
Reconsidering automotive development strategies in Argentina in the light of the ASEAN experience

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ABSTRACT

We compared the Argentinian automotive industry's trajectory since 2000 with those corresponding to three ASEAN economies: Malaysia, Indonesia, and Thailand. We aimed to identify factors explaining the divergence among the four cases and to draw valuable conclusions for the re-design of Argentinian automotive policy. First, we considered the productive and foreign trade performance among the four cases. We then reviewed key industrial policies conducted over the period. Comparative analysis highlights the Thai experience, which posted outstanding performance on both industrial expansion and trade surplus. Moreover, we examined the high potential for selective policies incentivizing specific products and technologies, which can promote private strategies more aligned with macroeconomic stability and industrial development in Argentina.

KEYWORDS: automotive industry, global value chains, industrial policy, regional integration

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1. Introduction

In the prelude to a techno-productive transition associated with electrical and sustainable mobility, the Argentinian automotive industry already faces enormous challenges accumulated over recent decades. According to widespread consensus in the literature (Baruj et al. 2017; Panigo et al. 2017), the huge trade deficit generated by current automotive strategies substantially contributes to aggregate balance of payments concerns. By doing so, it jeopardizes macroeconomic stability and economic development in the medium term. A single piece of evidence reveals the sector's influence over aggregate cross-border trade in the country: during 2008–2018, even if years with exceptionally high automotive deficit are excluded, the sector's trade deficit accounted for as much as 50% of the trade surplus produced by the remaining industries (if we consider years 2017 and 2018, that figure scales to 400%). The bulk of that deficit is explained by the auto parts industry.

Far from being a transitory result, this seems to obey a larger process of structural transformation in the way in which cross-border transactions take place within the automotive global value chains, of which three relevant trends can be underscored for the Argentinian case (Pérez Ibáñez 2021).¹ First, an increase in the required imported auto parts occurred over the last three decades (CEP 2015). Moreover, a pronounced dependence on imported parts and systems extends to a fairly high proportion of total inputs (Pérez Artica and Vigier 2020). Second, imports of completely built-up (CBU) vehicles from abroad grew in order to meet domestic demand. This trend was particularly noteworthy in the 1990s and since 2016. Third, the share of local production exported to foreign markets increased, although it was not able to fully compensate for the higher import needs originating from the two previous channels. Even though this led the industry to stand out as a prominent exporting cluster within the country (Rapetti et al. 2019), automotive exports continue to show high levels of dependence on the Brazilian market and have contracted in recent years as a result of Brazil's economic crisis. Overall, this seems to reveal the limits of Mercosur to serve as a platform to jumpstart exports towards extra-regional markets (Arza 2011).

A priori, it might be plausible to hypothesize that these results arise as direct effects of the structural transformations occurred within the global automotive industry over the past decades. More specifically, these might be unavoidable consequences of adapting the local landscape to the changing

1. These three trends described are structured in intra-regional exchanges with Brazil, however in recent years other commercial partners have begun to gain importance for this *terna* outside Mercosur. The relation between these trends, regional strategies and Mercosur regulation are further explained in section 4.4.

strategies by key global manufacturers leading the industry (Pinazo 2015). Moreover, they may even be seen as the price paid in order to overcome the technological backwardness, protectionism, and lack of global competitiveness that characterized the industry in the late 1980s (Pinazo, Cordoba and Dinerstein 2017; Pinazo, Dinerstein and Cordoba 2019).

This transformation took place simultaneously with the signing of international agreements, such as those of the World Trade Organization (WTO), since 1994 and Bilateral Investment Agreements, which considerably shrank the space for industrial policy in developing countries (Chang 2006). This necessarily eroded the governments' ability to conveniently react to the changing productive strategies of global automakers.

Indeed, this new context imposed restrictions of the highest order to policy options aimed at the automotive industry (Natsuda and Thoburn 2014). Therefore, it would seem reasonable to hypothesize that other countries, where the automotive industry showed similarities to the Argentinian case before the consolidation of global value chains (GVC), could have followed equally troublesome trajectories afterwards.

In this vein, an interesting research question is to consider what occurred to the automotive industry in other developing countries that, according to some basic criteria, might be regarded as comparable to the Argentinian experience. Were the aforementioned cross-border trade patterns shared with other developing countries whose automotive industry was equally underdeveloped before the consolidation of the GVC?

Three of the countries that comprise the Association of East Asian Nations (ASEAN), Malaysia, Thailand, and Indonesia, may serve as relevant references in that regard. As of the early 2000s, these countries displayed several similarities with the Argentinian case: (i) all of them had gone through an initial automotive expansion within broader strategies of import substitution industrialization (ISI), (ii) they had similar production volumes, (iii) they all were experiencing balance of payment concerns either related to auto parts, finished vehicles, or both, (iv) they initiated a regional trade integration process in the 1990s, and (v) they had automotive industries dominated by a handful of large foreign companies (Baruj et al. 2017). Yet, as we attempt to show, they registered starkly different trajectories, both among themselves and when compared to the Argentinian case. Chief among them is the Thai case, which is highlighted as the one that shows the best performance in both industrial expansion and foreign trade.

Therefore, our main goal in this article is to identify the factors shaping those differences between the relatively more successful experiences of ASEAN and that of Argentina since the year 2000. In particular, among the most virtuous cases, we seek to distinguish aspects that stand as exclusive or 'non-reproducible' (such as domestic market size, factor endowments, geographic

location advantages, and transnational firms' strategies) from other features, which may be used for policymaking directed to the Argentinian auto industry. By doing so, we expect to contribute to the analysis of industrial policy alternatives in the face of the GVC integration of the Argentinian auto sector. Apart from its relevance as a policy issue for Argentina, studying the policy challenges in the auto sector has far-reaching implications for industrial policy in developing countries, as this sector receives a considerable share of government interventions at large.

2. Theoretical framework: business strategies and industrial policy

Since the mid 1980s, the automotive sector experienced a series of profound transformations, in which a set of largely unconnected national activities became grouped into a globally integrated industry. The automotive value chain is characterized by growing international integration and, in particular, by strong regional patterns of intra-industry trade of auto parts and final goods (Sturgeon et al. 2008; Sturgeon et al. 2009).

Two main actors dominate the industry at an international scale: i) lead firms or automakers controlling the final vehicle assembly and distribution, and ii) global suppliers of parts, components, and systems (Panigo et al. 2017). Lead firms develop a product and a supply strategy that is then implemented by their subsidiaries across different regions worldwide. The purchasing power that lead firms exert allows them to impose their conditions over large global suppliers, shaping the supply and the geographic location of the latter.

Moreover, the consolidation of GVCs improved the negotiating power of lead firms *vis-à-vis* national states and actors (Fernández 2017; Pérez Ibáñez 2019; 2016), compelling governments to compete among themselves in seeking to attract investments by making their tax, labor, environmental, etc., conditions more appealing.

One of the causes behind this transformation was the saturation of automotive markets in developed countries in the late 1980s and the ensuing increase in competition among multinational companies to sustain profit and market share (Kohpaiboon 2009). Simultaneously, several peripheral countries began to relax their initially protectionist legal framework in order to encourage new investment in the wave of reforms associated with the Washington Consensus (Kohpaiboon 2009).

As a result, automakers delocalized their production by selecting certain regions to manufacture specific models. Particularly, multinational companies considered the legal and institutional framework, as well as the orientation of the automotive policy of the host country before deciding on long-

term investment (Doner 1991; Hill and Kohpaiboon 2017; Kohpaiboon 2009; Kohpaiboon and Jongwanich 2019; Kohpaiboon and Yamashita 2011; Kohpaiboon 2015). Thus, at the end of the twentieth century, different countries began to specialize in manufacturing and exporting certain vehicle models, while, at the same time, becoming dependent on imports for the rest of the products and parts.

The specialized literature recognizes several relevant factors that influence this localization strategy and, therefore, the industry's development. We have classified them into two categories to accomplish the general objective of this article: to identify the factors that create a more successful trajectory of development of the automotive industry. As we have mentioned, some of these determinants of a successful trajectory are exogenous or given to a certain economy and so we classified them as 'non-reproducible'. Under this category, we can group the size of the national market, factor endowments, the geographical proximity to a large retail market, or the macroeconomic stability.²

A different type of factor affecting the national trajectories in the GVC is government intervention through industrial policy. We define industrial policy as a long-term strategy that includes a range of policy actions and instruments focused on specific industrial sectors, aiming at structural change and promoting catch-up in line with a broader national vision and development strategy (Oqubay et al. 2020).³ According to Rodrik (2004), the analysis of industrial policy should prioritize the evaluation of the policy-making process, rather than its outcomes. Therefore, we pay particular attention to two distinguishing features of industrial policy, besides its technical implementation. First, the way in which it is adapted in response to changes in the international and domestic environment, including constraints posed by international institutions such as the WTO (Chang 2006; Natsuda and Thoburn 2014). Second, its sensitivity to the varying degree of collaboration or conflict between the private sector, state bureaucracy and the government. In this last regard, our framing avoids viewing industrial policy as unilateral initiatives by an autonomous government, and instead privileges a political economy approach (Rodrik 2004).

