Argentina's competitiveness matrix: the natural resource controversy and the country's evolving trade position[1]

Virginia Laura Fernández and Marcelo Luiz Curado

Abstract

This paper uses Fajnzylber and Mandeng's competitiveness matrix to analyse the evolving structure of Argentine exports between 1985 and 2010. In particular, it seeks to identify links between the country's export pattern, in which natural resources predominate, and the evolving structures of different markets: the Organization for Economic Cooperation and Development (OECD), the Southern Common Market (MERCOSUR), the developing countries of Asia and the world. One of the main conclusions is that, although historically it has been the developed countries that have been responsible for the dominance of commodities in Argentina's export pattern, in recent decades it has been the developing countries of Asia. In MERCOSUR, on the other hand, there has been an improvement in the pattern of Argentine exports. The article suggests that this has been driven by the bilateral agreements between Argentina and Brazil, especially in the automotive sector.

Keywords

Competitiveness, measurements, exports, trade statistics, markets, OECD, MERCOSUR, East Asia, Argentina

JEL classification

F10, O54, Q18

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I. Introduction

The Latin American economies have traditionally been characterized by heterogeneous production structures combining technology-intensive sectors with non-industrialized low-productivity primary sectors, by a lack of productive diversification, by dependence on foreign capital, by the small share of national income going to workers and by trade balances which, whether in deficit or surplus, are driven by commodity exports.

For a group of Latin American authors such as Raúl Prebisch (1950 and 1951), Celso Furtado (1962 and 1964), Aníbal Pinto (1960), Aldo Ferrer (1973) and Fernando Fajnzylber (1983, 1988 and 1991), who contributed to the development of the Latin American structuralist thinking that played a major role in the establishment and consolidation of the Economic Commission for Latin America and the Caribbean (ECLAC), these characteristics have limited the region's potential for growth and development, since its role in the international economy and in the international division of labour were shaped by external dependency. This dependency originated on the demand side, since the region's commodity exports and pricing are determined in the international market, which is very volatile and unstable. Moreover, dependency is exacerbated by external capital flows, which act as an external constraint on the growth of investment and financing in the economies of Latin America.

Industrialization and diversification of the export pattern, especially between 1950 and 1980, reduced the problem of external dependency to some extent, but did not solve it. Trade imbalances and external vulnerability continued to be recurrent phenomena that called for economic analysis by ECLAC. Bielschowsky (2016, p. 17), for example, argues: "With variations that are adapted to the different contexts of world trade and the various conditions of international financing, the external vulnerability argument is present throughout the five decades of ECLAC thought."

The transformations in international trade that began in the early years of the twenty-first century, especially the emergence of China and the renewed dominance of commodities in the export pattern of Latin America, gave a new impetus to international research in this area.[2] It is against this background that the present study seeks to make its contribution.

This article seeks to analyse the peculiarities of Argentina's pattern of exports and international competitiveness in the new world order, characterized as this is by radical changes in global patterns of production, consumption and trade. It also highlights the relevance of using a specifically Latin American body of theory to interpret Argentina's growth and development process.

The main objective is to analyse Argentina's export pattern in the period from 1985 to 2010, using Fajnzylber and Mandeng's competitiveness matrix. Specifically, the study seeks to identify links between the country's export structure and the evolving market structure of various destinations, namely the Organization for Economic Cooperation and Development (OECD), the Southern Common Market (MERCOSUR), the developing countries of Asia and the world. A final aim is to establish causalities between a pattern of exports dominated by natural resources and competitiveness.

The method of analysis combines conceptual elements from the competitiveness matrix and the Competitive Analysis of Nations (CAN) which Fajnzylber and Mandeng presented in the CEPAL Review in 1991 (Fajnzylber, 1991; Mandeng, 1991a). The data are sourced from the ECLAC TradeCAN database, which covers more than 90% of international trade and contains information on 73 countries. Although this database was developed out of the joint study by the authors mentioned, it has not been widely used to estimate the competitiveness of nations in recent years. For this reason, the proposed use of this methodology entails an additional effort of research and operationalization of the system.

[2] To cite just one example of the importance of this debate, in 2015 Latin American Perspectives (2015) devoted a whole issue to discussing the effects China was having on Latin America, with a focus on trade and on the debate about the impact of the shift back to commodities in the Latin American export pattern.

The article presents the following: the concepts and model of Fajnzylber and Mandeng's competitiveness matrix within the framework of the structuralist theoretical debate about natural resource dependency (section II); an empirical analysis of the Argentine competitiveness matrix during the period 1985–2010 (section III); and reflections on the importance of natural resources in the evolution of the Argentine export pattern and the influence of each market on that pattern (section IV).

II. Fajnzylber and Mandeng's competitiveness matrix

In 1991, Fernando Fajnzylber and Ousmène Mandeng analysed the relationship between countries' export patterns and competitiveness. The objective was to provide tools for the design of national and sectoral strategies and policies in the economies of Latin America and to analyse the structure of a number of mainly Latin American countries' exports and their level of competitiveness during the decade from 1979 to 1988.

Before presenting the methodology, we shall present four points that Fajnzylber highlighted regarding the link between countries' competitiveness and natural resources that are relevant to our analysis. The first is that, of a total of 51 countries analysed, the export patterns of winning countries (those that increased their share of the OECD market between 1979 and 1988) were less natural resource-based than losing countries'.

The second point is that there were OECD member countries that ran trade surpluses in natural resource-related activities but deficits in the manufacturing sector, and that in those countries, which included Canada, the United States, Norway, Denmark and the United Kingdom, technical progress in manufacturing was inexorably linked to and enhanced by natural resources.

The third element that Fajnzylber highlighted is that Latin America was not the main supplier of natural resources to OECD or the world. In 1989, the region supplied 10% of OECD natural resource imports and 5% of natural resource-based manufactures (Fajnzylber, 1991, p. 158).

Lastly, the author points out that, during the period analysed, the share of imports of natural resource-based manufactures in OECD fell from one third of the total to one quarter. According to Fajnzylber, this "reflects and confirms the downward trend in the use of natural resources (especially energy) in the economic activity of the developed countries" (Fajnzylber, 1991, p. 158). This aspect, in a demand-driven conception of competitiveness, concerned the author and prompted him to propose economic policy strategies to change the export pattern of the Latin American economies.

These observations will be considered in the light of the most up-to-date information on Argentina. One element that was not considered by Fajnzylber (and could not have been, since he died in 1991) and that is important for the analysis of the behaviour of international trade in the period under study is the rise of China, India and other emerging economies in the world market for production and consumption. This was to reverse the trend towards stagnating demand for raw and manufactured natural resources.

1. Methodology

The methodology used by Fajnzylber and Mandeng to measure a country's competitiveness analyses data on the country's export structure strictly in relation to the OECD import structure. Countries are defined as winning or losing depending on whether their OECD market share has increased or decreased, and the competitiveness matrix is then applied to ascertain which areas their market share has increased or decreased in. It is within this framework that it becomes important to discuss a country's natural resources, technology and production matrix.

A good example is the case of two countries considered in the analysis, namely Argentina and Brazil, the latter being the former's main trading partner. In the period analysed by Fajnzylber, Argentina's share of the OECD market fell from 0.4% to 0.25%, making the country a loser. In contrast, Brazil's market share had increased by 20% to 1.19% by 1988, placing it among the winners (Fajnzylber, 1991, pp. 142–143).

After classifying countries as winners and losers, Fajnzylber analyses the composition of their exports, combining the concepts of efficiency and positioning.[3] The authors call this combination the competitiveness matrix, and it allows four situations in the export pattern to be identified:

(i) An optimum situation, with favourable positioning and high efficiency. Exports in this situation are that portion of trade in which the country specializes, i.e. has a productive advantage over other suppliers, while also involving product categories that are dynamic in OECD imports. When a large proportion of a country's exports are in an optimum situation, it means that the country is competitive from a production standpoint and that it specializes in sectors that are gaining ground in the OECD market.

(ii) A situation of vulnerability, with unfavourable positioning and high efficiency. Having exports in this situation means that the country is specializing in categories that are not dynamic in the OECD market. Specifically, the current situation (that in the period analysed) is one in which positive results are being obtained, but the outlook could be negative for future periods if the decline in demand in these product categories were to worsen over time. In the case of Latin America, where natural resources determine the pattern of trade specialization, a sustained fall in demand for these resources would be indicative of export vulnerability.

