

The Argentine automotive chain since the convertibility crisis: an analysis of its evolution and principal problems (2002–2019)

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Abstract

The aim of this article is to analyse the main characteristics of the Argentine automotive sector and its performance during the first part of the twenty-first century. The article begins by describing the essential aspects of the links in the chain. It then provides a brief historical overview of the Argentine automobile industry from its beginnings until the convertibility crisis of late 2001. Lastly, it analyses the evolution of the sector in the subsequent stages, those of post-convertibility (2002–2015) and the Cambiemos government (2015–2019). This review is based on the specialist literature and different statistical sources. The article ends with a reflection on the structural difficulties faced by the Argentine automobile industry and the way these manifested themselves during the stages analysed.

Keywords

Automobile industry, industrial development, history, industrial production, value, industrial policy, employment, international trade, trade policy, Argentina

JEL classification

L62, O14, N16

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I. Introduction

Argentina is among the world's 50 vehicle producing countries and one of the three largest manufacturers in Latin America. The automotive sector is one of the most important within the country's economic and social structure because of its contributions to industrial employment, gross production value and total exports, among others. After the crisis of the convertibility regime, the automotive branch led the country's industrial growth with strong increases in employment, production, exports and productivity (Barletta, Katashi and Yoguel, 2013). Despite this encouraging performance, however, difficulties were encountered in the integration of production linkages, something that was manifested in large trade deficits, owing to growing imports of auto parts (Cantarella, Katz and Monzón, 2017).¹ Following the change of government in 2016, Argentina experienced a shift towards trade opening and economic liberalization, which led to the contraction of its domestic market. In the automotive sector, these policies, coupled with the crisis in Brazil, had a negative impact on the industry, pushing up trade deficits and leading to a large drop in production between 2018 and 2019.

However, the vicissitudes and problems faced by the Argentine automotive complex in recent decades have not been due to local or short-term difficulties alone. The sector suffers from the dilemmas characteristic of manufacturing in a semi-peripheral country organized under the auspices of global value chains. Certain limitations shared by these countries can be highlighted, including: (i) total foreign control of the final vehicle manufacturing branch (dominated globally by a handful of multinational companies); (ii) specialization in the lower value added activities of the chain; (iii) dependence on foreign technology; and (iv) difficulty for local auto parts companies in competing internationally. This situation is also compounded by the rapid technological and production transition that the sector is undergoing globally because of the digitalization, electrification and automation of vehicles.

However, one special feature of the Argentine automotive complex is particularly salient: the relative size of its trade deficit. This is manifested, first, in the size of the sectoral deficit between 2002 and 2019, which amounted to some 60% of the trade surplus for the entire national economy in the period. Second, this difficulty is particularly serious because it aggravates a characteristic problem of Latin American economic structures, and that of Argentina in particular: the external constraint due to lack of foreign currency. This constraint, which has been studied in numerous papers, is the pressure on the demand for foreign exchange in an economy with an unbalanced production structure at times of economic and industrial growth due to the increase in imports of capital goods and intermediate inputs required to sustain the growth process.² This problem has been central throughout Argentina's economic history and represents one of the main obstacles to economic development.

In consideration of this, the present paper sets out to analyse the evolution of the Argentine automotive value chain over the last few decades. It begins by describing the main characteristics of the country's automotive sector. It then draws on the specialist literature to summarize the history of the Argentine automobile industry from its beginnings until the early twenty-first century (1920–2002). Next, it

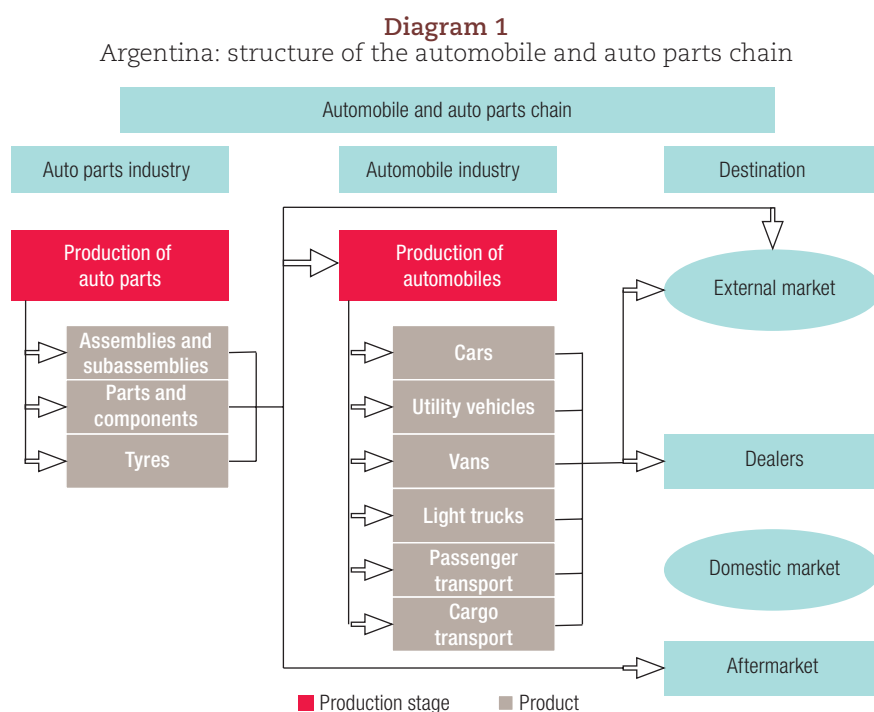
¹ This comes on top of the trade deficit in the passenger vehicle segment.

² This has historically been a constraint on development in Argentina, since activity levels and economic growth rates have been restricted by the availability of foreign currency (Wainer and Schorr, 2014). In other words, during stages of industrial growth, "bottlenecks" in the availability of foreign currency arise, making it difficult to transform the sector and develop more complex production processes. The first time the country's external sector experienced such bottlenecks was in the 1930s, when they manifested themselves at different points in the import substitution model. The extensive and, above all, the intensive growth of industry depended on imports of capital goods and intermediate inputs. However, the foreign exchange needed to finance these imports came primarily from the exports of the agricultural and livestock sector, whose supply, especially in the case of agriculture, was virtually stagnant. On a theoretical level, the problems of external constraint were addressed in Latin America by the structuralist and dependency schools towards the middle of the last century. Among the first studies to relate this issue to the erratic behaviour of the Argentine economy were the foundational works of Braun and Joy (1968) and Diamand (1973). Years later, Thirlwall (1979) formalized the problem by arguing that the growth rate required for full employment was higher than that compatible with external equilibrium.

analyses the main policies implemented and the economic performance of the automobile industry during the post-convertibility period (2002–2015) and the period of the Cambiemos government (2015–2019). These reviews are based on different statistical sources, such as the UN Comtrade Database, the National Institute of Statistics and Census (INDEC), the Centre for Production Studies (CEP XXI), the Association of Automotive Dealers of the Argentine Republic (ACARA), the Motor Vehicle Manufacturers Association (ADEFA), the Association of Argentine Component Manufacturers (AFAC) and the General Directorate of Customs, among others. This article ends with some reflections on the structural difficulties of the Argentine automotive sector and the way these manifested themselves during the stages studied.

II. The production structure of the Argentine automotive sector

In the automobile industry, as in any production process, different stages of work take place before a motor vehicle is manufactured and marketed. In most cases, the production stages consist of casting, pressing (production of metal sheets), production of the structure or bodywork (joining the sheet metal components to the bodywork structure), painting, assembly and fitting, quality control and marketing (see diagram 1). Thus, in general terms, the automobile and auto parts chain is structured into four main links: (i) suppliers of generic inputs, (ii) suppliers of auto parts, (iii) automobile manufacturers and (iv) dealers.