2. For example, small and prone-to-saturation markets are a challenge for local firms seeking to develop a significant role in the global industry due to scale problems. Because of this, the geographic shift of the industry from developed countries to emerging markets has been more significant in large developing countries such as China, India, and Brazil (Van Biesebroeck and Sturgeon 2011). Similarly, geographical proximity to developed and mature markets can enhance national trajectories but provides few opportunities for local auto part suppliers.

3. This definition of industrial policy and its implication for the sectorial development may differ from a more orthodox approach in which more economy-wide policies like human capital, business environment and institutions are more desirable. Based in this difference Hill and Kohpaiboon (2017) sustain the necessity to promote policies for industrial progress in opposition to industry policy that deliberately introduces non-neutral inter-industry incentives.

Thus, in this article, we will focus on how government intervention takes place resulting in different national performances. We will describe the national evolution of a set of commercial, technological, infrastructure, and taxation policies, like tariff measures, rules of origin (ROO), local content requirements (LCR), and the implementation of free trade agreements (FTA),⁴ and technical implementation and political negotiation between the actors involved.

Along these lines, not all regions followed the same specialization pattern. It is possible to distinguish different degrees of integration in the GVC, as well as diverse roles in the international division of labor, creating unequal trajectories despite general or systemic trends. These variations pose a question about the extent to which they follow disparities in industrial policy. And that question, in turn, highlights the need for an analytical approach that addresses the interaction of two key aspects: on the one hand, the long-term global strategies implemented by lead firms and, on the other, the national policies that are put in place in response to this process within each country (Doner and Wad 2014).

3. Divergent trajectories: the automotive sector in Argentina and ASEAN

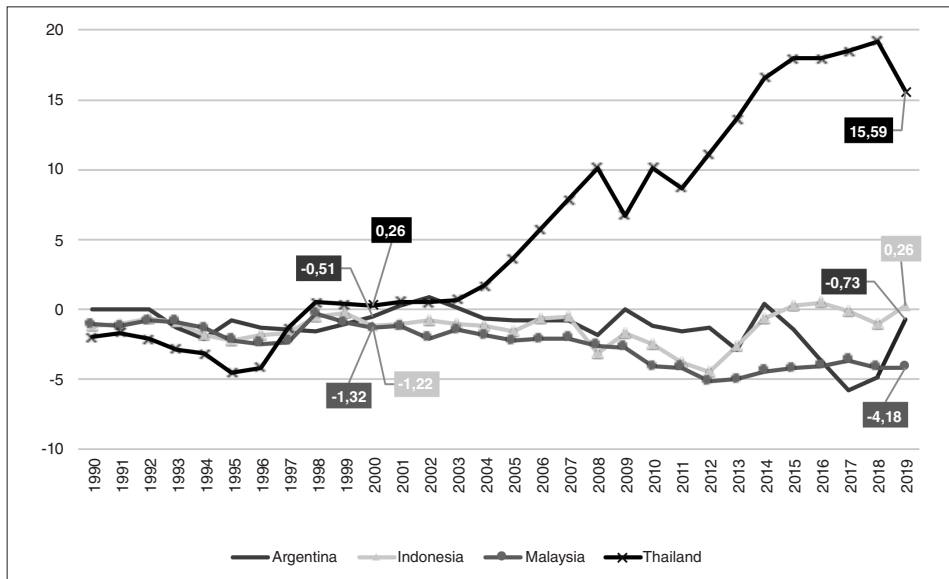
In this section, we assess the recent auto industry trajectories for the four selected countries. We are interested in the evolution of production and commercial performance of every segment of the automotive industry, the degree of export orientation and dependence on imported parts in each country, as well as the variation of the main trading partners. This provides a comprehensive diagnosis of the relative success of each case over recent decades and contributes to an evaluation, though partial, of the policy alternatives followed in the four countries, which is presented in the next section.

First, it is worth highlighting the stark contrast regarding cross-border trade that emerged between Thailand and the rest of the nations studied. Figure 1 shows that the trade surplus for the whole Thai automobile complex increased steadily from US\$260 million in 2000 to US\$15 billion in 2019. The rest of the countries, despite starting with trade balances similar to that of Thailand at the beginning of the twenty-first century, exhibited a tendency to trade deficit for the whole industry.

Figure 2 shows that Thailand's significant trade success is explained by surplus positions across three main types of goods hereby considered: passenger vehicles, commercial vehicles, and auto parts.⁵ The country exported

4. For a profound analysis of how changes in ROO, LCR, and FTA can explain the success of the Thai case see Kohpaiboon and Yamashita (2011).

5. Import and export data for these four countries were collected from COMTRADE. Data was analyzed at the four-digits level and three main groupings were constructed: passenger vehicles (COMTRADE items beginning with the suffix 8703), commercial vehicles (items

FIGURE 1 ▪ Sectoral trade balance by country. In billions of US dollars (1990–2020)

Source: Author's elaboration based on COMTRADE.

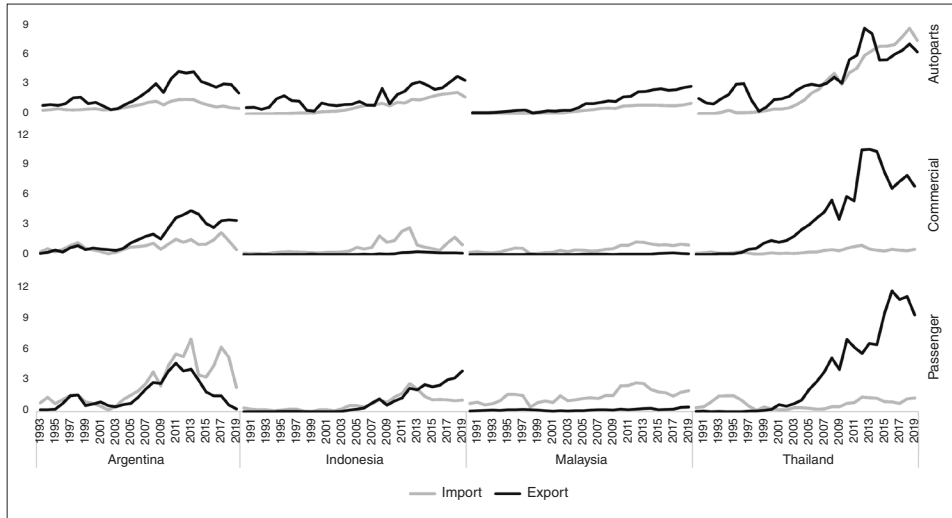
9.4 billion dollars of passenger vehicles and 6.8 billion dollars in commercial vehicles in 2019, while increasing imports of both types of goods at substantially lower rates for almost 30 years. This augmentation in exportations represented an increase of 4182% and 386%, respectively, for each type of vehicle, since 2000. Trade balance in auto parts remained positive as well, although imports and exports grew at a comparable pace.

In Indonesia, there is a surplus in the passenger vehicles segment since 2014 (2.6 billion dollars in exports), which explains most of the reduction of the sectoral trade deficit. Third, Malaysia shows the worst performance in terms of cross-border trade, with relative stagnation in exports and faster import growth across all segments.

Finally, Argentina presents a large commercial deficit in auto parts as well as in passenger vehicles. Auto parts remained in deficit over the entire period,

beginning with suffixes 8702 and 8704), and auto parts (items starting with 8706, 8707 and 8708). The first group contains motor vehicles designed for the everyday mobilization of people, while the transportation of goods or more than 10 persons simultaneously is represented in the second category proposed. The auto parts contain the accessories, bodies, cabs, and chassis needed in the production of the two previous groups. Other sections may contain parts used in the automotive industry (like electronic elements from chapter 85 or seats and windshield from chapter 84), but due to their extended industrial uses weren't included in the analysis to guarantee comparability between countries. This methodological decision may underestimate the impact of the other sections mentioned.

FIGURE 2 ▪ Imports and exports by country and type of good. In billions of US dollars (1990–2020)



Source: Author's elaboration based on COMTRADE.