(iii) A situation of missed opportunities, involving favourable positioning and low efficiency. This situation is one where exports are in product categories that are becoming more dynamic in OECD demand, but for which the country analysed is losing market share relative to other suppliers, meaning that the structure of the country's exports in these categories is not adapting to changes in the OECD import structure. In this case, it is also relevant to analyse whether the upward trend of imports in these categories is cyclical or whether it will strengthen over time. In the latter case, the country's strategy should be to attain or improve on the levels of competitiveness it formerly achieved.

(iv) A situation of retreat, entailing unfavourable positioning and low efficiency. This is the situation of export categories in which the country has lost market share and for which OECD demand is declining. This classification is not negative in all cases, as it could indicate that the country's export structure is proving adaptable to changes in OECD imports.

The competitiveness matrix data for Argentina and Brazil between 1979 and 1988 are shown in table 1.

Table 1
Argentina and Brazil: competitiveness matrix, 1979–1988
(Percentages of total exports)

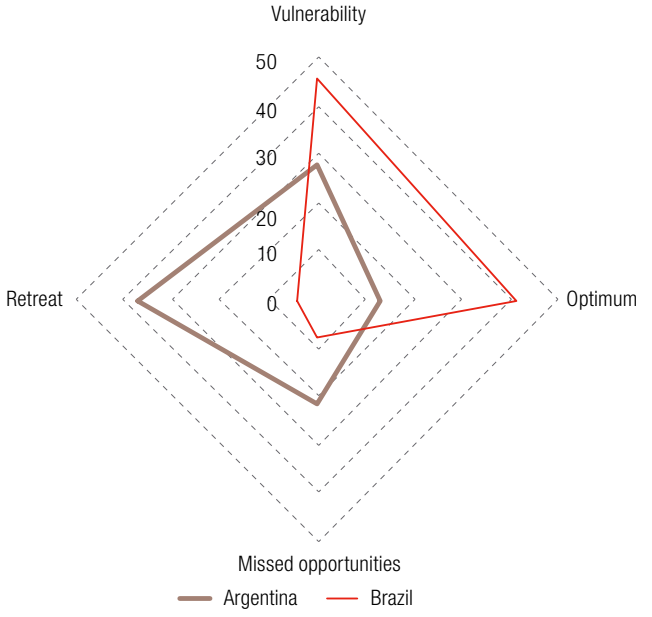
Country	Situation of vulnerability	Optimum situation	Situation of missed opportunities	Situation of retreat
Brazil	46	41	8	4
Argentina	28	13	22	37

Source: F. Fajnzylber, "International insertion and institutional renewal", *CEPAL Review*, No. 44 (LC/G.1667-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 1991.

Brazil is a winner, with a large proportion of its exports in an optimum situation and low proportions in situations of retreat and missed opportunities. Argentina is a market loser, with just the opposite happening. Figure 1 shows the two countries' matrices in a radial chart.

[3] Mandeng approaches positioning from the point of view of market attractiveness and efficiency from the point of view of specialization and adaptability. For the sake of simplicity, we shall use Fajnzylber's terminology.

Figure 1
Argentina and Brazil: competitiveness matrix, 1979–1988
(Percentages of exports)



Source: Prepared by the authors, on the basis of F. Fajnzylber, "International insertion and institutional renewal", *CEPAL Review*, No. 44 (LC/G.1667-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 1991.

Lastly, as already mentioned, technical progress has a pervasive impact on competitiveness. It does so through positioning, since dynamism is associated with the technological content of products in terms of design and manufacturing, and through production efficiency, via the systemic and organizational capacity to produce at international frontier levels, approximating to the productivity of competitors in the international market.[4]

The composition of Argentina's and Brazil's exports will now be analysed. As has been suggested, countries whose exports are concentrated in natural resources tend to be market losers. On the other hand, those whose structure is dominated by non-natural resource-based manufactures tend to be winners. This is borne out by the situations of the two countries mentioned (see table 2).

Table 2
Argentina and Brazil: export structures, 1988
(Percentages)

Country	Natural resources	Energy	Manufactures	
			Natural resource-based	Non-natural resource-based
Argentina	36	3	43	18
Brazil	30	3	29	38

Source: F. Fajnzylber, "International insertion and institutional renewal", *CEPAL Review*, No. 44 (LC/G.1667-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 1991.

2. The model

The model proposed by Mandeng (1991a and 1991b) is an adaptation of constant market share analysis (Magee, 1975), which analyses firms' competitiveness' vis-à-vis the world market. This analysis was radically adapted to describe and identify changes in countries' competitiveness and specialization in world trade.

[4] Positioning and efficiency can be understood as variables representing the Keynesian and Schumpeterian perspectives, respectively, on the dynamics of countries' exports.

The starting point is a single constant market share analysis equation, which is reduced to a two-dimensional approach (sectoral competitiveness and adaptability to the market).[5] The analysis is based on the concept and methodology of country competitiveness analysis, according to which the overall position of an economy is determined by its sectoral competitiveness and its ability to adapt to the evolution of the market structure. The approach assumes that the market has an atomistic structure and that no sector is important enough to influence the total import pattern (Mandeng, 1991a, p. 27).

Thus, a country's total share (S_j) at a given time will be equal to the weighted product of the share of its imports in a particular sectoral group (s_{ij}) and the share of this group in the market's imports (s_i):

$$S_j = \sum_{i=1}^{n} \frac{M_{ij} M_i}{M_i M} = \sum_{i=1}^{n} s_{ij} s_i, \qquad (1)$$

where:

i: is a sectoral product or group, denominated group,

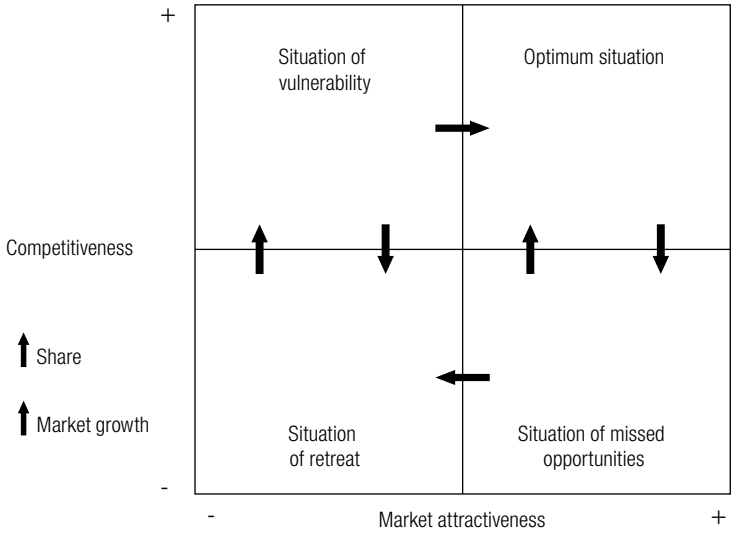
j: is a country, and

M: are total OECD imports.

Changes in S_j over time are determined to evaluate the orientation of competitiveness in relation to the shifting structures of the market. The constant share hypothesis requires ΔS_j to be equal to 0, and the differential evolution of the groups (or their market attractiveness) is obtained from the changes in s_i.

A competitiveness matrix of two rows and two columns based on equation (1) is shown below. Its horizontal axis measures the evolution of the groups (Δs_i) and its vertical axis the evolution of the country (Δs_{ij}) (see diagram 1). Thus, a group is considered to be rising when $\Delta s_i \geq 0$, while a country is considered competitive in a given group when $\Delta s_{ij} \geq 0$.

Diagram 1
Competitiveness matrix



Source: O. J. Mandeng, "International competitiveness and specialization", *CEPAL Review*, No. 45 (LC/G.4687-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC), 1991.

Note: For greater clarity and consistency with Fajnzylber's terminology, the terms used by that author have been employed instead of the titles of the quadrants in the original diagram, which were (clockwise from top left): Declining stars, Rising stars, Missed opportunities and Retreats.

[5] Constant market share analysis considers four elements that affect the evolution of a country's overall market share: (i) growth in world trade, (ii) differential growth by product, (iii) differential growth of the market and (iv) a competition factor or residual.

The competitiveness matrix summarizes the situations a given country might be in:

- Optimum situation: rising groups in which the country is gaining market share.
- Situation of vulnerability: declining groups in which the country is gaining market share.
- Missed opportunities: rising groups in which the country is losing market share.
- Situation of retreat: declining groups in which the country is losing market share.