Source: Prepared by the author, on the basis of Ministry of Treasury and Public Finance, "Automotriz y autopartista", *Informes de Cadenas de Valor*, No. 4, 2016, July.

1. The first link in the automotive value chain: suppliers of generic inputs

The first link consists of a group of firms supplying generic inputs: steel, aluminium, plastics and petrochemicals, glass and rubber, among others (Ministry of Treasury and Public Finance, 2016). These are generally basic heavy industries that typically need to maintain very large scales of production to operate efficiently and are therefore highly concentrated. This is the case with steel (Tenaris, Ternium and Acindar), aluminium (Aluar) and the plastics and petrochemicals sector (Perez Almansi, 2020).

2. The second link in the automotive value chain: the auto parts industry

The second link is made up of auto parts firms whose function is to process the generic inputs and produce parts, components and systems. They make a wide range of products, which can be classified into: (i) generic components (e.g. nuts and bolts); (ii) non-mechanical parts (glass, trim, silencers, seats, fuel tanks and radiators); (iii) miscellaneous components (seat belts, mirrors, upholstery, wheels, tyres and inner tubes, among others); (iv) electromechanical systems and components (e.g. shock absorber systems, ignition systems, steering and suspension systems, braking systems, electrical system, carburettors, clutches, injection pumps, etc.); and (v) core technologies (engines and engine parts, transmission systems and gearboxes) (Ministry of Treasury and Public Finance, 2016).

According to data from the Ministry of Labour, Employment and Social Security, more than 1,200 companies belonged to the auto parts sector in 2016.³ Moreover, this is the link in the automotive sector that employs the most workers, with 54,625 registered jobs in 2013. The composition of this branch is very heterogeneous. If it is classified on the basis of size (by employee numbers), there are companies with between 25 and 1,500 employees. Another aspect that distinguishes them from one another is the market they work for, e.g. for vehicle producers, suppliers to these or the aftermarket. Any of the three types can also generate some export business, with multiple combinations. Another way to differentiate within this link is by whether companies are domestically or foreign-owned.⁴ There are also substantial differences in materials, which means that there are different production processes involving different auto parts companies (e.g. glass and plastics).⁵ All these factors make the composition of the sector quite complex and heterogeneous (see diagram 2).

At the same time, auto parts companies have organized internationally into production rings distinguished primarily by their degree of linkage with vehicle manufacturers and the level of technological sophistication of their products. The first ring is made up of the suppliers from which carmakers source directly, which are the producers of complete systems, also known as module suppliers or megasuppliers.⁶ These firms have world-class engineering and manufacturing processes, with modular production and design capabilities. They also have a high level of technological sophistication that meets the requirements and demands of the major automotive multinationals. They are responsible for the development of engine parts and steering and suspension systems (Barletta, Katashi and Yoguel, 2013).

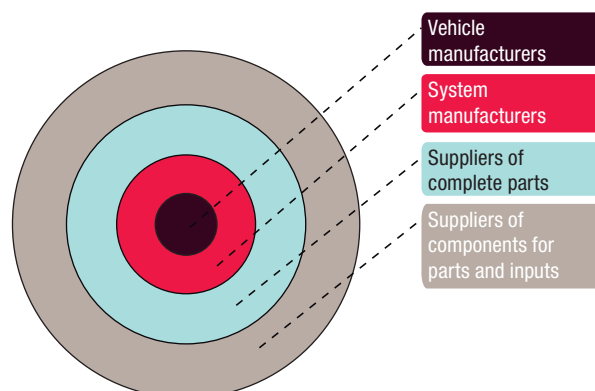
³ According to the Association of Argentine Component Manufacturers (AFAC), however, there were actually about 400 in 2016. AFAC argues that the Ministry of Labour's databases include many repair shops and that its own figures are the correct ones.

⁴ There are a few cases of mixed ownership (J. Cantarella, General Manager of AFAC, personal interview, 10 October 2017).

⁵ Lastly, different trade unions are also present in these firms. The largest is the Metalworkers Union (UOM), followed by the Union of Automotive Transport Mechanics and Allied Workers (SMATA) and then the Union of Plastic Workers and Employees (UOYEP). There are also glass, chemicals, rubber and even textiles unions (J. Cantarella, General Manager of AFAC, personal interview, 10 October 2017).

⁶ These have the closest relationship with the vehicle manufacturers, so that they are sometimes said to form "ring 0.5" (Arza and Lopez, 2008).

Diagram 2
Rings of auto parts companies



Source: Prepared by the authors, on the basis of T. J. Sturgeon and J. V. Biesebroeck, "Global value chains in the automotive industry: an enhanced role for developing countries?", *International Journal of Technological Learning, Innovation and Development*, vol. 4, No. 1–3, August, 2011 [online] <https://doi.org/10.1504/IJTLID.2011.041904>.

These auto parts companies in the first ring are the ones that deal with the second ring, which includes the suppliers of complete parts, i.e. specialized components for the assembly of the most advanced modules and systems. The products they make include forged or stamped parts, aluminium injection-moulded parts, cast parts and plastic parts (Ministry of Treasury and Public Finance, 2016). In the third ring are firms that produce more standardized and less technologically complex parts and components. These include spark plugs, forks, connecting rods, bearings, gaskets, washers, disc or drum brakes and air filters. These companies sell their products mainly to those in the second ring, but they can also sell to vehicle manufacturers to continue with the manufacturing process (Castaño, 2012).⁷ In 2013, the main auto parts companies with operations in Argentina were Mirgor, SKF, Metalsa, Pabsa, Faurecia, MAHLE, Denso, Visteon, Fric-Rot, Gestamp, Industrias Lear, Famar Fuegoína, Cibie and ZF Sachs. Of these, only Mirgor and Famar Fuegoína are of Argentine origin and the rest are foreign-owned (see annex table A1.1).

3. The third link in the automotive value chain: vehicle manufacturers

The third link comprises the vehicle manufacturers, which assemble and finish motor vehicles. These firms produce cars, vans and utility vehicles, trucks and buses. It is a concentrated market, made up of 11 multinational companies located mostly in the provinces of Buenos Aires and Córdoba. They are Ford, General Motors, Mercedes-Benz, Volkswagen, Fiat, Peugeot, Renault, Toyota, Iveco, Scania, Honda and Nissan (see annex table A1.2).⁸ They employed about 27,000 workers between them in 2013, representing 32% of total employment in the industry (Barletta, Katashi and Yogueuel, 2013).

⁷ There is also the aftermarket, which in 2013 was made up of 453 auto parts manufacturers employing 21,100 people. This is a highly fragmented market, essentially made up of small firms (251 firms employ between 10 and 49 workers) (Barletta, Katashi and Yogueuel, 2013).

⁸ Honda started vehicle production in 2011 but discontinued it in 2020 except for motorbikes. Nissan joined the other car manufacturers in Argentina in 2018. Scania, although a vehicle manufacturer, operates in Argentina as a producer of transmission components (see annex table A1.2).

4. The fourth link in the automotive value chain: dealers

Lastly, marketing and repair services are provided by the 233 official dealerships, which had 17,500 employees as of 2013 (20% of all employees in the sector). They have been taking on a new technical role in sales and repair services, which have become increasingly important because of the type of models produced since the 1990s. Another stage in the marketing process is carried out by unofficial dealerships which, according to statistics from the Employment and Business Dynamics Observatory (OEDE), numbered 62 and employed 3,100 workers as of 2009 (Barletta, Katashi and Yoguel, 2013).