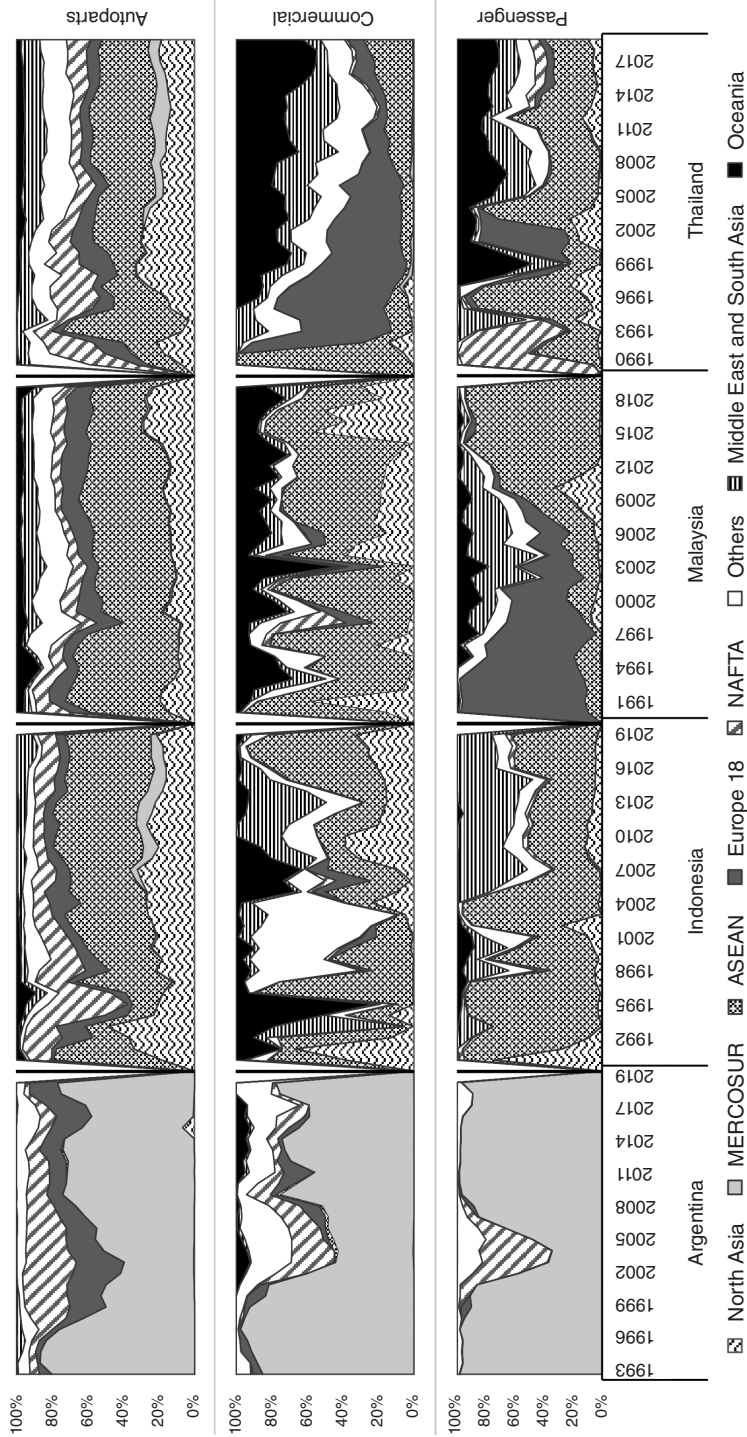
and the negative record of passenger vehicles worsened since 2011 as a result of a sustained drop in exports that went from 4.7 billion to only 0.6 billion in 2019. In comparative terms, imports of passenger vehicles are the highest of the four countries analyzed. These negative results were partly offset by trade in commercial vehicles, where annual exports hovered around US\$3 billion.

In terms of diversification of export destinations, Figure 3 shows that Thailand is less dependent on its regional market compared to the rest of the countries. This significant diversification involves the three product segments analyzed. Despite this, Oceania preserves a considerable share as a destination for final vehicle exports. For the rest of the countries, the preeminence of the region (ASEAN in the Asian cases and Mercosur for Argentina) is very clear. In particular, Malaysia has experienced a reorientation of exports from Western Europe to ASEAN since the beginning of the twenty-first century.

Argentina's automotive exports concentrate in Mercosur for all the three types of goods considered. However, on average, 100 million dollars of auto parts were exported annually to the European Union since 2000. Extra-regional exports increased steadily since 2017 for commercial vehicles, the main exporting product in the industry, which reached almost 32% among automotive products on average in the last three years.

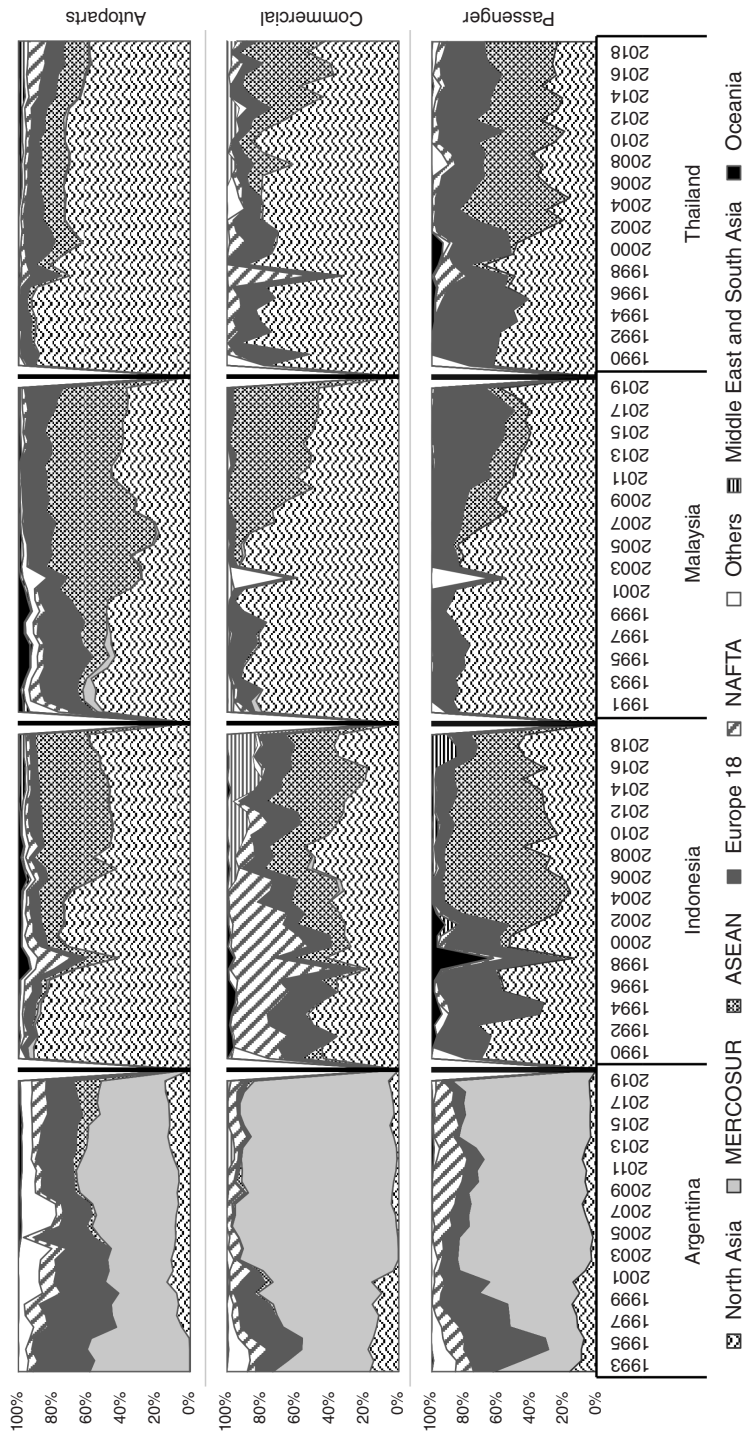
As regards imports origin, Northeast Asia is highlighted in the ASEAN countries, which follows the strong presence of Japanese automakers in these nations. On the other hand, in Argentina the main origin is Mercosur and, particularly, Brazil. In this case, it is clear that, despite the GVC being led by

FIGURE 3 - Export destinations by country and type of good. In percentages



Source: Author's elaboration based on COMTRADE.

FIGURE 4 - Import origins by country and type of good. In percentages



Source: Author's elaboration based on COMTRADE.

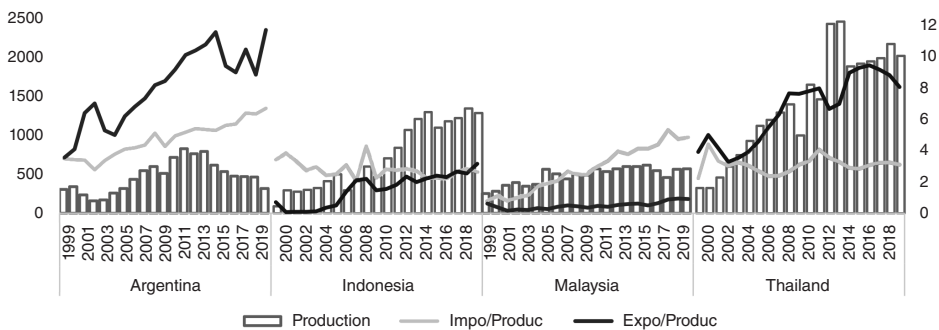
foreign companies, just-in-time schemes as well as the burden of transportation costs force automakers to seek nearby suppliers.

By contrast, for Southeast Asian countries, the geographical proximity to Japan and South Korea allows them to organize the supply of parts from parent companies in North Asia, such as Toyota, Mitsubishi, or Daewoo. Even so, intra-zone trade is important, ranking second in the three Asian countries.