Furthermore, the relative importance of each competitive position in the matrix can be ascertained from the country's trade structure. To this end we define the variable c_{ij}, which measures the contribution of each group in a given country, where $c_{ij} = M_{ij}/M_j$. Changes in c_{ij} indicate diversification of the trade structure, with $\Delta c_{ij} \geq 0$ meaning that the contribution of the group is growing and $\Delta c_{ij} < 0$ meaning that its contribution is declining.

A variable k is also used to represent market specialization. This allows the contribution of each group in a country to be related to the OECD import structure:

$$k_{ij} = \frac{c_{ij}}{s_i} \text{ and } k_{ij} = \frac{s_{ij}}{s_j} \text{ where } k_{ij} \geq 1 \text{ when it refers to the groups in which the country specializes.}^{6} \quad (2)$$

Thus, changes in k_{ij} are determined by the changes in c_{ij} and s_i, and reflect the degree to which the trade structure moves further from or closer to the OECD import structure: $\Delta k_{ij} \geq 0$ in the first case and $\Delta k_{ij} < 0$ in the second.

$$\Delta c_{ij} \gtreqless \Delta s_i \gtreqless \Delta k_{ij} \gtreqless 0 \quad (3)$$

Thus, Δk represents the interaction between changes in a country's trade structure and the evolution of the market structure: k_{inc} is for groups whose share is increasing and k_{dec} is for groups whose share is decreasing. Furthermore, Δk may reflect the evolution of sectoral competitiveness in relation to the country's overall trade results (S_j).

Lastly, the overall adaptability of a country to the market, K_j, is expressed by the overall specialization and the competitiveness of an economy relative to the evolution of the market:

$$K_j = \frac{k_{iincj}}{k_{idecj}} \text{ and } K_j = \frac{s_{iinci}}{s_{ideci}} \quad (4)$$

This derives from $(M_{iincj}/M_j : M_{inc}/M) : (M_{idecj}/M_j : M_{idec}/M) = (M_{incj}/M_{inc}) : (M_{idecj}/M_{idec}) = s_{iincj}/s_{idecj})$. The conclusion is that K_j admits of two criteria of interpretation. In the first, the shares of increasing and decreasing groups are set against each other, and $K_j > 1$ means that absolute competitiveness is greater in increasing than in decreasing groups. The second combines the market orientation of increasing and decreasing groups, and $K_j < 1$ means there is more specialization in decreasing than in increasing groups.

In these cases, the evolution of K over time, $\Delta K = K_j^1/K_j^0$ represents one of the following two options: (i) the redistribution of a country's competitiveness relative to the evolution of the market, or (ii) the change in specialization relative to the growth of the market.

According to the author, changes in K reveal the weighting of the sectoral groups, which increases or decreases within the country's trade structure, and describe how countries compete and specialize globally in relation to the evolution of the market.

[6] The variable k follows Balassa's (1965) index of revealed comparative advantage. Given the equation $k = M_{ij}/M_j : M_i/M$, changing the denominators yields the following equation: $k = M_{ij}/M_i{}^* M/M_j = s_{ij}/S_j$.

To conclude, the model has three limitations that coincide with those of the constant market share analysis. The first concerns sectoral disaggregation, which is typical in any aggregation problem. The second concerns the period selected and could be resolved using index numbers. The author also argues that the model is sensitive to this aspect. And the third limitation concerns the reference market.

The disaggregation in Fajnzylber and Mandeng's study was carried out on the basis of the Standard International Trade Classification (SITC, revision 2), which classifies 239 sectoral groups at the three-digit level. The period taken was 1979–1988 and the reference market was OECD.

The same sectoral disaggregation is used in this article, although in some cases the Mandeng (1993) classification is followed and sectors are regrouped into branches, namely natural resources, energy, natural resource-based manufactures and non-natural resource-based manufactures. The analysis period is divided into four. The years between the two extremes reflect the full series of the TradeCAN database.[7] The subperiods are associated with the run-up to the creation of MERCOSUR (1985–1990), implementation of the Washington Consensus and the Convertibility Plan (1990–2000), the expansion of the Asian countries as global consumers and suppliers (2000–2007) and the global crisis of 2007–2008 (2007–2010). The reference markets are the world, OECD,[8] MERCOSUR[9] and the developing countries of Asia.[10]

III. Constructing the competitiveness matrix for Argentina

This section presents the relationship between Argentina's trade structure and the structure of markets. The market is first characterized by reading data. The structure of Argentine exports to each destination is then analysed. After this, the top 10 export categories are presented to ascertain the specificities of this trade structure. Lastly, the country's competitiveness matrix is constructed.

1. Market structure

A common feature of the markets analysed is that, across the periods, demand for natural resources and low value added manufactures is proportionately low (see table 3). And while no radical alterations are seen in the structure of demand in the world and OECD markets, it is evident that the market structures of MERCOSUR and the developing countries of Asia presented dynamics of their own that deserve attention, not least because, as will be seen, they radically influenced Argentina's trade structure.

In MERCOSUR, it can be seen that there was a radical structural change that made it more permeable to manufactured products. In that market, the share of demand for natural resources and energy fell from 50% to 15%. Conversely, over time there was an increase in demand for non-natural resource-based manufactures, whose share rose from 46% to 75%. The movement is straightforward, clear and constant.

[7] The TradeCAN database is being updated. At the time of the research, the latest official data available were for 2010.

[8] There are currently 34 OECD member countries. To maintain a degree of analytical consistency and allow for a more accurate comparison, however, only the 24 countries that were members at the time of Fajnzylber and Mandeng's analysis are considered in this paper: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States.

[9] The members of MERCOSUR are Argentina, Brazil, Paraguay and Uruguay.

[10] The developing countries of Asia are China, Cyprus, Hong Kong Special Administrative Region of China, India, Indonesia, Jordan, Macao Special Administrative Region of China, Malaysia, Nepal, Oman, Pakistan, the Philippines, Qatar, the Republic of Korea, Saudi Arabia, Singapore, the Syrian Arab Republic, Thailand and Turkey.

Table 3
OECD, MERCOSUR, developing countries of Asia and world: market structure of imports, by sector, 1985–2010[a]
(Percentages)

Sector	World					OECD				
	1985	1990	2000	2007	2010	1985	1990	2000	2007	2010
Natural resources	16.33	14.54	10.31	10.43	11.34	16.11	14.56	10.48	10.18	10.98
Agriculture	13.40	11.96	8.81	7.91	8.71	13.27	12.17	9.15	8.42	9.39
Textile fibres, minerals and metals	2.93	2.58	1.51	2.52	2.63	2.84	2.39	1.32	1.75	1.59
Energy	17.35	9.71	9.31	10.21	9.93	17.82	9.78	8.94	10.57	10.35
Manufactures	64.86	73.98	77.85	71.77	70.05	64.54	73.82	77.48	71.47	69.51
Natural resource-based manufactures	5.67	5.79	4.78	5.02	4.78	5.89	5.85	4.75	4.81	4.16
Non-natural resource-based manufactures	59.19	68.20	73.07	66.74	65.28	58.66	67.97	72.72	66.66	65.35
Other	1.47	1.78	2.53	7.60	8.68	1.54	1.84	3.10	7.78	9.16
Sector	MERCOSUR					Developing countries of Asia				
	1985	1990	2000	2007	2010	1985	1990	2000	2007	2010
Natural resources	16.97	15.41	9.52	7.74	7.16	16.01	13.10	9.37	10.50	12.00
Agriculture	13.58	11.11	7.88	5.56	5.73	12.53	9.61	7.07	5.87	6.73
Textile fibres, minerals and metals	3.40	4.29	1.64	2.18	1.43	3.49	3.49	2.31	4.63	5.27
Energy	34.12	23.18	11.54	9.92	7.91	14.81	8.82	11.50	10.36	10.26
Manufactures	48.83	61.33	78.80	73.50	77.60	67.75	76.80	78.30	72.41	70.18
Natural resource-based manufactures	2.90	3.31	2.71	3.05	2.56	4.89	6.26	5.61	5.84	6.53
Non-natural resource-based manufactures	45.93	58.02	76.09	70.46	75.04	62.86	70.54	72.69	66.57	63.65
Other	0.08	0.09	0.15	8.84	7.33	1.43	1.27	0.82	6.74	7.57

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

[a] OECD is the Organization for Economic Cooperation and Development and MERCOSUR is the Southern Common Market.