III. A brief history of the Argentine automobile industry (1920–2002)

In 1922, Ford inaugurated the first vehicle assembly plant in Argentina (Belini, 2006, p. 110) to supply a small domestic market that was beginning to develop around commodity export activities (Schvarzer, 1996). That year marks the beginning of the automobile industry in Argentina. Production grew strongly during the period of import substitution industrialization. However, some basic features of the complex, such as its relative technological backwardness and its negative foreign-exchange balance, remained unchanged. According to classic studies of the sector, this problem was due essentially to foreign ownership and the small scale of local production (Sourrouille, 1980; Nofal, 1989; Katz and Kosacoff, 1989).⁹

As for the local auto parts industry, its development during this period was marked by other processes, such as its segmented growth¹⁰ (Bil, 2017) and its heavy dependence on and subordination to the vehicle manufacturers. What this meant, especially for Argentine firms, was the imposition of specific production processes and strict price and quality controls (Sourrouille, 1980). Most of the specialized literature endorses this idea, and it was studied in depth during the stages that followed the import substitution industrialization phase. It has been concluded that this relationship became increasingly rigid and hierarchical, with a predominance of commercial or rent-seeking logics in the regional market (Novick and others, 2002), and with fewer and fewer positive effects on the local economy and employment (Santarcangelo and Pinazo, 2009).

The 1970s saw the beginning of a profound international restructuring of the sector that greatly accelerated the global integration of production. Part of this was a shift from mass production of undifferentiated goods to a slower-growing, differentiated form of production. So began the era of competition on quality, bespoke products and batch production. This gave rise to the need for flexible manufacturing lines able to produce different products using the same basic equipment configuration, without major reorganization and with short set-up times (Coriat, 2000). These changes were accompanied by technological innovations following the appearance of the microchip in 1971 and then of computers and information and communications technologies (ICTs). The changes described were further reinforced by these scientific and technical advances, allowing high levels of immediate control of production and higher degrees of industrial automation. This series of changes marked the transition from “Fordism” to “Toyotism”, also known as flexible production. As far as the global automobile industry is concerned, the new situation consolidated Japan as one of the major automotive producers (Boyer and Freyssenet, 2002; Coriat, 2000).

⁹ However, a number of studies argue that these limitations were a consequence of the late development of Argentine capitalism by international standards, with this feature determining the future trajectory of the automotive sector and making it impossible for it to develop through the public policies of a capitalist State (Harari, 2014; Bil, 2016 and 2017).

¹⁰ Larger firms supplied vehicle manufacturers and smaller ones the aftermarket (Bil, 2016).

As part of the changes resulting from the restructuring of global capitalism in the late twentieth century, there were other alterations in the organization of production whose primary purpose was to boost competitiveness by reducing costs and increasing variety (Gereffi and others, 2001; Gereffi, Humphrey and Sturgeon, 2005). At the heart of these changes were the decisions taken by certain multinational companies to transfer some parts of the production process, usually the least profitable and sophisticated ones, to other firms (outsourcing) and to other countries (offshoring), most of them on the periphery. Thus, companies outsourced generic or low-value production processes that centred on volume and the price-competitiveness ratio, but retained for themselves the segments that added the most value (essential or core activities) (Porta, Santarcangelo and Scheingart, 2017). This led to greater interdependence in international trade networks, since a large part of the value of exports came to contain value imported from more than one origin. This meant that such exports may pass through more than one destination before reaching final consumers, thereby forming so-called global value chains (Gereffi and others, 2001).

From 1990 onward, on the basis of this new organization, vehicle manufacturers started to transfer various activities to their suppliers. However, this process did not entail complete outsourcing, as close links were forged between the vehicle manufacturers and system suppliers, with the latter taking on an increasingly important role in the entire production process (Arza and López, 2008; Castaño, 2012).

At the same time, despite the global reorganization of production, the automobile industry did not fully constitute itself as a global value chain, but relied on regional hubs. This is explained by a number of factors: (i) the fact that vehicle manufacturers interact with other agents in the regions where they produce and sell, both “upstream” (e.g. suppliers) and “downstream” (e.g. key distributors and financing, maintenance and repair services), leading to regionalization of operations because of issues of both physical proximity (important essentially in the case of suppliers) and market capture (well-established distribution, financing and after-sales networks are vital); (ii) cultural barriers; (iii) the fact that economies of scale in production are usually achieved at the regional level; (iv) environmental, safety and other regulations; (v) the use of specific fuels; and (vi) the fact that the level of tariff protection is often determined at the regional level (Rugman and Collinson, 2004).

In South America, this form of regional integration in the sector was expressed in the Common Automotive Policy (PAC) between Argentina and Brazil. The origins of the PAC date back to 1988, when the two countries established the twenty-first Protocol on the regulation of trade flows in the automotive complex within the framework of the Economic Integration and Cooperation Programme (PICE) approved in December 1986 (Vispo, 1999). However, it was not until 1991 that the Protocol entered into force, after being amended several times and included in Economic Complementarity Agreement (ACE) No. 14, which was concluded under the auspices of the Latin American Integration Association (LAIA). The stipulations of most importance for the automotive chain were national treatment for vehicles and auto parts from each country in the other's market, the removal of para-tariff barriers in bilateral trade, and tariff-free bilateral trade for a certain quota of vehicles and for auto parts, with the quota not to exceed 15% of FOB exports of vehicles from each country, and on condition that the local content requirements of each country were met, among others (Dulcich, Otero and Canzian, 2020). This agreement still did not provide for joint regulation of out-of-area trade, and the national regimes in place in each country retained a major role (Gárriz and Panigo, 2016).

The local industry was severely affected during the convertibility period (1990–2001), and the deindustrialization trend that had started in the mid-1970s was consolidated (Azpiazu, Basualdo and Schorr, 2001; Schvarzer, 1996). However, vehicle manufacturers in the automotive sector were not harmed by the structural reforms of that decade, as they benefited from a new “automotive regime”, comprising a series of decrees issued between 1990 and 1992. The structure of this regime was negotiated under the auspices of the Coordinating Commission for the Restructuring of the Automobile Industry, created by the Menem government in 1990 (Etchemendy, 2001). The main features of the regime were:

(i) a wage agreement between employers and trade unions aimed at moderating wages and keeping down vehicle prices; (ii) a commitment by companies to investing to bridge the technological gap with international markets; (iii) a tariff barrier of 30% (when the average tariff for the whole economy after the trade reform was around 10%) combined with the option for vehicle manufacturers to import units at a tariff of only 2%; and (iv) import quotas with a rate of 10% of annual local production for commercial vehicles (Villalón, 1999; Etchemendy, 2001). In turn, foreign vehicle manufacturers were favoured by the 1993 Foreign Investment Act (No. 21.382), which did not set conditions on profit remittances, specific taxation or capital repatriation (Kosacoff and Porta, 1997).

As a consequence of these measures, and of economic policy as a whole, there was substantial concentration and internationalization of the auto parts industry in the automotive sector (Kosacoff, 1999). This marked a process of disintegration in the automobile industry that profoundly affected certain forms of production (auto parts and some metallurgical activities, among others) and certain firms (especially small and medium-sized ones), in both productive and employment terms (Azpiazu, Basualdo and Schorr, 2001; Perez Almansi, 2021).