Imports of passenger and commercial vehicles have almost exclusively Mercosur as their origin in the case of Argentina, whereas that in the Asian countries is more disperse. Thailand also showed a remarkable advance over the remaining nations as regards production levels, as seen in Figure 5. All four countries started from similar levels by 2000, but Thailand attained close to 2.5 million units in 2013, almost doubling the production performance of its peers. The evolution in the rest of the countries was uneven. Indonesia gained dynamism in the last decade and reached 1.2 million units produced in recent years. On the contrary, Malaysia stagnated at around 500,000 units over the two decades. Argentina, finally, proved to be the most unstable, quintupling its production to 800,000 units in 2011, only to cut back to less than half of that value in 2019.

Additionally, Figure 5 also presents two extra indicators. The export orientation of production (black line) and the foreign parts requirements (grey line) can be assessed on the basis of the ratios between the values of all auto products exports, on the one hand, and parts imports, on the other, to the volume of vehicles produced. In this vein, in Argentina, the value exported per vehicle produced grew from 3,569 dollars in 1999 to 11,743 dollars in 2019, following a trend similar to that of Thailand. By contrast, exports tended to be of lesser importance in Indonesia and Malaysia. A deeper analysis based on the local value added in exports may present a certain moderation about the similarities between Argentina and Thailand. However, that both econo-

FIGURE 5 • Vehicle exports and auto parts imports over vehicle production by country. In thousands of units (right axis) and millions of US dollars (left axis) (years)



Source: Author's elaboration based on COMTRADE and OICA.

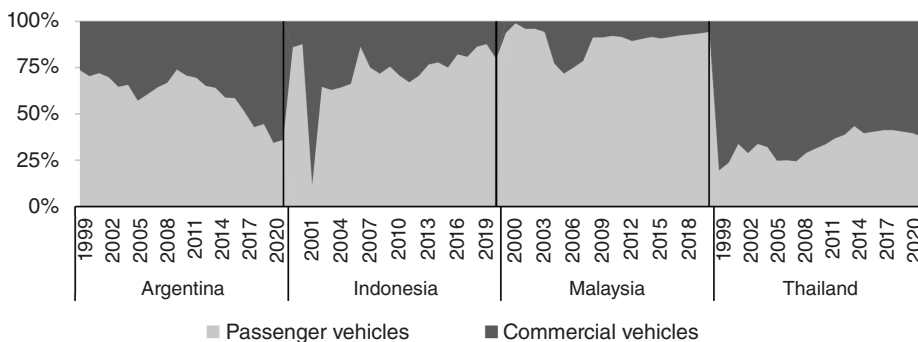
mies' productions are more export-oriented is still a relevant fact to the objectives of this article regardless of the origin of the value contained in the products sold abroad.

As regards the requirements of imported parts, it is evident that they remained stable over time in Thailand and Indonesia, while increasing steadily in Argentina and Malaysia. Surprisingly enough, the growth of imported parts in these countries occurred despite the fact that (as we extensively discuss below) they attempted more aggressive protection of small and medium enterprises (SMEs) and local auto parts.

The production mix between passenger/commercial vehicles is displayed in Figure 6, which shows different specialization profiles. Thailand maintained a marked specialization in commercial vehicles, especially from its commitment to small pickup trucks, while Argentina turned towards a similar specialization over the last ten years. In Indonesia, the bulk of the production is explained by passenger vehicles, particularly by multiple purpose vehicles (MPV). Moreover, since 2013 with the implementation of the low-cost green cars (LCGC) policy (see below), different models that met the requirements of this regulation considerably increased their sales in the Indonesian market. In Malaysia, the production of passenger vehicles also prevailed throughout the period.

Finally, along with the aforementioned reasons granting comparability among these countries, we ought to acknowledge some caveats regarding differences in them that should induce caution when making comparisons. In this sense, it is worth mentioning the size of the Indonesian domestic market. It reaches 270 million inhabitants, a figure much higher than that of the remaining countries: Thailand (69 million), Argentina (45 million), and Malaysia (32 million). This uniqueness of Indonesia implies that its automotive production is mainly oriented toward its domestic market rather than export, in contrast to the Thai and Argentinian cases. Additionally, as the periphery of

FIGURE 6 • Production vehicle composition by country. In percentages (2000–2020)



Source: Author's elaboration based on OICA.

Japanese development, the main automakers operating at ASEAN are Japanese. On the contrary, in Argentina, foreign companies are mostly from Europe or the United States. In sum, although some important differences are observed, the similar starting points in terms of foreign trade and production, as well as their subsequent divergent trajectories, suggest that the comparative analysis of their experiences could yield valuable conclusions to guide a rethinking of automotive policy in Argentina.

4. Automotive policy in times of liberalization: four case studies

In this section, we review the automotive policy put in place by each country over the last two decades. We seek to reveal how the four nations reacted to the broader process of GVC conformation, trade liberalization, and restrictions to the industrial policy emanating from the WTO framework, bilateral agreements, as well as those of the ASEAN Free Trade Agreement (AFTA) and Mercosur. We intend to distill policies producing the most outstanding results in terms of foreign trade and manufacturing output levels and separate them from other confounding conditions that contributed to the outcomes discussed in the previous section.

4.1. Malaysia

4.1.1. Historical background

Any approach to the Malaysian automotive experience should begin by acknowledging its National Car project, which embodies Malaysia's automotive policy central piece and was primarily led until 2017 by the firm Proton. As a consequence, our discussion of Malaysian automotive policy will center around Proton's experience.

In the early 1980s, the government launched the second phase of the industrialization process, aiming to develop heavy industry as well as to promote the economic progress of the Malay community. The Heavy Industry Corporation of Malaysia (HICOM), a state-owned company, was established in 1980, in order to push for the development of industries such as steel, cement, cellulose, petrochemical, equipment and machinery, etc. (Tan 2014).

In the automotive sector, HICOM engaged in a joint venture with the Japanese keiretsu Mitsubishi during 1985, where the former kept 70% of the capital. Thus, the firm Proton was created. Its main purpose was to overcome the prevailing fragmentation of the Malaysian market by way of creating a 'national champion'. This would also induce economies of scale and technological upgrading across the whole vendors' network.

Proton's production began in 1985 with the Saga model, based on Mitsubishi's Lancer, and until 2002 the firm managed to control 50% of the Malaysian market. Meanwhile, a second National Car project, named Perodua, was also established with the same goal during the 1990s, although specializing in small passenger vehicles. However, Perodua's trajectory as a national champion was considerably shorter, coming to an end when its control was handed over to Daihatsu in the early 2000s.

4.1.2. Liberalization and its impact on Proton's performance

Within the broader framework of regional trade liberalization beginning with the signing of the AFTA in 1993, the nationalist leaning of Malay automotive policy was quickly revealed. To begin with, tariffs were expected to descend below 5% by 2003 according to the AFTA. However, Malaysia postponed that reduction until 2005 (Natsuda, Segawa and Thoburn 2013, p. 124). Additionally, although LCR and mandatory deletion policies were discontinued, other measures were implemented keeping *de facto* protection for local production: huge excise taxes were established,⁶ import quotas were held and the government restricted new manufacturing licensing, particularly for small vehicles, limiting the arrival of foreign auto firms to the country.

In short, in contrast to other regional cases, Malaysia went through the liberalizing phase in an ambiguous manner, turning to controversial measures in the context of the WTO in order to protect its automotive industry, particularly that portion of it linked to Proton and its vendors network (Natsuda and Thoburn 2014; Siew Yean 2021).

According to Wad (2009), in the aftermath of the Asian crisis of 1997, Proton was unable to adequately react to the domestic market contraction. In fact, its production plummeted by 57% during 1998 (Wad and Govindaraju 2011). As a result, Thai and Malaysian automotive industries began following different trajectories, with the Thai export strategy obtaining remarkably higher benefits.

Measures aimed at compensating for trade liberalization seemed unable to avoid Proton's issues within the domestic market, where its production and market share plummeted. In effect, Proton lost its local market leadership to Perodua, which, as of 2021, has twice as much market share as Proton (Malay Automotive Association 2021).

Which factors, then, explain the poor performance of the Malaysian national company Proton since 2000? The related literature points to the following elements:

6. The highest tax rates within ASEAN (Suffian 2020).

- Its impaired product development and marketing capabilities led to poor commercial performance. Its new vehicle models obtained weak commercial results over the 2000s, mostly due to their low quality and high prices, despite pricing policies that failed to cover the full cost (Wad and Govindaraju 2011).
- Moreover, as stressed by Wad (2009), by basing its entire export strategy on a developed market, such as the United Kingdom, marked by its oversupply, and having to contend with extensive distribution networks dominated by occidental competitors, Proton found an additional obstacle.⁷
- In an industry with such stringent patterns of technological development, not only did Proton have to deal with its own technical and commercial impairment while competing with large multinational manufacturers, but also it had to bear the extra burden of its vendors' development programs, aimed at overcoming the technological backwardness of auto parts firms through various measures (Natsuda, Segawa and Thoburn 2013).

Contrary to Proton's nationalist approach, in Perodua, equity control was transferred to Daihatsu as early as 2001. As a consequence, the firm was allowed access to technologies, R&D, and further advantages of the Daihatsu GVC. Thus, its production and domestic market share grew, and even its exports began to increase under Daihatsu's brand.