On the other hand, the changes that have occurred in the market structure of developing countries in Asia are slightly subtler and require a more detailed exposition. From 2000 onward, there was a reversal of the downward trend in the share of certain natural resource-related product categories, especially textile fibres, minerals and metals, and natural resource-based manufactures. The slowdown in energy, meanwhile, tailed off.

This is a key point for our analysis, since it is vital to consider the peculiarities cited when reflecting on Fajnzylber's (1991) observations on the OECD market (which he analysed) and the developing countries of Asia (whose historical evolution has been different). In fact, Fajnzylber noted a trend towards a reduction in demand for natural resources, energy and natural resource-based manufactures in the OECD countries in the 1980s, something he viewed as a concern for the Latin American economies, which relied on commodity exports. The developing countries of Asia are the only market analysed in which the trend has been reversed, albeit subtly. This is all the more important when it is considered that these countries have driven world demand: in 2010, their share of global imports was 28%. This was not considered by Fajnzylber and Mandeng.

Two other movements, perhaps less significant, can also be distinguished. In the world, OECD and MERCOSUR markets, there was also a turning point in 2000 when textile fibres, minerals and metals, energy and natural resource-based manufactures ceased to show a definite trend (even if they did not recover the shares they had in 1985). Another exception is the group of natural resource-based manufactures in the case of MERCOSUR, which had a greater share in 2007 than at the start, although this situation was not maintained in 2010.

2. The Argentine trade structure

In the evolution of Argentina's trade structure, the share of manufactures improved between 1985 and 2010 for all destinations except the developing countries of Asia (see table 4). This improvement was more subdued for products exported to OECD than for those exported to the world. Although the value of non-natural resource-based manufacturing exports to OECD was higher in 2007 than in 2010, that value had remained close to 17.5% since 1990, while the value of those exports to the world reached 31% of total exports.

Table 4
Argentina: export structure, by destination, 1985–2010
(Percentages)

Sector	World					OECD				
	1985	1990	2000	2007	2010	1985	1990	2000	2007	2010
Natural resources	68.83	59.41	49.10	59.49	55.94	71.64	67.41	60.76	69.55	65.52
Agriculture	65.77	55.81	46.57	56.39	53.06	68.24	63.66	57.13	64.41	60.82
Textile fibres, minerals and metals	3.06	3.60	2.52	3.11	2.88	3.40	3.74	3.63	5.14	4.71
Energy	6.38	6.49	17.86	7.50	7.53	6.32	5.10	12.44	5.79	5.85
Manufactures	24.13	33.64	32.41	32.55	36.09	21.09	26.81	25.35	23.99	27.64
Natural resource-based manufactures	6.99	7.25	5.01	3.79	5.07	7.72	9.12	7.90	5.54	9.78
Non-natural resource-based manufactures	17.15	26.38	27.40	28.77	31.01	13.37	17.69	17.45	18.45	17.86
Other	0.50	0.47	0.63	0.45	0.44	0.51	0.56	1.45	0.66	0.99
Sector	MERCOSUR					Developing countries of Asia				
	1985	1990	2000	2007	2010	1985	1990	2000	2007	2010
Natural resources	54.40	49.80	31.53	28.82	25.34	74.20	49.10	79.79	85.04	85.94
Agriculture	52.37	48.03	30.01	27.37	24.55	70.68	40.94	75.39	80.73	81.19
Textile fibres, minerals and metals	2.03	1.77	1.52	1.46	0.79	3.52	8.17	4.39	4.31	4.75
Energy	13.68	7.50	19.03	5.03	4.35	0.00	3.19	4.91	6.20	4.54
Manufactures	31.88	42.44	49.44	66.14	70.30	23.87	46.56	15.18	8.74	9.36
Natural resource-based manufactures	9.68	4.58	2.47	2.29	1.76	6.08	6.83	6.82	3.68	4.27
Non-natural resource-based manufactures	22.20	37.86	46.98	63.86	68.55	17.79	39.74	8.36	5.06	5.09
Other	0.04	0.01	0.00	0.01	0.01	1.79	0.26	0.08	0.02	0.03

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

The fact that the share of manufactures increased less in exports to OECD than in those to the world is crucial, since it reflects the difficulties involved in trying to improve the pattern of exports from the Argentine economy to industrialized countries. However, the structural shift in exports to the world points to other destinations playing a decisive role in altering the trend in Argentina's trade position. In this regard, the following four results are noteworthy: (i) the share of industrialized products with higher value added in exports to the developing countries of Asia fell dramatically; (ii) these products' share of exports to OECD remained unchanged; (iii) their share of exports to the world increased slightly; and (iv) their share of exports to MERCOSUR increased greatly. These results, which represent the extreme cases, are worth detailing as they shed light on the proposed objective.

Although there was a large increase in the share of commodities in exports to the developing countries of Asia, this shift, which began in 1990, was preceded by a positive period for the Argentine export pattern, thanks to an increase in the share of manufactured products in general (from 24%

to 47%) and of non-natural resource-based manufactures in particular (from 18% to 40%). This meant that manufactured goods made up a very high proportion of Argentina's exports to the developing countries of Asia in 1990. This export pattern, with manufacturing accounting for almost half of trade, is untypical of the country and, since 2000, has only been observed in exports to MERCOSUR.

The progress made by Argentina with industrial exports to the developing countries of Asia was reversed during the 1990s, so that by 2000 the manufacturing share of exports was only 15.18% and the share of the most sophisticated manufactured products (those not based on natural resources) had fallen by three quarters to 8.36%. This clearly reflects the weakening of the industrial production system and the effective constraint on manufactured exports resulting from exchange rate appreciation. These were some of the consequences of the simultaneous implementation of the neoliberal policies of the Washington Consensus and the Convertibility Plan in Argentina during the 1990s.[11]

MERCOSUR, for its part, played a very important role in improving Argentina's export structure. In fact, there was a significant structural shift in the composition of the country's exports to that destination, matching the change in the demand structure. Thus, in 1985 the share of manufactured exports was about 32% and that of natural resources and energy 68%. By 2010, however, the values had been reversed: manufacturing exports represented 70% and natural resource and energy exports 30%. The shift looks all the more remarkable if the share of non-natural resource-based manufactures is analysed, since it more than tripled.

If attention is paid to the subperiods, manufactured exports to MERCOSUR are found to have performed less well from 1990 to 2000. The trade relationship was more robust and industry-centred during the Alfonsín government (1983–1989) and the governments subsequent to the 2001 crisis, namely those of Duhalde (2001–2003), Kirchner (2003–2007) and Fernández (2007–2010). Conversely, Carlos Menem's governments (1989–1999) relied on trade liberalization and a rigid exchange rate set at a high value, which hampered industrial production and particularly the export of goods with higher value added.

It is also striking that when the evolution of exports to MERCOSUR is compared with the dynamics of the other markets, the former was clearly the most receptive to Argentine industrialized products. In other words, MERCOSUR energized Argentine domestic industry by importing products with medium and high value added. This aspect is very important, because it makes it possible to measure the results that the work of creating and strengthening MERCOSUR had on the Argentine trade pattern.

3. The top 10 Argentine export categories

The list of the top 10 export categories shows the great concentration of the Argentine trade pattern. In 2010, these categories represented 54% of exports to the world and 64% of exports to OECD (see tables 5 and 6). The main categories exported to the world already presented a considerably lower concentration than those exported to OECD. It is possible to link the increasing concentration of world demand with demand from developing countries, with these being responsible for world trade becoming more concentrated in the main export items.

[11] The Convertibility Plan implemented the Austral Convertibility Act (Law No. 23928 of 1991), which established that as of 1 April 1991 the exchange rate between the Argentine and United States currencies would be fixed at US$ 1 for every 10,000 australs, with the austral subsequently being replaced by a convertible peso. The main objective of the Act was to stabilize the economy and put an end to the hyperinflation of the 1980s. After a decade of implementation, the plan had led to unemployment rising to 18.3% while 57.6% of the country's population lived below the poverty line, with about half of this population being indigent.