After the 1998 South-East Asian crisis and the 1999 devaluation of Brazil's currency, Argentina began to find it difficult to obtain external financing. With the potential for privatizations exhausted, the rigid convertibility regime ran up against its limitations, leading to an acute economic crisis in late 2001. This crisis resulted in GDP falling by some 25% in three years and unemployment and poverty levels rising to around 25% and 50%, respectively, culminating in the fall of the government of the Alliance for Work, Justice and Education. This was a turning point in Argentina's economic history, as it ushered in a new post-convertibility phase¹¹ spanning the governments of Eduardo Duhalde, Néstor Kirchner and both of Cristina Fernández de Kirchner's terms in office.

The following section therefore analyses the performance of the Argentine automobile industry during the post-convertibility period (2002–2015), taking into account the historical and structural problems that afflicted it and changes at the global, regional and local levels. In addition, special attention is paid to relative developments in the different sectors of the industry.

IV. The performance of the automobile industry during the post-convertibility period (2002–2015)

1. Emergence from the crisis and a period of expansion

In the automotive sector, despite the expansionary effect of the regional agreements of the 1990s, there were large declines in vehicle production, exports and domestic sales in the last years of the period in the context of the economic recession. As a result of this situation, at the Florianópolis Summit of December 2000, the member countries of the Southern Common Market (MERCOSUR) approved the Agreement on the Common Automotive Policy of MERCOSUR (PAM), whose objective was to lay the foundations for free trade in automotive goods within the bloc. This treaty set the tariff on vehicles

¹¹ There is something of a consensus that the 2001–2002 crisis marked a real change of direction (Schorr, 2013). At the same time, various analyses distinguish two distinct phases in the post-convertibility stage (Perez Almansi, 2019). However, studies differ on the causes and timing of the shift. For example, Fanelli (2015) and Damill and Frenkel (2013) argue that the change occurred in 2007, following the implementation of “short-termist” economic policies. The Research Centre for Argentine Development (CENDA, 2010) places the break in 2008, attributing it to the rise in international commodity prices. According to Basualdo (2011), the change of phase occurred in 2008, following the government's confrontation with agricultural organizations. For Schorr and Castells (2015), it took place between 2007 and 2008 when the interests of the workers and the industrial bourgeoisie ceased to be complementary. Despite these disagreements, though, analysts concur in dividing this stage into two phases. Broadly speaking, the first was one of higher economic and industrial growth with a relatively weak and competitive exchange rate, and the second was characterized by lower growth rates and a tendency for the exchange rate to appreciate.

produced outside MERCOSUR at 35% and established a proportional limit on tariff-free sectoral trade between Argentina and Brazil, known as the flex.¹² The provisions of the agreement were very important for the industry and shaped the dynamics of foreign trade in the automotive sector with Brazil in the following years (Gárriz and Panigo, 2016).

After the 2001–2002 crisis and the departure of the Alliance government, there was a succession of presidents until Eduardo Duhalde, of the Justicialist Party, consolidated his position at the head of the national executive branch. He adopted a number of policies driven by criticisms of the convertibility model and a quest for economic revival based on a “competitive and stable real exchange rate” and a stable macroeconomic framework (Ortiz and Schorr, 2007).

In 2002, the Duhalde government and the Brazilian government concluded the thirty-first Additional Protocol to the ACE between Argentina and Brazil. This instrument set a new value for the flex. The margin of permitted imports was raised aggressively from 1.1 to a value of 2.6 in 2005, with free trade scheduled for 2006. Furthermore, local content standards for vehicles were relaxed. Even though this regime required 35% Argentine local content, Cantarella, Katz and Monzón (2017) argue that it was difficult to implement and never enforced, and that it was strongly opposed by vehicle manufacturers. This situation implied a “death foretold” for vehicle local content requirements. Also in 2002, the MERCOSUR automotive trade agreement with Chile (ACE 35) was amended and a new one was signed with Mexico (ACE 55).

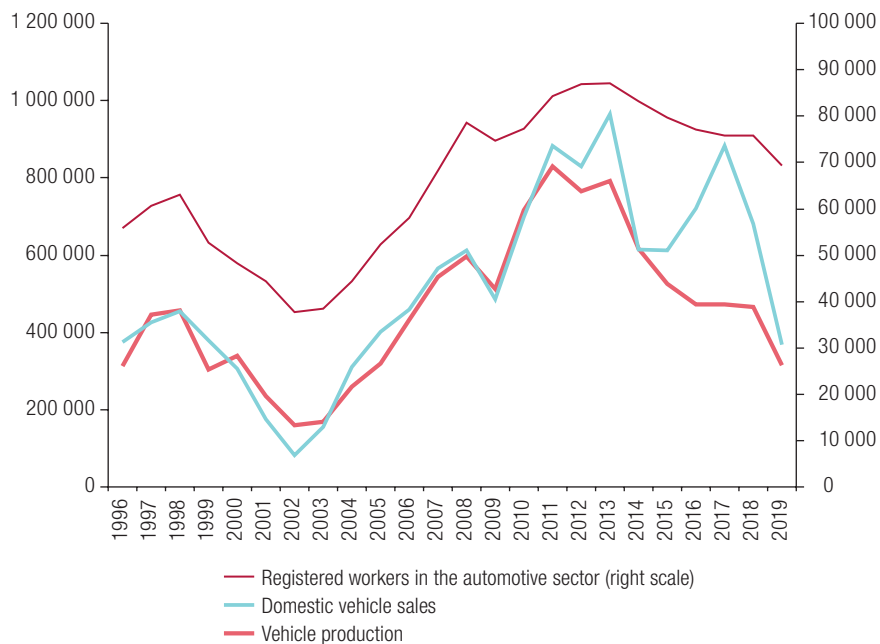
Another crucial reform was also carried out in the sphere of foreign trade policy during this administration: the amendment of the Temporary Admission Regime established in 1998, which allowed the temporary import of goods for industrial processing. They were exempted from customs duties on condition that the final product was exported. The change consisted in the establishment of the In-Factory Customs Regime (RAF) (Decree No. 688/2002), which involved a simplification and expansion of the Temporary Admission Regime for the automotive sector. Imported inputs were allowed to enter the country duty-free, with this cost only to be paid when units were sold to a local dealer. In this way, parts and components used in finished vehicles for export became cheaper to import.

In 2003, Néstor Kirchner, also of the Justicialist Party, became President and continued with certain elements of the previous economic system, such as the maintenance of the “strong dollar” regime. He also began a policy of restoring the incomes of the middle and lower social sectors and revived the ailing domestic market (CENDA, 2010). Thus, in 2003, the economy and industry began to come out of recession and the economic cycle was reactivated. In the automotive sector, production and domestic and foreign sales began to recover rapidly (see figure 1).

The trade agreements continued in 2005, when MERCOSUR complementation pacts were concluded with Peru (Partial Scope-Economic Complementation Agreement No. 58) and the Andean Community (CAN), comprising the Bolivarian Republic of Venezuela, Colombia and Ecuador (Partial Scope-Economic Complementation Agreement No. 59). In 2005, the Incentive Regime for the Competitiveness of Local Auto Parts (Decree No. 774/2005) was enacted to encourage the substitution of imported auto parts with domestically produced ones. Vehicle manufacturers were granted an 8% rebate on imported components that they replaced with domestic ones. In 2006, furthermore, a new bilateral agreement between Argentina and Brazil reduced the maximum protocol value of the flex from 2.6 to 1.95, a level that remained in place until 2014.

¹² This stipulated that for every dollar of automotive goods that Argentina exported to Brazil in 2001, it could import a maximum of US\$ 1.105 duty-free from the country. This limit was designed to keep sectoral trade between Argentina and Brazil in balance.

Figure 1
Argentina: domestic vehicle production and sales and registered
employment in the automotive sector, 1996–2019
(Vehicle units and average annual employment)



Source: Prepared by the author, on the basis of information from the Motor Vehicle Association (ADEFA), the Association of Automotive Dealers of the Argentine Republic (ACARA) and the Employment and Business Dynamics Observatory (OEDE).