Ultimately, tightly conditioned by the political goal of favoring *Bumiputra* firms' consolidation, Proton ran into numerous obstacles that limited its innovative, technological, and commercial upgrading. These constraints, in turn, blocked the way to successfully compete in the now increasingly demanding domestic market and, also, to penetrate foreign ones. More broadly, Malaysian firms failed to integrate effectively into the automotive GVC. Next, we will specifically consider how Proton sought to overcome these obstacles through several attempts to form strategic joint ventures with multinational automakers.

4.1.3. National control vs upgrading and export development

Beginning in 2006, the New Automotive Policy (NAP) was implemented, introducing a set of measures aimed at promoting Malaysian firms' integration into the automotive GVC. Within this framework, the government intensified its efforts to create strategic joint ventures between Proton and multinational automakers. By doing so, Proton was expected to reinforce its competitiveness, while upgrading its technological and R&D capabilities. By the same token, a

7. Natsuda et al. (2013) showed that this strategy changed since 2006, reorienting towards regional markets in ASEAN.

vital association of that sort would contribute to making Malaysia an export hub within the region.

The pursuit of these capabilities had been a central objective behind Proton's association with Mitsubishi since the beginning. However, the Japanese firm restrained the transfer of these functions to Malaysia and charged a high price for its productive licenses. To all appearances, this opposition to sharing know-how was due to the fact that Mitsubishi was unable to secure control of the firm (Suffian 2020). To overcome this barrier to technological upgrading, Proton began a first round of associations with other firms by the mid 1990s. First, it formed a joint venture with Citroën, by which the production of the latter's models began. Second, Proton took control of the British firm Lotus, aiming to acquire engineering and R&D skills.

A second phase in terms of joint-venture attempts began in 2004, when Mitsubishi Motors sold its share of equity in Proton. Subsequently, Proton opened negotiations with several lead automakers: Volkswagen, Peugeot, Citroën, and General Motors. On the one hand, Proton sought access to technology and design capabilities. On the other, the main interest of the multinationals was to utilize Proton's production facilities as a manufacturing base to export to other ASEAN countries under the umbrella of the AFTA, a market dominated by Japanese firms.

Those negotiations failed, however, mainly due to Proton's insistence on receiving technological transfer without relinquishing operating control to foreign partners. As a result, Proton signed a new agreement with Mitsubishi Motors in 2008, another with Honda in 2012, and lastly another with Chinese Geely in 2017. In all those cases, Proton gave up most of its technological learning aspirations, as agreements involved manufacturing pre-existing models of the foreign firms (Suffian 2020). According to Siew Yean (2021), Geely finally acquired capital control of Proton in 2017, bringing Proton's trajectory as a national champion to an end.

To sum up, despite trying to overcome its competitive disadvantage through a series of strategic joint ventures, Proton failed to reach advantageous agreements with lead firms. An overview of the literature points to a single factor as the main reason behind those failures: Malaysian authorities' insistence on retaining Proton's capital and operating control. Under those conditions, lead multinationals were reluctant to transfer technology, design capabilities, and access to global distribution networks, assets deemed strategic in international competition.

4.2. *Indonesia*

4.2.1. Exit from the crisis and economic liberalization

The 1997-98 crisis also impacted Indonesia and its automotive sector. First, it implied the resignation of President Suharto followed by a period of high political instability until 2001. That year, Megawati Sukarnoputri was elected, and several economic liberalization policies were implemented. Moreover, the intervention of the International Monetary Fund after the crisis included a restructuring of the automotive sector, proposing import tariff reductions, the elimination of incentive systems, and full compliance with WTO rules.⁸

Additionally, the benefits granted to the national automaker, Timor Putra National,⁹ were sued by the United States, Japan, and Europe in the WTO, causing the bankruptcy of the company and the end of the Indonesian National Car project. Particularly, Japanese automakers were the most favored by the economic openness as they gained control of 90% of the car market over the post-crisis period (Tai 2014). On the other hand, Indonesian companies were in control of the distribution and sales segment.

In 2004, Susilo Bambang Yudhoyono, leader of the Democratic Party, became the first president elected through direct vote. During his government, a new automotive plan was launched. This sought to increase the local content of vehicles by means of tariff reductions on various products for companies that were based in the country and began to manufacture components not previously produced in Indonesia (Thoburn and Natsuda 2018).

4.2.2. The Low-Cost Green Car (LCGC) policy

In 2009, a second phase of the automotive industrialization project was announced with an innovative policy that aimed to introduce a new product: a small and environmentally friendly vehicle. According to Natsuda et al. (2015), this plan was motivated by the growth of the middle class and the transition from motorcycle to automobile use, as well as the increasing problems with energy supply and subsidies. The objectives of this project were to boost demand, create larger scales of production, and lower the average production costs of vehicles.

8. Due to WTO pressure, local content policies and mandatory deletion programs by local production were banned (Thoburn and Natsuda 2018).

9. This company was part of an ambitious 1996 plan of President Suharto that was focused on the production of a national car. The firm, which was owned by Suharto's son, was the only beneficiary of this project and started to work with the South Korean Kia Motors to produce vehicles.

However, the initial plan fell short of expectations and, in 2013, a new version was put in place under the name Low-Cost Green Car (LCGC) policy. This project made use of exceptions for the tax on luxury goods to buyers of specific vehicles classified as LCGC. Vehicles included in the plan had to meet several requirements: (i) they must have an engine of up to 1,200 cubic centimeters (cc) for those powered with gasoline, and 1,500 cc for diesel engines, (ii) a minimum fuel efficiency of 20 kilometers per liter, and (iii) its price had to be below US\$9,000 (at the time of its release). After a while, vehicles with low carbon dioxide emissions were added to this program. These included Electric Vehicles (EVs), hybrid vehicles, and vehicles using alternative fuels such as ethanol or compressed natural gas.

Since its implementation, the sale of LCGC vehicles quadrupled between 2013 and 2019, according to GAKINDO data. Following Natsuda et al. (2015), this policy was inspired by Thailand's Eco Car plan, although in Indonesia the main incentive was on the demand side, while in Thailand the plan was oriented both to demand and supply, as we will discuss below.

4.2.3. The National Industry Development Master Plan

In 2014, Joko Widodo of the Indonesian Democratic Party of Struggle was elected president. The new authorities launched an ambitious plan for the automotive industry called the National Industry Development Master Plan 2015–2035. Its projections aim at making Indonesia a major player in the global automotive industry, mainly within the EV segment but also in the lithium batteries market (Negara and Hidayat 2021).

In this context, the government implemented numerous policies to reduce the use of gasoline and greenhouse gas emissions. These included subsidized credits for the acquisition of EVs, 100% discounts on electric tariffs for electric car owners who switch to higher models, and 75% reductions for owners of electric motorcycles (WTO 2020). In addition, fiscal and trade incentives were adopted to promote the EV industry in order to boost domestic production and exports, which are expected to reach one million cars by 2025.¹⁰ Moreover, the new plan sets high LC requirements for the manufacture of EVs, establishing minimum national contents of 35% for the first years, but with gradual increases in subsequent years (Global Trade Alert 2019).¹¹ This

10. The incentives for the EV industry included import tariff cuts on EVs; tax exemptions on luxury goods; exemption or reduction of central or regional taxes; import tariff cuts on machinery, products, and materials in the context of an investment operation; suspension of import tariffs in the context of export operations; incentives for the creation of electric battery charging stations; tax incentives for research, development, and technological innovation activities, among many others. See WTO (2020).

11. For those with two or three wheels manufactured between 2019 and 2023, the LC started with 40%. Then, the minimum content will rise to 60% for EVs produced between 2024

new plan started to attract automakers from South Korea and China which see an opportunity to grow in a market dominated by Japanese firms (Negara and Hidayat 2021).

On the other hand, during these decades, Indonesia carried out a series of free trade agreements (FTAs) with other countries, creating a network with a *spaghetti bowl* pattern (Pasha and Setiati 2011). First, there are all those related to ASEAN: China in 2005; Australia-New Zealand, India, Japan, and Korea in 2010. Then, Indonesia pursued bilateral FTAs with Japan in 2008, Pakistan in 2013, Chile in 2019, and Australia in 2020. With the exception of Pakistan, all of them were in force in 2021.

4.3. Thailand

4.3.1. The rise of the ‘Detroit of the East’

Of all the cases reviewed in this article, the Thai experience can be deemed the most successful. A particular combination of factors led Thailand to position itself as the ‘Detroit of the East’ after the Asian crisis.

The Thai automotive industry was established in the 1960s as an integral part of ISI Policies. This period was characterized by the presence of three simultaneous sectoral measures: high tariffs to promote the national assembly of motor vehicles, LCR to incentive auto part suppliers, and the obligation for MNE to associate with a local partner in a joint venture to produce in Thailand (Doner 1991; 2009; Natsuda and Thoburn 2014). According to Intarakumnerd (2021), a great part of the technological upgrading made by Thailand took place between the 1970s and the 1980s when higher-value original equipment manufacturers localized. The last policy undertaken during the ISI phase was in 1989; the Thai government mandated assemblers to use locally-made diesel engines for their pickup trucks (Natsuda, Segawa and Thoburn 2013).