Table 5
Argentina: top 10 categories exported to the world, 1985–2010[a]
(Percentages)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1985	1990
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Retreat	10.23	8.47
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Retreat	9.87	6.43
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Optimum	4.72	6.02
Agriculture	423	Fixed vegetable oils	Vulnerable	4.97	4.56
Energy	334	Petroleum products, refined	Vulnerable	4.89	4.34
Natural resource-based manufactures	611	Leather	Missed opportunity	4.60	4.06
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	2.92	3.94
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Retreat	5.73	3.10
Agriculture	14	Preserved and processed meat and edible offal	Vulnerable	2.41	3.00
Agriculture	34	Fresh fish (alive or dead), chilled or frozen	Optimum	1.33	2.68
				51.68	46.60

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1990	2000
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Vulnerable	1.33	10.22
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	8.47	9.26
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Vulnerable	6.43	5.15
Energy	334	Petroleum products, refined	Vulnerable	4.34	4.85
Agriculture	423	Fixed vegetable oils	Vulnerable	4.56	4.76
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Vulnerable	3.10	4.59
Agriculture	44	Unmilled maize	Vulnerable	2.04	3.65
Non-natural resource-based manufactures	781	Passenger vehicles	Optimum	0.25	3.15
Natural resource-based manufactures	611	Leather	Vulnerable	4.06	3.09
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	3.94	2.51
				38.51	51.24

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2000	2007
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	9.30	12.51
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Optimum	6.03	8.94
Agriculture	423	Fixed vegetable oils	Optimum	4.38	8.93
Agriculture	44	Unmilled maize	Optimum	3.74	4.68
Non-natural resource-based manufactures	781	Passenger vehicles	Vulnerable	3.11	3.93
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Missed opportunity	10.37	3.67
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Missed opportunity	4.54	3.61
Energy	341	Natural and artificial gas	Missed opportunity	2.24	3.22
Non-natural resource-based manufactures	782	Motor vehicles for the transport of goods	Vulnerable	2.10	2.90
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Vulnerable	2.17	2.60
				47.98	55.00

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2007	2010
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Missed opportunity	12.51	13.94
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Missed opportunity	8.94	8.12
Agriculture	423	Fixed vegetable oils	Retreat	8.93	6.50
Non-natural resource-based manufactures	781	Passenger vehicles	Vulnerable	3.93	6.15
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Vulnerable	3.67	4.81

Table 5 (concluded)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2007	2010
Agriculture	44	Unmilled maize	Retreat	4.68	3.98
Non-natural resource-based manufactures	782	Motor vehicles for the transport of goods	Vulnerable	2.90	3.55
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Optimum	2.60	2.84
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Missed opportunity	2.49	2.29
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Vulnerable	2.54	2.26
				53.19	54.44

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

[a] Products are ranked by exports in the final year.

Table 6
Argentina: top 10 categories exported to the Organization for Economic Cooperation and Development (OECD), 1985–2010[a]
(Percentages)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1985	1990
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Retreat	14.22	13.42
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Retreat	13.82	9.51
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Optimum	5.98	8.72
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	3.17	5.00
Agriculture	14	Preserved and processed meat and edible offal	Vulnerable	3.44	4.92
Natural resource-based manufactures	611	Leather	Missed opportunity	4.62	4.86
Agriculture	34	Fresh fish (alive or dead), chilled or frozen	Optimum	1.64	3.60
Energy	334	Petroleum products, refined	Vulnerable	5.05	3.41
Natural resource-based manufactures	684	Aluminium	Missed opportunity	2.18	2.37
Agriculture	58	Processed and preserved fruit	Optimum	1.30	2.20
				55.41	58.02

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1990	2000
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	13.42	17.57
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Vulnerable	1.17	6.70
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	5.00	5.61
Energy	334	Petroleum products, refined	Vulnerable	3.41	5.25
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Retreat	9.51	4.77
Natural resource-based manufactures	611	Leather	Vulnerable	4.86	4.47
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Retreat	8.72	4.35
Agriculture	36	Crustaceans and molluscs, shelled or unshelled	Vulnerable	1.62	4.33
Agriculture	44	Unmilled maize	Vulnerable	1.74	3.50
Agriculture	34	Fresh fish (alive or dead), chilled or frozen	Retreat	3.60	3.02
				53.06	59.57

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2000	2007
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	17.57	22.86
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	5.61	6.05
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Vulnerable	4.35	4.99
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Missed opportunity	6.70	4.84
Agriculture	423	Fixed vegetable oils	Optimum	1.42	4.54
Agriculture	44	Unmilled maize	Missed opportunity	3.50	4.35

Table 6 (concluded)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2000	2007
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Missed opportunity	2.55	4.32
Agriculture	36	Crustaceans and molluscs, shelled or unshelled	Vulnerable	4.33	3.38
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Retreat	4.77	2.84
Agriculture	58	Processed and preserved fruit	Vulnerable	2.09	2.27
				52.89	60.43
Mandeng code	**Product code**	**Product**	**Position on competitiveness matrix**	**Year**	
				2007	2010
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Missed opportunity	22.86	24.44
Non-natural resource-based manufactures	598	Miscellaneous chemical products	Optimum	2.10	5.55
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Vulnerable	4.84	5.51
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Missed opportunity	6.05	5.28
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Optimum	4.99	5.17
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Vulnerable	4.32	4.22
Natural resource-based manufactures	971	Non-monetary gold	Optimum	0.29	3.88
Agriculture	112	Alcoholic beverages	Optimum	2.26	3.32
Agriculture	36	Crustaceans and molluscs, shelled or unshelled	Optimum	3.38	3.23
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Missed opportunity	2.84	2.95
				53.94	63.56

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

[a] Products are ranked by exports in the final year.

It is striking that, throughout the period analysed, almost all exports to the world and OECD were of natural resources and energy. In the period 1985–1990, exports to the world consisted almost exclusively of agricultural products, accompanied by energy (refined petroleum products) and natural resource-based manufactures (leather). In addition, there were aluminium exports to OECD. As can be seen, these are exports with low value added.

Products in the oilseed and meat complex featured very strongly in exports to the world and OECD, although somewhat more so in the case of the latter. The oilseed complex is without doubt the most important economic sector in Argentine exports to both destinations, and its share has been increasing. It consists of animal feed, oilseeds and oleaginous fruits, and fixed vegetable oils. Although in 1985 the complex's share of exports to the world was 25%, by 1990 it had fallen to 20%; an increase can only be seen in 2007, when it reached 30%. A similar dynamic can be observed in exports to industrialized countries: in 2007, the complex accounted for 28% of exports, the same share as in 1985. In 2010, the impact on world exports of demand from the developing countries of Asia can be seen. That year the oilseed complex's share of exports to the world exceeded its share of exports to OECD for the first time.

Since 1990, one of the top 10 categories exported to the world has had high value added: passenger automobiles. In 2000, another item from the same production chain was added, namely motor vehicles for the transport of goods, and by 2010 the two categories combined accounted for 10% of Argentine exports. It is striking that the same did not happen with exports to OECD.

Refined petroleum products also appear among the top 10 items exported to the world and OECD, although only in the first two periods. The share of the oil chain, which includes the group of crude petroleum oils and crude oils from bituminous minerals, peaked in the period 1990–2000 at 15% and 12% of exports to the world and OECD, respectively. In the other periods, however, its share was about one third of those values.

The mining complex entered the list of the top 10 product categories exported to OECD in 2000–2007 and to the world in the following subperiod. This is the category of base metal ores and concentrates, which in 2010 represented 2.26% of exports to the world and 4.22% of exports to OECD.

In summary, it can be said that the world and OECD have driven demand for the oilseed complex and, to a lesser extent, for oil and minerals, essentially extractive activities. However, it is only in the world market that the motor vehicle parts production chain has been strengthening since 1990. That is very important, since this is a group of activities whose consolidation shows that there is an incorporated learning, knowledge and innovation process that can be disseminated to other production chains which generate greater export value added.

There is another noteworthy finding. Non-natural resource-based manufactures, in the form of miscellaneous chemical products, appeared among the top 10 products exported by Argentina to OECD only in 2007. It may also be noted that, while the automotive chain became more dynamic in world demand, in OECD the demand for products from the meat and other foods complex was maintained, with market share progressively being ceded to the mining complex. This clearly demonstrates the growing importance of MERCOSUR, and Brazil in particular, for Argentina's trade structure. The 1990 Economic Complementarity Agreement No. 14 between Argentina and Brazil and specific agreements relating to the motor vehicle parts complex have had a direct effect in improving Argentina's trade.

What can also be observed in the top 10 categories of exports from Argentina to MERCOSUR is the high concentration of the trade pattern (see table 7). Concentration was lower in 1990, when these categories accounted for 46% of exports, but by 2010 they accounted for 59%. In addition, there was a radical shift in the products that predominated, from natural resources to non-natural resource-based manufactures.