The automobile industry thus experienced a period of great prosperity in the country during those years. In 2007, Néstor Kirchner stated in his inaugural speech at the International Auto Show that “the automobile industry is the backbone of economic growth” (*Perfil*, 2007). Local car production reached an all-time high in 2011 (828,771 units), as did domestic sales in 2013 (963,917 units) (see figure 1). Similarly, the trade balance in finished cars reversed its deficit trend of the 1990s (see figure 2). The better performance of vehicle exports than imports is essentially explained by high growth in the country’s main trading partner, Brazil, which took some 75% of vehicle exports during the period.¹³

Different actors in this production chain were part of the group of winning companies in that period (Santarcángelo and Perrone, 2012; Gaggero, Schorr and Wainer, 2014).¹⁴ In the early years after the 2002 devaluation, the turnover of the automotive sector was equivalent to 7% of the total for Argentina’s top 500 companies. Its share increased markedly in subsequent years, until it accounted for 17.3% of turnover in 2010 (Santarcángelo and Perrone, 2012, p. 13). This dynamic reflects a large increase in the size of the automotive firms¹⁵ and the importance of their position at the top of Argentine industry. Among their number were different vehicle manufacturers (Toyota, Volkswagen, Ford, Fiat, General Motors, Renault, Mercedes-Benz, Peugeot-Citroën and Honda) and, in some years, a handful of auto parts companies (Scania, which although a vehicle manufacturer did not produce motor vehicles

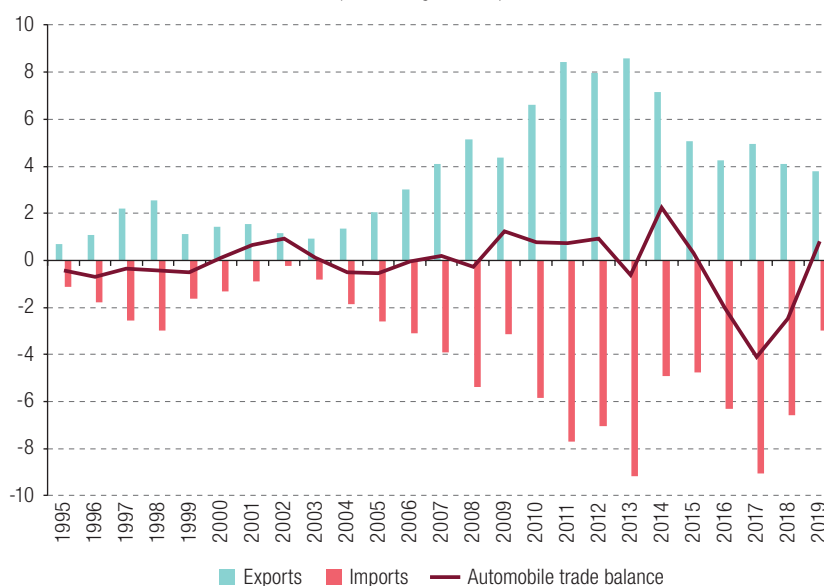
¹³ Brazil’s GDP measured in constant 2010 dollars increased by 85% between 2002 and 2014, according to World Bank data.

¹⁴ Considered in terms of participation in the economic elite, which, depending on the database used, might be the 200 companies with the highest turnover in the local market, other than financial companies (*Revista Mercado*), or the top 500 companies in the National Survey of Large Corporations (ENGE) of the INDEC, again excepting financial companies.

¹⁵ According to Santarcángelo and Perrone (2012), much of the growth in the profitability of the vehicle manufacturers at the top of the industry was underpinned by the weakness of wages in the years following the devaluation, in the context of a sharp increase in labour productivity in the vehicle manufacturing sector. These two elements together explain the strong growth in the sector’s profitability and thence the great dynamism of vehicle production during the post-convertibility period.

in the country but only gearboxes, and Mirgor, Dana and Famar), although at lower levels than the other group (Santarcángelo and Perrone, 2012).¹⁶ Thus, the sales share of these auto parts companies was much smaller than that of the car manufacturers, with the former only accounting between them for 6% to 7% of the total turnover of the automotive firms in the industrial elite, while the remaining 93% and more were vehicle manufacturers (Santarcángelo and Perrone, 2012, p. 18).

Figure 2
Argentina: vehicle trade with the world, 1995–2019
(Billions of dollars)



Source: Prepared by the author, on the basis of information from UN Comtrade Database.

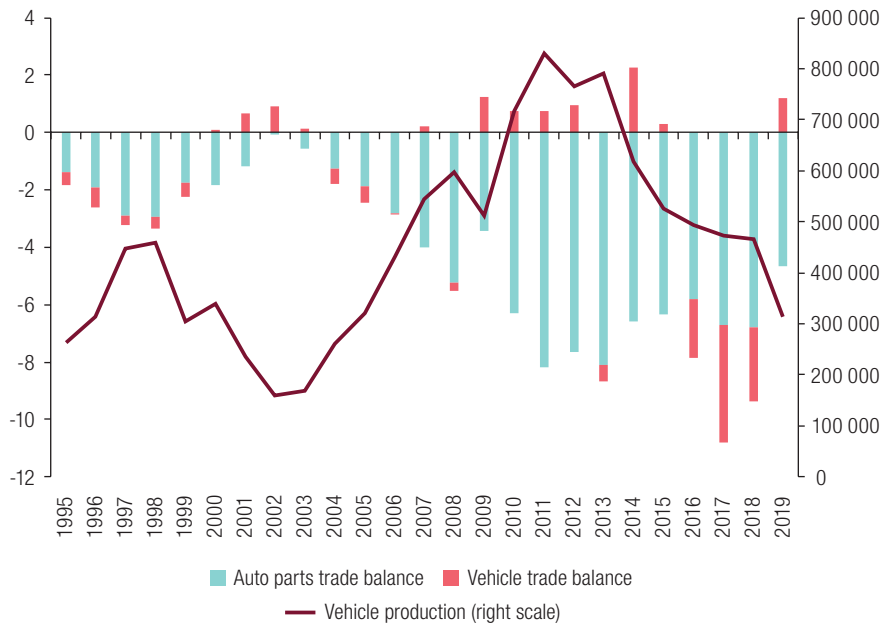
2. External constraints and more protectionist policies

The international crisis of 2008–2009, growing capital flight and an incipient deterioration in the current account of the balance of payments led to various disruptions in Argentina's economic and political situation, which worsened in the following years (Basualdo, 2011; Gaggero, Gaggero and Rúa, 2015; Kulfas, 2016). In the automotive sector, this meant falls in production and in domestic and foreign sales. By the end of 2009, however, the effects of the crisis had begun to fade. A second cyclical upswing in the industry, driven by policies to stimulate domestic demand and by economic growth and currency appreciation in Brazil, began thereafter and lasted for a few years (see figures 1 and 2).

However, this second phase of growth was characterized by an increase in imports of auto parts, whose expansion kept pace with that of vehicle production (see figure 3). Against this backdrop of external difficulties, a new law (No. 26.393) was passed in 2008 to incentivize the domestic auto parts sector, using tax incentives to encourage vehicle manufacturers to employ parts and components produced in the country. However, this legislation did little to reduce the sectoral deficit (Pérez Artica, 2019). In addition, the tariff positions in the sector covered by the import permits known as non-automatic licences (LNA) increased between 2008 and 2011, and more restrictive permits known as advance import affidavits (DJAI) were applied from 2012 onward (Perez Almansi, 2020).