Doner and Wad (2014) recognize four long-term consequences of the protectionist politics that traced a path for the later development of the industry. First, the robust domestic demand for one-ton pickup trucks nurtured during this period, and its impact on the economies of scale was a determinant to later encouraging the production of this particular vehicle. Second, Thailand managed to take advantage of accumulated know-how in the production of diesel engines for pickup trucks to become the region’s key supplier of this core product during the twenty-first century. Third, the local contents regulation

and 2025, and to 80% for those manufactured after 2026. At the same time, EVs with four wheels or more must have a minimum domestic content of 35% if they were produced between 2019 and 2021; 40% if manufactured in 2022-2023; 60% if manufactured between 2024 and 2029, and 80% from 2030.

resulted in the survival of a small (but growing) number of major components factories. Fourth, the emergence of an automotive cluster near Bangkok. Since the early 1990s, protectionist measures inherited from the ISI model were gradually dismantled in a so-called rationalization phase. First, under Anand Panyarachun's government (1991 to 1992), tariffs on vehicles and auto parts kits were reduced to less than a third of their previous levels, all quantitative restrictions on imports were converted into tariffs, and the free production of any type of model that was hitherto prohibited was enabled to increase the scales of production (Warr and Kohpaiboon 2018). Second, in 1993, in compliance with WTO requirements on trade-related investment measures (TRIMs), foreign ownership restrictions on automobile manufacturing were removed in 1997, leaving Thailand as the first developing country to do so. Finally, after the WTO Uruguay Round, the government committed itself to end the LCR by January 2000 (Techakanont and Leelahanon 2015).

The 1997 Asian financial crisis accelerated this liberalization process in several ways. On the one hand, it dismantled the political alliance of sectors that had matured under the import substitution phase and that were opposed to opening the economy (Doner 2009; Warr and Kohpaiboon 2018). On the other, massive capital outflows forced the government to try to increase foreign direct investment through trade liberalization (Warr and Kohpaiboon 2018). Lastly, the devaluation of the baht promoted exports at the same time as Thailand joined the WTO.

Commercial liberalization was also boosted by the integration to the AFTA, some authors even argue that the trade effects of this agreement were more important than the incorporation to the WTO (Chen 2014; Kohpaiboon and Jongwanich 2019; Kohpaiboon and Yamashita 2011; Natsuda and Thoburn 2014; Kohpaiboon 2015). While exposure to foreign competition was expected to promote the competitiveness of Thai firms, this opening was followed by the bankruptcy of a large number of auto parts companies or by their takeover by Japanese firms. Possibly, the lack of systematic measures to strengthen local R&D, protection for auto parts SMEs, or labor qualification policies contributed to this outcome (Doner and Wad 2014). Indeed, Doner (2009) named this period 'liberalization with denationalization'.

It is after this phase that Thailand emerged as an automotive export hub with the impressive commercial and productive results already discussed in Section 3. However, there is not a unified diagnosis in the literature reviewed as to which was the main driver of its success. For instance, Warr and Kohpaiboon (2018) suggested that it was the result of the liberalization process combined with heavy investments in infrastructure¹² made over the previous dec-

12. The first set of infrastructure investments, called the East Coast Plan, started in the late 1980s and was designed to reduce costs within heavy industry at large. In turn, the Laem

ade. Moreover, authors like Natsuda and Thoburn (2014) underscored the relevance of industrial policy to produce those results. Indeed, since the beginning of twenty-first century, Thai policymakers managed to effectively exploit the shrinking policy space left for developing countries within the multilateral trade system of the WTO.¹³ Next, we delve into the main features of Thai industrial policy.

4.3.2. National champion policy

In 2002, the nationalist Thai government of Prime Minister Thaksin Shinawatra reformed a set of norms that regulated the automotive market to attract foreign investment and turn Thailand into a regional automotive manufacturing hub (Natsuda and Thoburn 2014). As a result, a champion product policy was formulated based on choosing a winning vehicle model, that in this case was the light pickup trucks, and linking it to an effective fiscal policy and incentives for local production. The selection of this model was based on the know-how in the production of heavy road vehicles that Thailand manufactured during the last decades of the previous century and the success in sales of commercial vehicles, particularly, light pickup trucks (Mingsarn 1993).

The choice of national champions is a particular type of industrial policy based on a strategic deployment of measures such as loans at preferential rates, tax exemptions, accelerated depreciation, the informal direction of production quantities, export promotion, and import restrictions to nurture specific industrial sectors (Schröder 2020). It is worth noting that this specific policy has been criticized by orthodox economists and is among the grey areas of trade rules allowed by the WTO.

The plan was developed over several meetings with more than 400 automotive firms coordinated by the Thai Automotive Institute (Doner 2009). This high degree of embeddedness between state and companies is the result of institutional capabilities inherited from the ISI period, which took the form of a master plan at the beginning of the twenty-first century.

The objectives of lead firms coincided with the needs of the Thaksin government insofar as they ensured trade surpluses and capital inflows in the context of the Asian crisis. In contrast, technological learning and upgrading in the GVC of the auto parts sector were relegated as priorities of the government.

Chabang Expressway and Laem Chabang Port propelled the automotive cluster to locate in eastern Thailand (Poapongsakorn and Techakanont 2008).

13. Natsuda and Thorburn (2014) argued that industrial policies prohibited by the WTO can still be implemented provided they are repackaged in the form of conditional investment incentives. Thus, it can be asserted that policy tools that were previously applied unilaterally have now been transformed into mutual agreements, i.e., incentives that are only offered if firms support industrial development objectives (Schröder 2020).

The product chosen under the first Automotive Master Plan (AMP 2002–2006) was the one-ton pickup truck. The second and third AMPs (2007–2011, and 2012–2016, respectively) were oriented towards the eco-car. Finally, the current planning focuses on electric cars (Electric Vehicle Action Plan 2016–2036).

The incentives were not only structured and linked to quantitative targets, but also established which specific type of vehicle should be produced. The first AMP for pickups was based on an income tax exemption for a period of three to seven years and reduced import tariffs on production machinery and equipment for new investments. To subscribe to the plan, these investments were required to be of at least 10 billion baht and 80% export-oriented. At the end of the period, those companies seeking a one-year extension had to develop Thai suppliers or local R&D.

The second and third AMP aimed at promoting cars with engines smaller than 1.3l in the case of gasoline combustion and smaller than 1.5l for diesel engines. At the same time, automakers were required to comply with the Euro 4 and 5 environmental standards. The plan also placed limits on carbon emissions and fuel consumption, which had to be below 1 liter per 20 km traveled. Given these specifications, the new product was named Ecocar champion. Although export requirements were not applied, since they were prohibited by the WTO, the plan did demand minimum production levels much higher than domestic demand, assuming that the surplus would be exported.

The choice of this type of vehicle was based on the projection that the Thai population, as their income increased, would demand more and more comfortable and better designed cars adapted to urban life, as opposed to the pickup trucks (Techakanont and Leelahanon 2015). At the same time, the focus on this new national champion sought to encourage the production of more complex cars in order to achieve higher levels of local value added while reducing pollution (Schröder 2020).

New investments meeting these requirements would receive incentives similar to those under the first plan. These included eight-year corporate tax exemptions and reduced tariffs on imports of machinery and equipment.

Finally, in 2016, EVs became the new target of industrial policy (Intarakumnerd 2021). To this end, demand was stimulated by a sales tax reduction, coupled with the combined application of two taxes: first, a progressive tax based on engine size; second, a tax structured according to CO₂ emissions. On the supply side, a corporate tax exemption of five to eight years was again offered for investment projects, which could be extended by one year for each locally manufactured component. Similar proposals were made for bus projects using these types of engines and for parts and components of these classes of cars: batteries, traction motors, battery management systems, AC/DC converters, inverters, electric circuit breakers, portable EV chargers, and EV smart charging systems.

According to Schröder (2020; 2018), the latest plan differs from the previous ones by defining more flexible and vague requirements. The author concluded that, although EVs are considered a priority for the future of automotive manufacturing in Thailand, the technological paradigm is still uncertain for the application of standard policy instruments, and that the technology transfers necessary to develop EVs may require other more specific policies. Without strong leadership and continuous risk-taking efforts made by MNE and government it is difficult to seize the opportunities that EV presents (Intarakumnerd 2021).

Finally, it is interesting to outline four aspects of the Thai national champion policy. First, it seems clear that multinational companies had already selected Thailand as their pickup export hub even before the crisis exploded (Kohpaiboon 2009; Techakanont 2011). Mitsubishi and Auto Alliance, the Ford-Mazda joint venture, had specialized in the export of such vehicles from Thai territory before the crisis, and the General Motors-Isuzu partnership had followed the same approach in 2001 (Techakanont 2011). Hence, the champion product policy deployed after the Asian crisis reinforced existing company strategies rather than shaping them (Schröder 2020).