Table 7
Argentina: top 10 product categories exported to the Southern Common Market (MERCOSUR), 1985–2010[a]
(Percentages)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1985	1990
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Vulnerable	16.34	8.77
Agriculture	48	Preparations of cereals and flour	Optimum	0.55	7.09
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Optimum	5.89	5.65
Agriculture	54	Fresh, chilled, frozen and preserved vegetables	Optimum	4.20	5.09
Energy	334	Petroleum products, refined	Missed opportunity	10.70	4.76
Natural resource-based manufactures	611	Leather	Missed opportunity	8.74	3.56
Non-natural resource-based manufactures	784	Motor vehicle parts and accessories	Vulnerable	3.74	3.15
Agriculture	44	Unmilled maize	Vulnerable	4.91	3.00
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Vulnerable	1.93	2.48
Agriculture	34	Fresh fish (alive or dead), chilled or frozen	Vulnerable	1.26	2.43
				58.25	46.00
Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1990	2000
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Optimum	8.77	11.95
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Vulnerable	1.03	8.97
Non-natural resource-based manufactures	781	Passenger vehicles	Optimum	1.12	8.85
Energy	334	Petroleum products, refined	Optimum	4.76	6.65
Non-natural resource-based manufactures	782	Motor vehicles for the transport of goods	Optimum	0.26	5.65
Non-natural resource-based manufactures	784	Motor vehicle parts and accessories	Missed opportunity	3.15	3.09

Table 7 (concluded)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1990	2000
Energy	341	Natural and artificial gas	Vulnerable	0.86	2.98
Agriculture	22	Milk and cream	Vulnerable	1.93	2.45
Agriculture	54	Fresh, chilled, frozen and preserved vegetables	Vulnerable	5.09	2.33
Non-natural resource-based manufactures	583	Polymerization and copolymerization products	Missed opportunity	2.19	2.10
				29.16	55.02
Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2000	2007
Non-natural resource-based manufactures	781	Passenger vehicles	Missed opportunity	8.85	14.78
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Retreat	11.95	9.93
Non-natural resource-based manufactures	782	Motor vehicles for the transport of goods	Retreat	5.65	6.73
Non-natural resource-based manufactures	784	Motor vehicle parts and accessories	Optimum	3.09	5.33
Non-natural resource-based manufactures	583	Polymerization and copolymerization products	Vulnerable	2.10	4.70
Energy	341	Natural and artificial gas	Missed opportunity	2.98	3.84
Non-natural resource-based manufactures	591	Disinfectants, insecticides, fungicides, herbicides	Optimum	0.88	2.44
Agriculture	54	Fresh, chilled, frozen and preserved vegetables	Vulnerable	2.33	2.18
Agriculture	48	Preparations of cereals and flour	Vulnerable	1.29	1.85
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Vulnerable	1.16	1.57
				40.28	53.35
Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2007	2010
Non-natural resource-based manufactures	781	Passenger vehicles	Optimum	14.78	23.52
Non-natural resource-based manufactures	782	Motor vehicles for the transport of goods	Optimum	6.73	9.95
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Retreat	9.93	5.92
Non-natural resource-based manufactures	784	Motor vehicle parts and accessories	Optimum	5.33	5.38
Non-natural resource-based manufactures	583	Polymerization and copolymerization products	Missed opportunity	4.70	3.73
Energy	341	Natural and artificial gas	Missed opportunity	3.84	2.41
Agriculture	54	Fresh, chilled, frozen and preserved vegetables	Missed opportunity	2.18	2.40
Agriculture	48	Preparations of cereals and flour	Optimum	1.85	2.24
Non-natural resource-based manufactures	591	Disinfectants, insecticides, fungicides, herbicides	Missed opportunity	2.44	1.85
Agriculture	57	Fruit and nuts (not including oil nuts), fresh or dried	Missed opportunity	1.57	1.70
				53.35	59.11

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

[a] Products are ranked by exports in the final year.

In the period 1985–1990, almost all exports were of agricultural products, accompanied by exports of energy (petroleum products, refined). Exports of non-natural resource-based manufactures began to appear in this period, in the form of motor vehicle parts and accessories.

The leading natural resources in this period were the cereal complex, the fruit and vegetable complex and the meat complex, although their importance progressively diminished. The share of the cereal complex fell from 19% to 8% and that of the fruit and vegetable complex from 11% to 4%, while the meat complex, which initially accounted for more than 5% of exports, dropped out of the top 10.

The motor vehicle parts and automotive complex was the leader among non-natural resource-based manufactures, with its share rising from 3% in 1990 to 17% in 2000. The share of this complex was 27% in 2007 and 39% in 2010, this increase being by far the largest change that occurred.

The chemical industry began to gain in importance in 1990 with polymerization products, plus disinfectants, insecticides, fungicides and herbicides since 2000. The first product category is associated with the automotive complex and the last with the oilseed complex.

It can be concluded that the top 10 categories exported to MERCOSUR ceased to be mostly natural resources and became non-natural resource-based manufactures, especially those belonging to the categories that make up the vehicle parts and automotive complex. Another point to note is that natural resource-based manufactures, in the form of leather, only appear among the top 10 in the first subperiod.

In exports to the developing countries of Asia, the concentration is even more radical (see table 8). In fact, the top 10 categories are responsible for almost all exports, accounting for 91% in 2010. This level of concentration is not seen for any other destination.

Table 8
Argentina: top 10 product categories exported to developing countries of Asia, 1985–2010[a]
(Percentages)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1985	1990
Agriculture	423	Fixed vegetable oils	Vulnerable	12.20	15.33
Non-natural resource-based manufactures	678	Iron and steel pipes and pipe fittings	Vulnerable	2.34	12.82
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Retreat	26.55	8.57
Non-natural resource-based manufactures	672	Ingots and other primary forms of iron and steel	Optimum	3.21	6.43
Non-natural resource-based manufactures	674	Universals, plates and sheets of iron or steel	Optimum	0.00	5.69
Natural resource-based manufactures	611	Leather	Optimum	4.23	5.24
Textile fibres, minerals and metals	263	Cotton	Optimum	1.58	4.92
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Vulnerable	2.52	3.26
Energy	334	Petroleum products, refined	Vulnerable	0.00	2.97
Non-natural resource-based manufactures	583	Polymerization and copolymerization products	Optimum	0.37	2.67
				52.99	67.90

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				1990	2000
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Optimum	2.55	32.55
Agriculture	423	Fixed vegetable oils	Vulnerable	15.33	16.40
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	1.72	14.04
Agriculture	44	Unmilled maize	Vulnerable	2.05	6.59
Natural resource-based manufactures	611	Leather	Optimum	5.24	6.59
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Vulnerable	0.34	3.25
Non-natural resource-based manufactures	678	Iron and steel pipes and pipe fittings	Retreat	12.82	2.55
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Missed opportunity	3.26	1.32
Non-natural resource-based manufactures	651	Textile fibre threads	Retreat	2.39	1.17
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Retreat	8.57	1.04
				54.26	85.51

Table 8 (concluded)

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2000	2007
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Optimum	32.55	34.63
Agriculture	423	Fixed vegetable oils	Optimum	16.40	22.18
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Vulnerable	14.04	13.61
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Optimum	4.77	5.78
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Missed opportunity	3.25	3.89
Natural resource-based manufactures	611	Leather	Vulnerable	6.59	3.46
Agriculture	44	Unmilled maize	Retreat	6.59	3.42
Agriculture	41	Wheat (including spelt) and meslin, unmilled	Vulnerable	1.04	2.22
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Vulnerable	1.32	1.91
Non-natural resource-based manufactures	678	Iron and steel pipes and pipe fittings	Missed opportunity	2.55	0.74
				89.11	91.84

Mandeng code	Product code	Product	Position on competitiveness matrix	Year	
				2007	2010
Agriculture	222	Oilseeds and oleaginous fruits, whole or broken, soft	Missed opportunity	34.63	33.13
Agriculture	423	Fixed vegetable oils	Missed opportunity	22.18	19.25
Agriculture	81	Feeding stuff for animals (not including unmilled cereals)	Missed opportunity	13.61	17.72
Energy	333	Petroleum oils, oils from bituminous minerals, crude	Retreat	5.78	4.39
Agriculture	44	Unmilled maize	Vulnerable	3.42	4.25
Natural resource-based manufactures	611	Leather	Vulnerable	3.46	3.95
Textile fibres, minerals and metals	287	Base metal ores and concentrates	Retreat	3.89	3.87
Agriculture	11	Meat and edible offal, fresh, chilled or frozen	Optimum	1.91	2.84
Agriculture	121	Raw tobacco and tobacco waste	Optimum	0.39	0.83
Non-natural resource-based manufactures	541	Medicinal and pharmaceutical products	Missed opportunity	0.41	0.58
				89.69	90.81

Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database; and O. J. Mandeng, "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2, 1993.

