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**Brazil's automotive and textile sectors during the Covid-19 pandemic:
crisis, repercussions and responses from the government,
companies and labor unions***

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Abstract:

In addition to the severe health crisis, the Covid-19 pandemic provoked one of the deepest socioeconomic crises in the history of capitalism. Yet, the economic structure of each country and the strength of the welfare state, along with the ability of the diverse governments to cope with the situation, resulted in very diverse outcomes. In particular, center and peripheral countries had very different policy spaces to deal with the crises. One of the important consequences of the pandemic for the world economy was the disruption of Global Value Chains (GVCs). The aim of this article is investigating the effects of the pandemic on the automotive and the textile industries in Brazil, as well as the responses from the national government, and from these sectors' companies and labor unions to this critical situation. Ultimately, it inspects if the pandemic and the so-called "coronacrisis" are provoking structural changes to Brazil's insertion in the international production networks of these two sectors. The methodology includes the analysis of data for the overall Brazilian economy and the two studied sectors (secondary data, but also our own estimations based on the National Household Survey); a review of the literature and the sectoral reports; and several interviews made with workers and managers in the two sectors, as well as policy makers. Despite the differences in the effects of the pandemic on both sectors, one commonality is the deepening of the precarity of working conditions, with increasing turnover in some subsectors, alternation of periods with no work and periods with very intense work and a decline in average incomes.

Keywords: Brazil, automotive industry, textile industry, Covid-19 pandemic, Global Value Chains.

JEL codes: F15, F62, L62, L67, O11

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1. Introduction

In addition to the severe health crisis, the Covid-19 pandemic provoked one of the deepest socioeconomic crises in the history of capitalism (UNCTAD, 2020). Its global reach, the need for interruption of production in diverse fields, the volatility of financial flows and the hike in the indebtedness level (both for public and private actors) engendered troubled economic conditions all over the world (Stevano et al., 2021). Yet, the economic structure of each country and the strength of the welfare state, along with the ability of the diverse governments to cope with the situation, resulted in very diverse outcomes. In particular, center and peripheral countries had very different policy spaces to deal with the crises¹.

Brazil faced the pandemic with a set of uncoordinated policies which resulted in the country's dishonorable second place standing in terms of absolute numbers of deaths from Covid-19 worldwide. Additionally, Brazil experienced deep socioeconomic problems, such as an important deterioration in income distribution, along with a substantial increase in poverty and food insecurity. As an illustration, in 2022 15.5% of the Brazilian population was estimated to live in a situation of hunger (33.1 million people)². The national government, headed by President Jair Bolsonaro during the pandemic, was a vocal critic of social isolation measures and, at the beginning of the crisis, did not provide any guidance in terms of health and economic policies. Nonetheless, it bowed to popular and legislative pressures and implemented policies to oppose the effects of the pandemic, but with bureaucratic problems, insufficient funds and an intermittent implementation.

One of the important consequences of the pandemic for the world economy was the disruption of Global Value Chains (GVCs). In fact, even before the circulation of the virus around the globe, the interruptions of activities in China – which is currently responsible for around 25% of the world's industrial production – provoked a lack of inputs and goods worldwide. Gradually, many other countries also had to stop production in various fields, deepening the disarrangements of the global supply chains. In this research project, we are analyzing the impacts of the pandemic on two sectors, namely, the automotive and the textile sectors, in three countries of the Global South: Brazil, India and South Africa.

The aim of this article is investigating the effects of the pandemic on these two sectors in Brazil, as well as the responses from the national government, the companies and the labor unions to this critical situation. Ultimately, it inspects if the pandemic and the so-called “coronacrisis” are provoking structural changes to Brazil's insertion in the international production networks of these two sectors. In order to do that, we initially discuss the macroeconomic impacts of the pandemic on the Brazilian economy. The methodology includes the analysis of data for the overall Brazilian economy and the two studied sectors (secondary data, but also our own estimations based on the National Household Survey); a review of the literature and the sectoral reports; and several interviews made with workers and managers in the two sectors, as well as policy makers³.

In addition to this introduction, the article is structured in four sections. In section 2, it discusses the general effects of the pandemic on the Brazilian economy and the policies implemented by the national government to face the crisis. Sections 3 and 4

¹ For details, see De Conti et al. (2023a).

² Estimations by PENSSAN (2022), based on a national survey.

³ In total, we have conducted 38 interviews: 19 in the automotive sector (10 workers/unionists, 5 managers and 4 representatives of employers' associations); 15 in the textile sector (10 workers/unionists, 4 managers and the President of the national employers' association); and 3 government officials.

discuss the effects of the pandemic on the Brazilian automotive and textile sectors, respectively. Some final remarks conclude the article.