Second, these plans simultaneously promoted both supply and demand. Although the policy was directed primarily at promoting exports, domestic demand was also boosted to limit dependence on foreign markets. This was accomplished by reducing the tax burden on vehicle sales, using subsidized credits, and even financing the purchase of ‘first vehicles’ for the middle class. Techakanont and Leelahanon (2015) underlined that, in the new global strategies, the domestic market plays an important role, since it establishes a demand floor to reach the necessary scales and, then, with lower average costs, export to third markets.

Third, it should be noted that, while the champion product choice in Thailand initially focused on pickup trucks, manufacturers adopted different engineering strategies that allowed them to increase flexibility in production. Toyota’s Innova International Multipurpose Vehicle (IMV) platform is perhaps the best example. It supported three different models: the Fortuner SUV, the Hilux pickup truck, and the Innova minivan. These improved production architectures allowed car manufacturers to meet the requirements of the plan and, at the same time, to shift production of vehicle types if the market demands changes towards non-policy target models (Schröder 2020).

Finally, the development of the Thai automotive industry is also strongly driven by FTAs that this country signed with countries such as Japan, China, South Korea, Australia, New Zealand, and India (Chen 2014). Kohpaiboon and Yamashita (2011) concluded that FTAs in Thailand have contributed to changes in international commerce, but only for outputs (exportation of final vehicles) and not for the inputs (importation of auto parts).

4.4. Argentina

4.4.1. Brief history and Mercosur Automotive Policy

Argentina has a longstanding automotive history that extends back to the 1920s. A tendency to depend upon foreign multinationals' initiatives has prevailed throughout, briefly punctuated by a national champion policy pursued only during 1951–1955 (Belini 2006). Over the 1960s and 1970s foreign assemblers became a crucial piece of the industrialization scheme, serving as a final market for a large proportion of upstream industries (Pinazo 2015). However, this all changed since the mid 1970s as a result of the trade liberalization enacted by the last military government. This gave way to a profound restructuring of the industry; whereby most foreign companies fled the country and those remaining began a regional strategy integrating both the Argentinian and Brazilian markets and facilities.

The liberalization trend was reinforced in the mid 1990s, when Brazil and Argentina signed new agreements further deregulating bilateral automotive trade.¹⁴ Concurrently, a new wave of foreign direct investment led to a modernization of vehicle assembly platforms.

Despite economic and political instability, the regional agreements negotiated immediately before the crisis were crucial for the Argentinian automotive sector path in the twenty-first century. In 2000, Brazil and Argentina signed the Mercosur Automotive Policy (Política Automotriz del Mercosur – PAM), where they unified their automotive trade tariffs. It consisted in setting tariffs at 35% for extra-zone produced vehicles. For imported auto parts that competed with regional manufacturers, tariffs were established at 14–18%, while a 2% tariff was applied to parts for which regional production did not exist.

In addition, for a vehicle to be deemed as originated within the region, 60% of its content had to be regional. Later, in 2002, this local content norm was modified and demanded that 35% of vehicles be comprised of Argentinian-made components, although regulating this proved to be distinctly complicated, and controls were never carried out effectively (Cantarella, Katz and Monzón 2017). Lastly, a limit was imposed for tariff-free automotive trade between Argentina and Brazil and was named *flex*. This restriction set a maximum amount for vehicles and parts that one country could export to the other without tariffs. In 2001, the first year of the *flex* implementation, this lim-

14. On the other hand, these regional agreements allowed the automakers based in Argentina to increase their market and exit the automotive crisis of the 1980s (Perez Almansi 2021).

it was US\$1.105,¹⁵ but it was repeatedly modified over the years. These rules instituted the legal bases that shaped the sectoral trade between these countries in the following years.¹⁶

On the whole, the PAM turned out to be unfavorable to Argentinian automotive development as it allowed a huge increase in automotive trade deficit with Brazil, particularly explained by the auto parts trade. Indeed, the main mechanisms put in place by the agreement to contain trade imbalances proved ineffective and badly designed. The local content requirements were difficult to control and implement (Cantarella, Katz and Monzón 2017), and the *flex* coefficient allowed the trade deficit to continue mounting up, as we showed in the introduction (Gárriz and Panigo 2015).

4.4.2. External constraints and the rise of protectionist policies

From 2008 to 2009, several political and economic disputes arose as a result of the international economic crisis, the government conflict with agricultural entities and increasing trade deficit (Gaggero, Gaggero and Rúa 2015). For the automotive industry, this situation led to heightened protectionist policies. To begin with, the government increased import controls in order to curb the growing automotive trade deficit. Between 2008 and 2011, it did so by raising the tariff positions of the sector reached by import permits called Non-Automatic Licenses (NAL) and then, in 2012, with more restrictive permits called Advance Import Affidavits (Declaraciones Juradas Anticipadas de Importación – AIA) (Perez Almansi 2020). In 2008, a new law was enacted (Law 26.393), which encouraged automakers to use local auto parts by way of tax incentives. Nonetheless, such legislation did not have a significant impact on the reduction of the sectoral trade deficit. Moreover, despite marginal adjustments, the main mechanisms regulating the automotive integration with Brazil were kept almost intact, allowing the bilateral imbalance to continue. Importantly, this occurred in spite of the overtly protectionist stance of the national government.

4.4.3. The economic liberalization during the Cambiemos government (2016–2019)

In 2015, Mauricio Macri, leader of an alliance of different opposition parties called *Cambiemos*, won the presidential election. This change implied

15. This implied that, for Argentina, for every US\$1 in automotive goods exported to Brazil, a maximum of US\$1.105 could be imported from Brazil tariff-free.

16. In addition, other trade agreements for the automotive sector were signed with Chile (ACE 35) and Mexico (ACE 55), in which quota systems were established by expanding the number of vehicles that could be imported and exported tariff-free (Treacy 2018).

a turning point in the orientation of macroeconomic and productive policy, which was based on trade openness and financial and exchange rate deregulation (Burgos López 2017).

Regarding the automotive industry, several public policies were implemented. The new government replaced the restrictive AIAs – which had received an adverse court ruling in the WTO – with an alternative system (the Integral Import Monitoring System), which affected fewer tariff positions and was significantly less stringent. In the context of the recession of the Brazilian market, this resulted in a strong increase in import penetration in the domestic vehicle market, as well as a raise in imports of auto parts per vehicle produced locally (Perez Almansi 2022).

On the other hand, in 2016, Law 27.263 on the Regime for the Development and Strengthening of Argentinian Auto Parts was passed, establishing an electronic tax credit for automakers that purchase national parts and components. However, shortly afterwards a new macroeconomic crisis wreaked havoc: in 2018, a foreign capital sudden stop occurred, prompting the government to turn to the International Monetary Fund for an emergency program. During that crisis, the auto sector was severely hit by a drop in domestic consumption, causing a sharp decrease in automotive production, which reached almost 300,000 vehicles, the lowest record of the decade. However, no relevant policies were enacted during the Cambiemos government in order to lessen the impact of that crisis over the auto industry.

5. Conclusions and final remarks

At the beginning of the 2020s, the Argentinian automotive industry is mostly oriented toward the Mercosur regional market, also lacking geographical proximity to traditional industrial centers to which it can be integrated on the basis of just-in-time schemes or to jointly undertake the development of new vehicles. In addition, its domestic market is comparatively small and that of its main regional partner happens to be overcrowded by subsidiaries of multinational assemblers operating at suboptimal scales. Moreover, this sector's labor market structure prevents an international insertion based on low wages. As a result, an alarming tendency towards trade deficit and large production fluctuations emerged. By contrast, even when they shared similar starting points, the ASEAN automotive trajectories hereby reviewed were different and, at times, more successful. Against this backdrop, what could Argentina learn from ASEAN countries' experiences? Are there any relevant conclusions/inferences to be drawn for sectoral analysis and policy design?

The Malaysian case has an exclusive element: its National Car project. In terms of implications, this experience displays several threats that put the na-

tional car strategy in jeopardy. Particularly, these risks surfaced during the last 20 years, when lead multinational firms reaffirmed their control over the automotive GVC, and the policy space for developing countries shrank substantially due to the liberalization process. As a result of this contradiction, Proton lost market share, failed to significantly upgrade its technical capabilities, and did not reach advantageous agreements with lead firms. Eventually, all this led to the failure of its export strategy.

It seems reasonable to infer that, without the acquiescence of lead multinational firms, which ultimately enable export operations, national strategies might be vetoed. Beyond the difficulties that this brought to Proton itself, it had ripple effects over the whole Malaysian automotive industry. Indeed, this led Malaysia to be deemed as an unattractive production base for lead companies among other alternatives within ASEAN.

A second element of the Malaysian experience is probably more worthy of attention for Argentinian policymakers. Despite official programs to enhance the competitive skills of Proton's vendor network and regardless of maintaining high levels of locally added value, local auto parts makers showed subpar capabilities and learning over time. In fact, the pressure to utilize local suppliers is among the main motives for the failure of negotiations between Proton and lead companies. Moreover, on occasions, the firm launched more competitive vehicles to the market at the expense of losing locally added value. This sheds light on the hurdles of an industrial policy whose main concern is to preserve business opportunities for national suppliers with limited experience and exposed to more stringent requirements from lead automakers.