[a] Products are ranked by exports in the final year.

The top 10 categories changed substantially during the period under review. The non-natural resource-based manufactures categories were the most important to begin with, accounting for almost 28% of exports, followed by the agriculture categories, which accounted for approximately 27%. In the following decade, however, the agriculture categories came to account for nearly three quarters of exports and non-natural resource-based manufactures for only 3.72%. The relationship between agriculture and non-natural resource-based manufactures remained the same in the following subperiods, although the gap widened, as they came to represent 78% and 1% of exports, respectively.

It can also be seen that the top 10 categories were more diversified between 1985 and 1990 than in the other periods. By way of example, three production complexes were preeminent up to 1990: iron and steel (non-natural resource-based manufactures), oilseeds (agriculture) and meat and leather (agriculture and natural resource-based manufactures). However, from 1990 to 2000 the share of the oilseed complex increased and left little room for other categories. In fact, this complex accounted for 63% of exports in 2007 and 70% in 2010, with no sign of the situation being reversed.

Although there are two well-defined stages in the structure of exports of the top 10 product categories to the developing countries of Asia, with a turning point in 1990, some peculiarities can be observed in the composition of the categories of textile fibres, minerals and metals, energy and natural resource-based manufactures. Thus, in the case of the first category, exports of cotton (an input for the textile industry) gave way to exports of base metal ores and concentrates (mainly an input for the construction industry). Energy exports shifted from refined petroleum products to crude petroleum oils and crude oils from bituminous minerals. The leather industry is the only category of natural resource-based manufactures to rank in the top 10 throughout the years analysed.

Among the more sophisticated manufactured product categories, the iron and steel complex predominated up to 1990, represented by the iron and steel pipes and pipe fittings group, together with a category that contributes to the motor vehicle parts complex: polymerization and copolymerization products. The first group held its own in the 1990s but declined sharply from 1990 to 2000, with its share coming to be less than a quarter of what it had in the previous period, and it fell out of the ranking in the last period.

It should be noted that the production and export of iron and steel pipes are carried out by one of the leading Argentine firms with an international dimension, the Techint business group.[12] In 1990, exports of iron and steel tubes accounted for almost 13% of the country's exports. The abrupt decline in the share of this category is very important for our analysis, as it shows the missed opportunity for Argentina to maintain a strategic position in the Asian market. On the other hand, the appearance of the medicinal and pharmaceutical products category among the top 10 from 2007 shows the rise of the more sophisticated chemical industry.

When the comparison is made with exports to other destinations, oilseed complex exports to developing countries of Asia are found to have grown extremely rapidly from 1990 to 2000, something that was not seen for the other destinations. This growth was maintained until the last year analysed: in 2010, this complex represented 70% of exports to the developing countries of Asia and around 28% of exports to the world and OECD. Remarkably, it was not even among the top 10 product groups exported to MERCOSUR. Lastly, while the non-natural resource-based manufactures categories began to appear among the top 10 products exported to OECD only in 2007, until 1990 they featured much more prominently in the composition of exports to the developing countries of Asia.

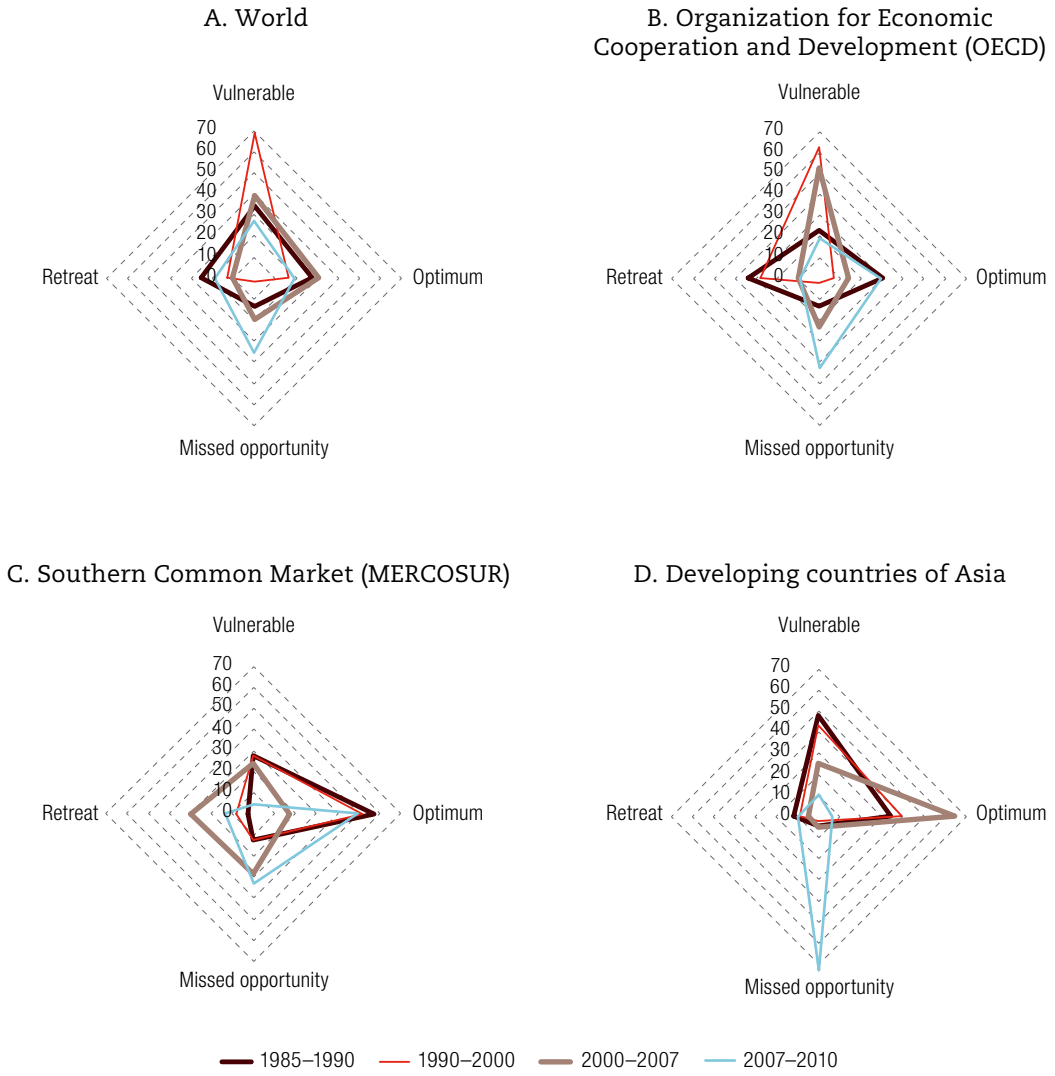
4. The Argentine competitiveness matrix

In the Argentine competitiveness matrix, as has been seen, the evolution of the country's trade pattern is related to the evolution of markets, so that radials can be used for each subperiod of analysis to visualize how exports are composed in terms of the fourfold classification, namely: optimum situation, situation of vulnerability, situation of missed opportunities and situation of retreat (see figure 2). The main results are as follows.

In exports to the world, the fact that the highest values are for groups that are vulnerable and in retreat shows that Argentina's export profile is dominated by groups for which demand is decreasing, i.e. a large proportion of exports (59%, 82%, 50% and 45% in each period, respectively) are from undynamic groups. Of the periods analysed, the worst was 1990–2000, when almost 70% of the country's exports were in vulnerable groups.

[12] See Castro (2011) for a historical analysis of the constitution, corporate organization and early internationalization of this multinational group.

Figure 2
Argentina: competitiveness matrix, by destination, 1985–2010
(Percentages)[a]



Source: Prepared by the authors, on the basis of Economic Commission for Latin America and the Caribbean (ECLAC), TradeCAN database.

[a] The percentages are for exports in the final year.