¹⁶ At the same time, another group of companies involved in the production of basic inputs for the automobile industry were also clearly among the winners of the period. They included the basic metal industries (Ternium, Tenaris Siderca, Acindar and Aluar) (Gaggero, Schorr and Wainer, 2014; Gaggero and Schorr, 2016).

Figure 3
Argentina: vehicle production and vehicle and auto parts trade balance, 1995–2019
(Billions of dollars and vehicle units)



Source: Prepared by the author, on the basis of information from the Motor Vehicle Association (ADEFA), the Association of Argentine Component Manufacturers (AFAC) and the UN Comtrade Database.

Thus, the large deficit in the auto parts segment was one of the main problems of this stage. Whereas in the 1990s the average annual auto parts deficit for each car produced was US\$ 4,951, between 2003 and 2015 this average value rose to US\$ 8,040 (Cantarella, Katz and Monzón, 2017, p. 267). A more thorough analysis of the composition of imports shows that, of the US\$ 4.816 billion in component imports recorded over the course of 2006, some US\$ 2.96 billion or 63% represented direct purchases by vehicle manufacturers (Cantarella, Katz and Monzón, 2017, p. 268). In 2005, vehicle manufacturers' share of auto parts purchases had been 58%, which means that there was a year-on-year increase of 5 percentage points between these two years (Cantarella, Katz and Monzón, 2017, p. 268). In 2015, this share held steady at around 65%, highlighting the particular importance of the final link of the chain in the foreign trade dynamics of the downstream links (Cantarella, Katz and Monzón, 2017, p. 268).

While this is partly due to global transformation processes, including the international fragmentation of production, the trend towards vertical disintegration of large industrial firms, the international division of labour established by these large firms and the introduction of new areas into world trade, such as China (Sturgeon and others, 2009; Frigant and Zumpe, 2017), not all countries went through this process of disintegration in the automotive production chain or the trade balance difficulties experienced by Argentina. Table 1 shows the countries with the largest auto parts trade surpluses and deficits in 2015. Argentina is at number 120 in this ranking, being one of the 8 countries with the largest deficits in the auto parts trade.

The problem is of particular importance for Argentina, furthermore, because of the difficulties arising from the external constraint. This situation has historically limited Argentina's development, as activity levels and economic growth rates have been restricted by the availability of foreign currency (Wainer and Schorr, 2014).

Table 1
Countries with the largest auto parts trade deficits and surpluses, 2015
(Billions of dollars)

Rank	Country	Auto parts trade balance
1	Japan	35.20
2	Germany	33.50
3	China	31.00
4	Republic of Korea	27.30
5	Poland	8.51
6	Czechia	7.74
7	Italy	7.58
8	Mexico	6.47
9	Thailand	5.67
10	Romania	5.61
119	Belgium	-4.09
120	Argentina	-4.24
121	Brazil	-4.41
122	Saudi Arabia	-5.59
123	Australia	-5.74
124	Spain	-9.87
125	Russia	-10.20
126	United Kingdom	-17.10
127	Canada	-21.70
128	United States	-61.60

Source: D. Panigo and others, "El autopartismo latinoamericano en un contexto de proteccionismo global, reshoring y debilitamiento de acuerdos regionales de comercio", *La encrucijada del autopartismo en América Latina*, Buenos Aires, Association of Latin American Economic Thought (APEL)/Universidad Nacional de Avellaneda (UNDAV) Ediciones, 2017.

At the same time, Brazil's economic stagnation since 2013 has had a considerable impact on the sector.¹⁷ Thus, in 2014, the Argentine government renewed its bilateral agreement with Brazil, and the protocol value of the flex (which had stood at 1.95 since 2006) was reduced to 1.5. This reduced the quantity of vehicles and auto parts that could be imported from Brazil. In addition, the ProCreAuto plan was established. This was a scheme to provide loans in 60 instalments at subsidized rates for the purchase of low- or mid-range models manufactured in the country.

In short, the Argentine automobile industry expanded greatly during this period, driven by demand from Brazil and a domestic market that was on the rise after the crisis. This was manifested in increased production, sales, exports and employment in the sector, surpassing the levels seen in the 1990s and setting new records in the country. However, the complex ran a persistent trade deficit that was worse than in the 1990s. This was largely explained by the increase in imports of auto parts, which grew along with the number of vehicles produced in the country. This situation continued to worsen after the 2008–2009 crisis and contributed to the growing problem of foreign currency shortages in the Argentine economy. Government responses focused on providing incentives to vehicle manufacturers to purchase local parts and increasing protectionist measures. However, these initiatives were not enough to reverse the process.

¹⁷ At the same time, Brazil was implementing the Innovar-Auto incentive programme, designed to deal with the inroads of Asian, Mexican and European vehicles and to encourage investment in the domestic market, with the result that Argentina lost investment attracted by Brazil.

V. The Cambiemos government (2015–2019)

The inauguration of Mauricio Macri as President of Argentina marked a turning point in the orientation of macroeconomic and productive policy. From December 2015 onward, the new government implemented a policy whose salient features were trade liberalization and financial and exchange-rate deregulation, which represented a notable departure relative to the previous stage (Burgos, 2017; Wainer and Belloni, 2017). At the macroeconomic level, during 2016 the devaluation caused by the unification of the exchange market, together with the adjustment of tariffs, led to an increase in inflation which was not accompanied by higher wages, affecting real wages and domestic consumption (Neffa, 2017). In addition, high real interest rates proved ineffective in slowing inflation and negatively affected the volume of investment. In turn, the new policies had a marked impact on the decline of the overall industrial sector (Grasso and Perez Almansi, 2017).

With regard to the automobile industry, a number of public policies affecting the sector were implemented. Among them, mention should be made of those related to trade liberalization, such as the replacement of the restrictive type of import permit, the DJAI, which had resulted in a ruling against Argentina at the World Trade Organization (WTO). This was replaced by the Integrated Import Monitoring System (SIMI), which was applied to some 10% of the tariff positions formerly affected by the DJAI.

Additionally, the Regime for the Development and Strengthening of Argentine Auto Parts Act (No. 27.263) was enacted in 2016. Under this law, an electronic tax credit voucher was granted to automotive companies purchasing domestic parts and components.¹⁸ In 2017, the only year of economic growth during Macri's administration, the "One Million Cars" plan was presented, the aim of which was to increase car output to one million vehicles on the basis of an agreement between the State, companies and trade unions. This plan promised greater investment, new technologies, new labour agreements and measures to make car-buying easier.

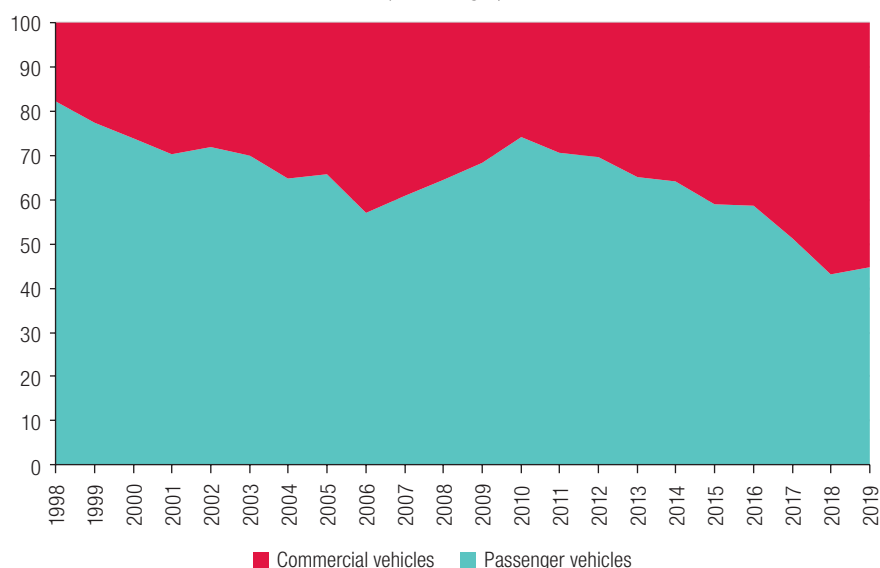
In 2018, after the rise in international interest rates and the worsening of internal inconsistencies, Argentina began to run out of sources of external financing. It turned to the International Monetary Fund (IMF), which granted one of the largest loans in IMF history. The financial crisis led to a devaluation of the country's exchange rate and an increase in the tax levied by the State.¹⁹ Thus, taxes of 3 Argentine pesos per United States dollar were levied on exports of industrial products, which affected both vehicle manufacturers and auto parts exporters. As a result of this general situation, the economic crisis worsened and the recession deepened in 2019 as consumption, production and employment, among other indicators, all fell.

