Korea, though they have been growing in recent years, Brazil being their main destination within the bloc. In 2006, Korean exports of motor and utility vehicles to Brazil represented 0.4% of total exports of these goods, while the Argentine market represented 0.1%. Regarding Korean exports of motor vehicles for the transport of goods, those shares were 1.5% and 0.5% respectively. Besides, Korea constitutes a marginal supplier of the Brazilian market: in 2006, it had a 5% share of imports of motor vehicles, while Argentina had a 45% share; and it participated with 2.6% of imports of vehicles for the transport of goods, while Argentina provided 93% of imports.

[25] Between MERCOSUR and Mexico, there is a preferential agreement for the automotive sector.

Consequently, taking into account the Korean sector's share in world trade, its room for growing as the region's supplier, and the fact that Brazil is the main market for Argentine exports, a MERCOSUR-Korea free trade agreement might pose risks to intra-zone trade for the Argentine automotive sector. Nevertheless, this risk is moderated by the role of intra-firm trade, both intra-MERCOSUR and at the world level, as well as by MERCOSUR's managed trade system. In the latter case, intra-MERCOSUR trade might change if the agreement leads to a modification of said regime.

7. Final considerations

After combining the different methods of analysis, it was found that, at an aggregate level, a MERCOSUR-Korea agreement could be beneficial to our Argentina as long as the agricultural sector takes part in the negotiation. At a sectoral level, the results obtained were as expected. That is, since recent trade between Argentina and Korea is inter-industrial, export opportunities for Argentina are concentrated in agricultural products, and the threats to local production and exports to MERCOSUR, in industrial products. Lastly, a more detailed analysis of some industrial sectors shows that the opportunities and threats that stem only from a first analysis of tariffs and trade demand other conditions to become effective, such as the sector's export orientation, the industry's productive capacity, Korean products' penetration into the Brazilian market, the role of intra-firm trade at an international level and at the level of MERCOSUR, and the special measures for intra-MERCOSUR trade.

This paper only considered the effects that can be directly attributable to trade. Changes neither in investment flows nor to other measures not strictly related to the change in import tariffs as a result of a free trade agreement were taken into account. For example, the consequences of other ordinary measures contained in these agreements have not been assessed. Examples of these are changes in the technical obstacles and sanitary requisites; measures aimed at facilitating trade, enhancing the bilateral investment climate, and strengthening bitaleral economic cooperation. These measures can expand the changes in trade flows and their effects on the output level. Furthermore, the results must be interpreted taking into account the typical limitations of the approaches used, the assumptions made, and the statistical information available.

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