2. Macroeconomic impact of the pandemic

The impacts of the pandemic on the Brazilian economy cannot be properly understood without a brief discussion of some structural aspects of the Brazilian economy – which make it more vulnerable to external shocks – as well as a discussion of the context in which the coronacrisis hit the country⁴.

First of all, it's important to highlight that the industrialization process established in Brazil – mainly from the 1930s to the 1970s, based on import substitution policies – fostered the development of a domestic industry which was relatively diversified when compared to other peripheral countries. However, this process was incomplete, and the country has not achieved technological autonomy in many important sectors – including the automotive sector, analyzed in this article. Moreover, in recent decades, Brazil has undergone a process named “regressive specialization” (Coutinho, 1997), that is, a relative decline of the manufacturing share of GDP (from 21% in 1985 to around 10% in 2020), along with a steady decline of manufactured goods exports (from 57.3% in 2000 to 25.8% of total Brazilian exports in 2022).

As a result, Brazil is not in a position to compete in international markets for most industrialized products, or to upgrade to strategic positions within GVCs where the country does not generally play a major role – with some exceptions which are discussed below. Taking into account the Brazilian share of the world manufacturing sector, the weakness of the Brazilian industry becomes clear: according to data from the United Nations Industrial Development Association (UNIDO) and the World Trade Organization (WTO)⁵, the share of Brazilian exports in the global exports of industrial goods declined from 0.9% in 2005 to 0.4% in 2020. Regarding the value-added in the industrial sector, the Brazilian share is a bit higher, but still declining, having gone from 2.3% in 2005 to 1.3% in 2020 (CNI, 2022). After all, during the first decades of the 21st century Brazil was virtuously linked to GVCs only in the agriculture, food and beverage, and extractive industry sectors. Nonetheless, this competitive position in commodity markets makes the Brazilian economy increasingly vulnerable to commodity price fluctuations. For all other sectors, integration is not only predominantly in low value-added and low-tech tasks, but is characterized by a condition of total dependency on decisions made by the headquarters of the multinationals. It is therefore a very dependent integration, which is certainly not adequate for a project of social and economic development.

The vulnerabilities produced by this mode of insertion in global production networks are deepened by the integration of the Brazilian economy in global finance. The features that define this mode of insertion include: i) liberalized financial markets and loose regulations regarding the access of residents to the global market, and of non-residents to the domestic market; ii) a large share of the external liabilities is short-term, making the portfolio investment in Brazil particularly sensitive to international liquidity cycles (and therefore highly volatile).

In regard to the macroeconomic regime, since 1999, Brazil has adopted a “tripod” to manage its macroeconomic variables, consisting of a flexible exchange rate, an inflation targeting regime and fiscal policy aimed at obtaining primary surpluses. This framework was preserved throughout recent decades, usually resulting in high interest

⁴ For a deeper discussion on the main characteristics of capitalism in Brazil, see De Conti et al. (2023b), which is also a result of this research project.

⁵ Data compiled by Brazil's National Industry Confederation (CNI).

rates and an appreciated currency⁶, which contributed to the abovementioned deindustrialization process and modest economic growth (Salama, 2016). In addition, this regime is greatly procyclical and tends to be ineffective against crises, as we will discuss below. At the end therefore, the national government frequently disregards the regime - mostly its fiscal rules - in order to respond to economic turbulence. Most recently, for instance, Brazil had primary deficits from 2015 to 2021⁷. During the first year of the pandemic, the primary deficit reached 10% of GDP⁸.

To complete this brief depiction of the contemporary Brazilian socioeconomic structure, some basic features of the labor market and the welfare state system should be stressed. Brazil is one of the most unequal countries in the world, with a high concentration of income in the hands of a small elite, in contrast to pervasive levels of poverty and hunger in many parts of the country – particularly in rural areas and urban slums. The state faces enormous challenges in addressing these issues, as well as in providing access to health care, education and public security to the entire population. Furthermore, Brazil's labor market is characterized by high levels of informality⁹, precariousness and a high rate of low-paid jobs without benefits or social protections. Despite recent improvements, the labor market remains heterogeneous, with significant disparities in wages and working conditions across sectors and regions (Oliveira and Pochmann, 2020).

It is therefore clear that the Brazilian economy is full of structural fragilities which make it very sensitive to the effects of international crises. In addition to that, the Covid-19 pandemic emerged as Brazil was already facing a deep economic, social and political crisis that began in 2014. A discussion on the reasons for this crisis goes beyond the scope of this article¹⁰, but it is worth mentioning that it resulted in the deepest recession in the country since 1930 (Rossi, 2017): GDP fell more than 7% in 2015-16 and the unemployment rate rose from 6% to more than 13% (in some states more than 20%).