As a result, automotive production plummeted to less than 300,000 vehicles, the lowest level of the decade (see figure 1). Concomitantly, the Argentine automobile industry changed its productive specialization. The decline in production was confined mainly to cars, leaving commercial vehicles (including trucks and vans, a segment largely dominated by pick-ups) almost unaffected, with a consequent increase in their share in the total output of the automobile industry (see figure 4). In the domestic market, the specialization in pick-ups was spurred by the fresh boost to production in the agricultural and energy sectors because of the sector-specific regulatory changes implemented by the Argentine government in 2016–2019 (Dulcich, Otero and Canzian, 2020). It also reflected a strategy implemented by vehicle manufacturers based in the region, as they were increasingly specializing in the production of small vehicles in Brazil and medium-sized and large vehicles in Argentina. In the second case, the process was led by three companies and models in particular: Toyota (with its Hilux model), Volkswagen (with its Amarok) and Ford (with its Ranger).

¹⁸ The value of the voucher ranged from 4% to 15% of the value of the locally purchased parts and components.

¹⁹ This rose from 20 Argentine pesos per dollar in 2017 to 60 Argentine pesos per dollar in 2019, and was accompanied by restrictive exchange controls.

Figure 4
Argentina: composition of automotive production by vehicle type, 1998–2019
(Percentages)

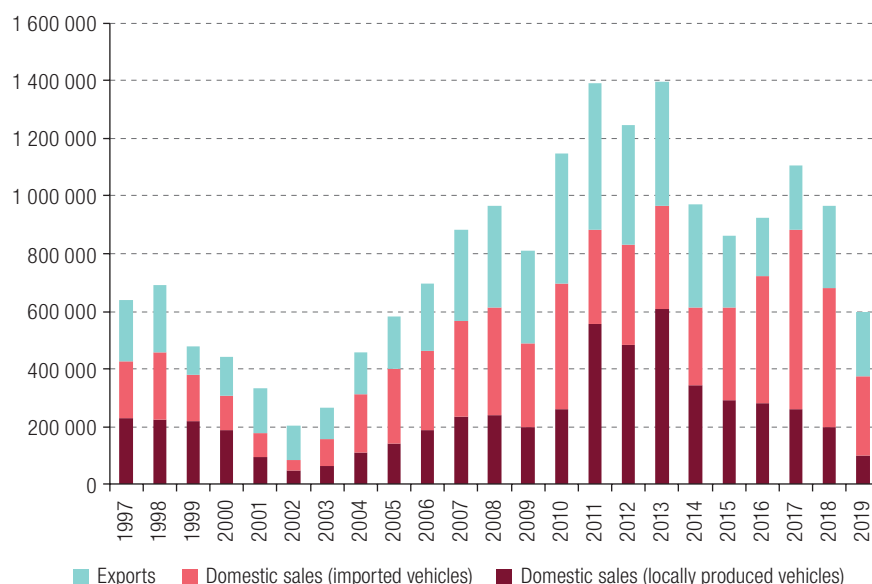


Source: Prepared by the author, on the basis of information from the Motor Vehicle Association (ADEFA).

Thus, when the performance of the automotive sector is compared between Cristina Fernández de Kirchner's last term in office and the Cambiemos government, several significant changes can be observed. Firstly, between 2016 and 2019 there was a large trade deficit in the sector due mainly to the importation of auto parts. However, a comparison of the two phases shows that, while vehicle production fell by 36% between 2012–2015 and 2016–2019 (971,868 fewer units), the auto parts trade balance only fell by 16% (US\$ 4.618 billion less), a relatively small decline that did not keep pace with the fall in vehicle production (see figure 5).

However, the most significant changes were in exports and domestic sales, as can be seen in the evolution described in figure 5. Thus, while 29% of sales in the domestic market were of foreign vehicles in the 2012–2015 period, this percentage increased to 51% of the total during the Cambiemos administration. Their share displaced that of exports and local sales of domestically produced vehicles. This change in trend shows the consequences of the government's trade opening policies (Pérez Ibáñez, 2021).

Figure 5
Argentina: domestic sales of imported and locally produced vehicles
and vehicle exports, 1997–2019
(Vehicle units)



Source: Prepared by the author, on the basis of information from the Motor Vehicle Association (ADEFSA) and the Association of Automotive Dealers of the Argentine Republic (ACARA).

The contraction of local production was associated with the massive influx of imported vehicles, mainly from Brazil, a country that went through years of economic contraction.²⁰ Brazil sold its surplus vehicles in Argentina, thus increasing the trade asymmetry between the two countries. In view of this situation, and within the framework of the Agreement on the Common Automotive Policy between the two countries, at the end of 2019 the outgoing Cambiemos administration established a new automotive agreement with the incoming government of Jair Bolsonaro in Brazil. The new treaty amended the protocol value of the flex coefficient for sectoral trade between the countries, which stood at 1.5²¹ (i.e. US\$ 1.5 could be imported duty-free from Brazil for every US\$ 1 exported from Argentina in automotive goods). Under the new agreement, the flex was raised to 1.7, with the consequent increase in the quantities that could be imported from Brazil to Argentina. What was new about this treaty, however, compared to the previous ones, was that this protocol value was established retroactively, with effect from 2015 (see tables 2 and 3).

Table 2
Argentina: total flex (vehicles, auto parts and agricultural machinery),
third quarter of 2015 to second quarter of 2020
(Imports and exports in billions of dollars)

Imports	Exports	Flex
37.95	22.93	1.65

Source: Prepared by the author, on the basis of information from the General Customs Bureau.

²⁰ This contraction began in late 2013 and worsened in the following years.

²¹ The flex was set at 1.95 from 2006 until 2014, when it was reduced to 1.50.

Table 3
Argentina: flex and excess or deficit by product,
third quarter of 2015 to second quarter of 2020
(Balances in billions of dollars)

Product type	Flex	Favourable or adverse balance
Vehicles	1.34	2.77
Auto parts	2.35	-4.81
Agricultural machinery	103.11	-1.51

Source: Prepared by the author, on the basis of information from the General Customs Bureau.

This was because throughout the period in which the flex of 1.5 that had been set in ACE 14.42 ought to have been in force, the flex actually applied was 1.65. For that reason, it was then increased to 1.7 and the fines for companies whose imports had overshot were waived. The actual amount of excess imports during the period totalled US\$ 4,811,979,669 in the auto parts sector and US\$ 1,508,714,913 in the agricultural machinery sector. The losses of tariff preference when the flex is overshot are prescribed in article 13 of ACE 14.38.²² From this, a fine of approximately US\$ 400 million can be calculated for companies carrying out such imports, with the Argentine State foregoing the corresponding tariffs because of the retroactive increase of the flex in ACE 14.43 (see figure 6).