There was also an improvement from 1990–2000 to 2000–2007, when the share of exports in an optimum situation increased and the share of exports in a situation of vulnerability and retreat decreased. However, the increase in exports in a situation of missed opportunities shows that the country could have gained ground in some markets that were becoming more dynamic, but did not. This process is even more evident in the period 2007–2010, as exports in that situation amounted to more than a third of the total. Despite this, it is the only period in which dynamic exports exceeded undynamic ones.

The situation with exports to OECD was very bad, since they were concentrated in sectors where demand was decreasing, i.e. groups in a situation of vulnerability or retreat (56%, 90%, 63% and 28% in each period, respectively). And although dynamic exports gained significant ground in the period 1985–1990 and their share reached 43%, these exports became more important in the period 2007–2010, when they accounted for almost three quarters of the total.

The exports of vulnerable groups to OECD were very high in 1990 (63%) and in 2000, when they represented more than 50% of the total. This characterization is directly linked to the structure of exports to that market, with almost 75% being commodities (manufactured or otherwise).

The competitiveness matrix as it relates to OECD shows a radical shift from 2007 to 2010. In particular, exports in a missed opportunities situation accounted for almost 43% of the total and those in an optimum situation for 29%. However, this transformation in the matrix format did not derive from substantial changes in Argentina's export pattern, but from the fact that demand for commodities and food became dynamic in that subperiod. This is another example of OECD demand for natural resource-related goods not showing a declining trend. The worse results for OECD as a destination were also observed in the 1990s, highlighting the fragility of Argentina's international positioning during the Convertibility Plan.

With regard to MERCOSUR, the competitiveness matrix shows that about 50% of exports were in an optimum situation for most of the period under review, while almost three quarters were in dynamic groups (with a higher share for these groups from 2007 to 2010). The exception to the above is the subperiod 2000–2007, when exports in an optimum situation were just 17% of the total and dynamic ones 46%.

It is very likely that the sharp increase in MERCOSUR demand for non-natural resource-based manufactures between 2000 and 2007 was not absorbed by Argentina's supply, owing to the large increase in exports in a missed opportunities situation, which rose from 12% in 1990 to almost 29% in 2007. This reveals the difficulties the country experienced in adapting its industrial structure and exportable supply to growing demand from the world and MERCOSUR at the beginning of the twenty-first century. After a decade which was highly destructive of the country's industrial fabric, and in which almost all exports were in vulnerable groups, there was little in the way of production capacity to meet domestic and international demand. In that period, competitor countries gained ground in MERCOSUR at Argentina's expense. Brazil improved its position vis-à-vis Argentina, and China has been the main rival of both countries since 2000 (Fernández, 2014, p. 77).

Lastly, where the developing countries of Asia are concerned, the competitiveness matrix is characterized by large shares for exports in groups in which Argentina is competitive. Export composition remained almost identical in the first two periods analysed, when vulnerable groups outstripped those in an optimum situation, with the two groups together accounting for more than 80% of exports. Over 90% of Argentine exports were in these groups in 2000–2007, although the order was reversed. However, the subperiod 2007–2010 was characterized by a strong expansion of exports in a missed opportunities situation, offsetting a large reduction in exports in an optimum situation. Undynamic groups (vulnerable and retreat) were predominant until 2000, although they remained on a declining trend and ended up representing just 18% of exports by 2010.

IV. Final reflections

This article used Fajnzylber and Mandeng's competitiveness matrix to analyse the evolution of Argentina's export pattern from 1985 to 2010 and highlighted the importance of natural resources in the region's historical data. The markets analysed were the world, OECD, MERCOSUR and the developing countries of Asia.

The study concluded that the composition of world and OECD demand remained virtually unchanged. Indeed, it is remarkable that the OECD share should have declined without the similarities between import structures disappearing. The data are telling. OECD imports accounted for 83% of world imports in 1985 and more than 64% even 25 years later. In other words, world demand was and continues to be strongly driven by demand from industrialized countries, which is why Fajnzylber and Mandeng analysed OECD demand exclusively.

However, the developing countries of Asia have gained ground in the world as importers: they absorbed part of the OECD reduction and their share had more than doubled to 25% of world imports by 2010 (Fernández, 2014). This had not been suggested by those authors.

In this respect, it is remarkable that, although the demand structure of OECD and the developing countries of Asia has increasingly favoured non-natural resource-based manufactures since 1985, the structure of Argentine exports to these markets has not evolved in that direction. Paradoxically, the influence of the developing countries of Asia appears to have reinforced the shift towards commodities in Argentina's export pattern. And whereas until 1990 almost half of Argentina's exports to these countries consisted of high value added manufactured products, that position was not consolidated in the decades following the comprehensive implementation of the Washington Consensus and Convertibility Plan.

The opposite happened with exports to MERCOSUR. There was a clear and pronounced reduction in the share of natural resources and energy in the demand structure of that market. The same structural shift occurred in the matrix of exports to it: non-natural resource-based manufactures became very important. In other words, MERCOSUR demand for higher value added products has had a direct and positive impact on Argentine exports.

Although Argentina's international trade position has traditionally been tied to demand for natural resources and food in industrialized countries (where decreasing demand was observed by Fajnzylber in 1991), it could be said that today it is developing countries that are playing a determining role in reconfiguring international trade and hence Argentina's export pattern. The data show that demand from the developing countries of Asia accentuated the shift towards commodities in Argentina's international trade, and that demand from OECD was not conducive to the industrial development of the country's economy. Conversely, MERCOSUR was crucial in improving Argentina's trade pattern.

Bibliography

Balassa, B. (1965), "Trade liberalization and 'revealed' comparative advantage", *The Manchester School*, vol. 33, No. 2, Wiley.

Bielschowsky, R. (2016), "Fifty years of ECLAC thought: a review", *ECLAC Thinking: Selected Texts (1948–1998)* (LC/G.2699), Santiago, Fondo de Cultura Económica/Economic Commission for Latin America and the Caribbean (ECLAC).

Castro, C. (2011), "Cooperación, internacionalización temprana y organización empresarial en América Latina: el caso de la Organización Techint", *Investigaciones de Historia Económica*, vol. 7, No. 2, Madrid, Spanish Association of Economic History (AEHE).

Fajnzylber, F. (1991), "International insertion and institutional renewal", *CEPAL Review*, No. 44 (LC/G.1667-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

___(1988), "International competitiveness: agreed goal, hard task", *CEPAL Review*, No. 36 (LC/G.1537-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).

___(1983), *La industrialización trunca de América Latina*, Mexico City, Editorial Nueva Imagen.

Fernández, V. (2014), "A inserção externa da Argentina: um estudo sobre a relevância dos recursos naturais no padrão de exportações, a competitividade e o comércio intra-industrial, no período de 1985 a 2010", thesis, Curitiba, Federal University of Paraná.

Ferrer, A. (1973), *La economía argentina: las etapas de su desarrollo y problemas actuales*, Mexico City, Fondo de Cultura Económica.

Furtado, C. (1964), *Development and Underdevelopment*, Berkeley, University of California Press.

___(1962), *Formação econômica do Brasil*, Rio de Janeiro, Editora Fundo de Cultura.

Latin American Perspectives (2015), vol. 42–6, No. 205 [online] http://latinamericanperspectives.com/2015/11/.

Magee, S. (ed.) (1975), "Prices, incomes, and foreign trade", *International Trade and Finance. Frontiers for Research*, P. B. Kenen (comp.), New York, Massachusetts, Cambridge University Press.

Mandeng, O. J. (1993), "Análisis de competitividad: Argentina. Estudio de caso basado en el programa computacional CAN", *Indicadores Econômicos FEE*, vol. 21, No. 2.

___(1991a), “International competitiveness and specialization”, *CEPAL Review*, No. 45 (LC/G.4687-P), Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
___(1991b), “Metodología para un análisis de la competitividad internacional de los países”, *Industrialización y Desarrollo Tecnológico*, vol. 10, Santiago, Economic Commission for Latin America and the Caribbean (ECLAC).
Pinto, A. (1960), “Estabilidad y desarrollo: ¿metas incompatibles o complementarias?”, *El Trimestre Económico*, vol. 27, No. 106(2), Mexico City, Fondo de Cultura Económica.
Prebisch, R. (1951), *Theoretical and practical problems of economic growth* (E/CN.12/221), New York, United Nations.
___(1950), *The economic development of Latin America and its principal problems* (E/CN.12/89/Rev.1), New York, United Nations.