The Indonesian experience can be presented as a middle ground between the relatively misfortunate Argentinian and Malaysian cases, at one extreme, and the most successful example corresponding to Thailand, at the other. For sure, several weaknesses have been unveiled in the literature: Indonesia has followed an erratic industrialization model, with little exploitation of economies of scale, limited export capacity, foreign control over the final vehicle assembly segment, underdevelopment of its local supplier sector (largely populated with foreign suppliers as well), and high import dependence for parts supply. Yet, despite all those shortcomings, we should highlight that this country managed to reach relatively high production levels in the passenger vehicle segment in recent years and, also, reverted the overall auto industry trade deficit by growing passenger vehicles exports.

When comparing Indonesian and Argentinian trajectories, we should keep in mind the aforementioned disparities: their domestic market size, the role of exports, and the vehicle segment specialization differ remarkably between them both. Nevertheless, we can draw crucial conclusions for industrial policy. Indonesia's early initiative to promote EV sales and manufacturing

from 2009, highly attuned to the strong global transition towards electromobility, is perhaps the most noteworthy aspect. Indeed, despite not being among the largest global actors and having a briefer automotive trajectory compared to Argentina, Indonesia managed to be far ahead of its time in promoting EV specialization. By contrast, in Argentina, the first measures in this regard were implemented as late as 2017 and 2018, and merely consisted of tariff reductions aimed at easing EV imports.¹⁷ It was not until the end of 2021 that the government sent a Sustainable Mobility bill to the National Congress, which intended to promote this segment.

In a similar vein, Indonesian planning in order to heavily promote EV production shows an even more aggressive goal of becoming a lead actor within that niche. This exemplifies the wide variety of fiscal and non-fiscal instruments available to shape the industrial structure, as well as the use of LC requirements at an increasing scale for EV manufacturing. Framing these incentives within long-term planning can be useful when facing the energy transition in which the Argentinian manufacturing industry should critically embark upon.

Lastly, the reviewed literature and data point to the Thai case as the most successful experience. Several elements contributed to this result. First, Thailand made a strong commitment to opening its market by removing trade barriers at the right moment, before the southeast Asian crises began in 1997 (Wad 2009). This allowed the country to overtake its regional partners in attracting investments from Japanese firms, which were coincidentally seeking new markets. Thus, Thailand managed to combine free trade and economies of scale on final vehicle assembly. However, it was much less successful in promoting national firms' competitiveness, particularly in the auto parts segment. Its appropriate timing for instrumenting trade liberalization, plus its geographical location close to large markets and Japanese regional value chains are unique elements that cannot be replicated elsewhere. Thus, hardly any policy conclusion could be drawn from them.

Against that backdrop, the consecutive master plans of national champion products put in place since the 2000s were successful in terms of reinforcing domestic demand and production. Once again, these tools might be highlighted as particularly useful in light of the challenges faced by Argentina.

Importantly, when compared to the Thai case, the lack of continuity and internal coherence of the Argentinian automotive policy is evident. On the one hand, the comparison reveals that, during the 2000s, policies aimed at final vehicle assemblers were insufficient and ineffective. On the other, aggressive attempts to protect the auto parts segment proved to be futile in the face of the global supply strategies upon which automobile production is struc-

17. See Decrees 331/2017, 230/2017, and 51/2018 for further details.

ture. In this sense, the Argentinian government seems to have protected the auto parts sector more than its Thai peer, without comparatively better results. Quite the opposite, this led to mounting conflicts with the final assemblers as well as with Argentina's regional partner, Brazil.

For sure, certain instruments are already in place in Argentina (for instance, the regime for auto parts promotion). However, the Thai experience shows that there is ample space for improvement in terms of carefully designed conditional tax credits, boosting target output levels, technical specifications, quality and environmental standards, local value added in specific parts and systems, etc.

It is also worth comparing public-private relations in Argentina and Thailand. Extensive foreign trade deficits since 2011 in Argentina led the government to erect trade barriers (such as the NALs and AIAs) that obstructed the automakers' business strategy until 2016, when a new government took office and removed those measures. In Thailand, in contrast, the coordination and planning devices were sustained even despite the successive coups d'état that pervaded the period, reflecting less conflict between the automakers' strategy and the broader Thai macroeconomic equilibrium.

To conclude, the four cases reviewed had to deal with GVC coordination made from abroad by lead firms' headquarters. National and regional industrial policies seem appropriate tools to condition those strategies to enhance the Argentinian role within that global network. Yet, to structure actions seeking to orient production, sourcing, and foreign trade strategies is one thing, and to directly determine private initiatives is quite another.

Along those lines, we summarize some policy recommendations for the Argentinian case based on the three Southeast Asian surveyed experiences. First, seeking to fully capture added value within domestic borders does not seem to match the current global reality of the automotive industry. Alternatively, Argentina could specialize in specific technologies, models, subsystems, parts, or services for which it has comparative advantages. Second, even when protecting the national auto parts industry is a crucial endeavor, policies well beyond defensive instruments are required. For instance, Thailand achieved rewarding results in attracting global suppliers and promoting exports of auto parts previously made for local assemblers. Third, aiming at reducing Argentina's export exposure to Brazil's market, both countries should jointly embark upon a search for trade agreements with third countries lacking an automotive industry. This course of action seems to have produced incipient results for the Asian countries to increase scale and exports. However, this commercial diplomacy requires alignment with the global strategies of lead firms to avoid backfire effects.

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Authors' contribution statement

Rodrigo Pérez Artica: framework, methodology, software and code, formal analysis, investigation, dataset, writing, visualization, supervision.

Javier Pérez Ibáñez: framework, methodology, software and code, formal analysis, investigation, dataset, writing, visualization.

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Appendix

TABLE A.1 • *Not-weighted average of the Most Favoured Nation (MFN) of chapter 87 of the Harmonized System (percentages) (selected years)*

Country	2000	2005	2010	2015	2019
Argentina	18.75	20.63	22.51	22.60	23.09
Indonesia	25.07	20.71	17.42	17.32	20.21
Malaysia	30.11	19.56	17.33	16.71	17.56
Thailand	35.88	32.11	31.7	32.22	34.66

Source: World Trade Organization Tariff Analysis online. Please note that these averages might be misleading as to the real trade policy changes implemented by the countries considered. In particular, for Thailand, extremely high tariffs affecting only a few individual products lead to unrepresentatively high average tariffs. Also, non-tariff measures implemented by the Thai government show that this country had a far more open trade policy than suggested by this table. For a detailed discussion see Kohpaiboon and Shamanita (2017).



Reconsiderant les estratègies de desenvolupament automotriu a l'Argentina a partir de l'experiència de l'ASEAN

RESUM

En aquest article comparem la trajectòria de la indústria automotriu argentina a partir de l'any 2000 amb la de tres països que formen part de l'Associació de les Nacions del Sud-est Asiàtic (ASEAN): Malàisia, Indonèsia i Tailàndia. Procurem identificar els factors que expliquen les divergències i extreure'n aprenentatges per discutir la política argentina en el sector automotriu. Primer, comparem el desenvolupament productiu i comercial d'aquesta indústria en els quatre països. Després, repassem les principals polítiques sectorials implementades a cada país durant el període considerat. L'anàlisi comparada permet destacar el cas tailandès, que és on es va produir el millor desenvolupament pel que fa a l'expansió industrial i el comerç internacional. Així mateix, entre altres alternatives, es revela el potencial de les polítiques d'incentius selectius en certs productes i tecnologies que induïxin estratègies productives privades més compatibles amb l'estabilitat macroeconòmica i el desenvolupament industrial local.

PARAULES CLAU: indústria automotriu, cadenes globals de valor, política industrial, integració regional

CODIS JEL: L52, L62, N65, N66



Reconsiderando las estrategias de desarrollo automotor en Argentina a la luz de la experiencia de la ASEAN

RESUMEN

En este artículo, comparamos la trayectoria de la industria automotriz argentina desde el año 2000 con la de tres países que componen la Asociación de Naciones del Sudeste Asiático (ASEAN): Malasia, Indonesia y Tailandia. Procuramos identificar los factores que explican las divergencias y extraer aprendizajes para discutir la política automotriz argentina. Primero contrastamos el desempeño productivo y comercial del sector automotor en los cuatro países. Luego repasamos las principales políticas sectoriales implementadas en cada país durante el período considerado. El análisis comparativo permite resaltar el caso tailandés, que es donde se produjo el mejor desempeño en materia de expansión industrial y comercio internacional. Asimismo, entre otras alternativas, se revela el potencial de políticas de incentivos selectivos a ciertos productos y tecnologías que induzcan estrategias productivas privadas más compatibles con la estabilidad macroeconómica y el desarrollo industrial local.

PALABRAS CLAVE: industria automotriz, cadenas globales de valor, política industrial, integración regional

CÓDIGOS JEL: L52, L62, N65, N66



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