Figure 6
Protocol value of the flex coefficient before
and after Economic Complementarity Agreement (ACE) 14.43, 2001–2029



Source: Prepared by the author, on the basis of information from the Latin American Integration Association (LAIA).

Lastly, this agreement set trade conditions for the following 10 years (see figure 6), whereas previously they were reviewed every three years or so. This agreement implies steady increases in the protocol value of the flex until 2029, widening the asymmetry in Argentina's trade with Brazil, as greater quantities of automotive products can be traded tariff-free.

²² This article provides that "where imports of Automotive Products between the Parties exceed the limits provided for in the Flexes referred to in Article 11, and after application of Article 12 if appropriate, the margin of preference referred to in Article 9 shall be reduced to 25% (residual tariff equal to 75% of the tariffs set out in Article 3 of this Agreement) for auto parts (subparagraph (j) of Article 1) and to 30% (residual tariff equal to 70% of the tariff established in Article 3 of this Agreement) for other Automotive Products (subparagraphs (a) to (e) of Article 1) of the tariffs that affect the value of the excess imports in each Party, according to the provisions of this Agreement" (LAIA, 2008, p. 7).

In summary, the sectoral trade deficit in the auto parts sector persisted during this period, remaining high despite the contraction in vehicle production. At the same time, there was a sharp increase in imports of finished vehicles from Brazil as a result of the trade opening policies of the Cambiemos government and the crisis in that country. The effects of this development are reflected in a greater loss of dollars through trade, which has been coupled with the remission of fines and the increase in the protocol value of the flex. They are also reflected in the loss of productive capacity in the sector as a result of the decrease in domestic production and employment.

VI. Final reflections

Some final reflections can be made concerning the trajectory of the Argentine automotive chain since the end of convertibility. First of all, it should be noted that although the sector went through a period of prosperity during the post-convertibility period, reflected by increases in production, employment and the trade balance in finished vehicles, it was highly dependent on imported inputs throughout. This problem worsened after the trade liberalization of the 1990s, and the situation continued to deteriorate during the first decades of the new century. The dynamics of regional trade and production since the creation of MERCOSUR also intensified during the post-convertibility period, as manifested in Argentina's growing dependence on Brazil in respect of trade and production.

There was also a marked difference in the relative performance of the different actors in the sector. Multinational vehicle manufacturers did best during this stage. This points to poor integration of the automotive production chain, as reflected in the increase in the imported component of vehicles. This became evident at the times of greatest expansion in automotive production, highlighting the strong correlation between the two variables.

Secondly, the analysis revealed that the problems described in the previous period worsened during the Cambiemos government, while certain virtuous characteristics were lost. Comparisons between the last years of Kirchnerism and the period of Macri's government revealed how persistent the sectoral trade deficit in the auto parts sector was, since it remained high and declined much more slowly than the production of final vehicles.

At the same time, there was a large increase in imports of finished vehicles from Brazil as a result of the trade liberalization policies of the Cambiemos government and the crisis in that country. These measures marked a clear contrast with the trade protectionism deployed by Cristina Fernández de Kirchner's last administration. The consequences of this situation were the worsening of the external constraint, due to a greater loss of dollars through trade, and the reduction of the sector's productive capacity as a result of the reduction in local production and employment. This was compounded by the Cambiemos government's decision to remit fines for excess imports of automotive goods and to steadily increase the protocol value of the flex until 2029, which means that future administrations will be tied to greater trade asymmetry with Brazil.

Thus, the analysis carried out in this article opens up new questions about the causes of these developments and how the main problems with them can be overcome. First of all, it must be asked whether the public policies of a semi-peripheral country such as Argentina have any real prospect of guiding its automobile industry in a more prosperous and sustainable direction. It seems pertinent to make comparisons with other countries that have similar characteristics, with the aim of finding successful cases and replicating their methods. At the same time, the reasons for the disparity between the different branches of the sector should also be explored. There is a need for more in-depth studies on the relationships within the Argentine automotive chain. This requires further research into the behaviour of multinational vehicle manufacturers and their strategies in peripheral countries, since these companies

form the core of the network. The current phase of global capitalism imposes major restrictions on peripheral countries and their economic development projects, increasingly restricting the pathways towards a different role for these nations on the international stage. As far as the automobile industry is concerned, all indications are that control of the chain will remain in the hands of a small group of companies from developed countries. Therefore, finding the best way to engage with them seems to be an unavoidable task.

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Annex A1

Table A1.1

Argentina: leading auto parts companies producing in the country, by turnover, 2013

Company	Country of ownership	2013 turnover (millions of dollars)	Products
Mirgor	Argentina	225	Air-conditioning systems, steering boxes
SKF	Sweden	201	Bearings and accessories, among other things
Metalsa	Mexico	199	Chassis and structural assemblies
Pabsa	Canada	157	Seats and seat components
Faurecia	France	157	Seats, instrument panels and door panels
Mahle	Germany	135	Valves
Denso	Japan	133	Air-conditioning systems, radiators and air filters, among other things
Visteon	United States	126	Air-conditioning systems, condensers and radiators, among other things
Fric-Rot	United States	125	Shock absorbers and exhaust systems
Gestamp	Spain	115	Assembled and welded elements, dies and stamped assemblies
Industrias Lear	United States	114	Seats and wiring harnesses
Famar Fuegoína	Argentina	100	Stereos and alarms, among other things
Cibie	France	86	Headlights and interior lights
ZF Sachs	Germany	79	Clutches and shock absorbers

Source: E. Inchauspe and N. García, “El complejo automotriz-autopartista en América Latina. Estrategias globales, regionales y desempeño reciente”, *La encrucijada del autopartismo en América Latina*, Buenos Aires, Association of Latin American Economic Thought (APEL)/Universidad Nacional de Avellaneda (UNDAV) Ediciones, 2017.

Table A1.2

Argentina: vehicle manufacturers producing in the country, 2013

Company	Turnover (dollars)	Production (units)	Exports (units)	Staff employed	Models produced
Volkswagen	31 213 019	106 711	62 399	7 830	Suran and Amarok; gearboxes
Ford	21 181 521	102 280	66 727	3 061	Focus and Ranger; engines
Toyota	20 119 969	94 468	64 342	4 746	Hilux and Hilux SW4
Peugeot-Citroën	15 560 878	115 302	29 189	4 945	Berlingo, 207 Compact, 308, 408, C4 (Sedan, Lounge and Hatch) and Partner
Renault	15 116 419	117 635	51 049	3 185	Clio Mio, Kangoo, Symbol and Fluence
General Motors	14 294 016	111 355	65 070	3 529	Classic and Agile
Fiat	13 414 179	104 891	72 830	3 051	Palio and Siena; gearboxes
Mercedes-Benz	9 575 383	20 502	12 222	2 068	Sprinter, OF 1722, LO 915, OH 1518, OH 1618, OH 1718, OF 1418, Atron 1720/1624/1634
Iveco	3 755 300	6 344	195	907	Trucks: Eurocargo Attack, Eurocargo, Tector, Cavallino, Cursor, Stralis, Trakker; bus chassis: 170E22
Honda	2 201 645	11 519	9 272	856	City
Scania	2 161 681	0	0	534	Transmission components

Source: Motor Vehicle Association (ADEFA), “Anuario 2013” [online] <http://www.adefa.org.ar/es/estadisticas-anuarios-interno?id=48>.