This economic turmoil reinforced the deterioration of the Brazilian political environment, which culminated in 2016 in a *coup d'état* against President Dilma Rousseff, ousting the Workers' Party (PT is the acronym in Portuguese) after 13 years in office. Michel Temer then took office, implementing radical neoliberal policies, including the implementation of a 20 year-long hard ceiling for government spending increases and a significant labor reform. The spending ceiling allowed increases of the government budget only to the extent of the inflation rate, which meant, for a country with demographic growth (that creates new social demands) and with many socio-economic challenges still to be met, that the state, under these constraints, was somehow abandoning its purpose of facing those challenges. Such a draconian law was aimed to considerably reduce the size of the state in the long run, but it finally had to be promptly discontinued¹¹ with the outbreak of the pandemic and the resulting health (and social) crisis.

In turn, the labor reform, approved in 2017, was the most profound change in the labor laws in 70 years of CLT ("*Consolidação das Leis Trabalhistas*", the main corpus of Brazilian labor legislation), of which it changed approximately 200 items. The reform

⁶ Considering that the Brazilian current account has been systematically negative for the last decades.

⁷ Data from the Brazilian Central Bank (BCB).

⁸ For details, see De Conti (2022).

⁹ According to our estimations, the informality rate in Brazil is around 40% of the total labor market (see Figure 25 in the Appendix). It is therefore a high rate, but not as high as in other Latin American countries or India.

¹⁰ For a discussion on this crisis, see for instance De Conti et al. (2020).

¹¹ In 2020, the national congress enacted the so-called "War Budget", which waived compliance with constitutional and legal restrictions in the case of increased expenses or decreased revenues during the pandemic (details below).

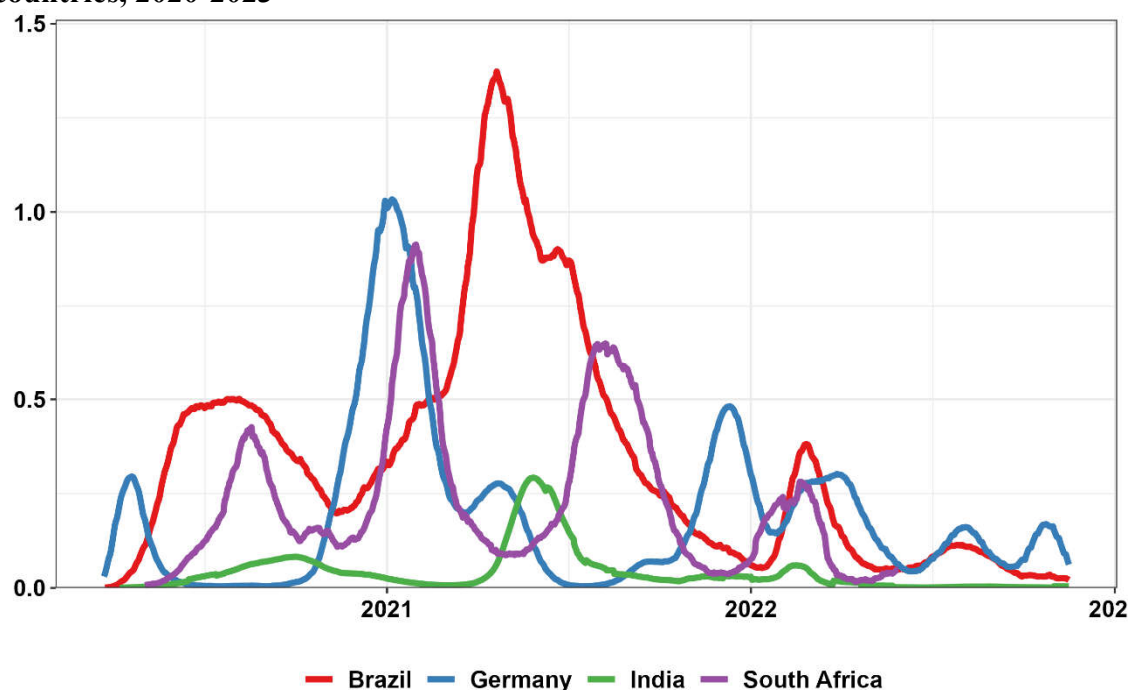
introduced the idea of the prevalence of the negotiated over the legislated, that is, the unions can agree to modify infra-constitutional CLT rules by collective agreement. The reform also created more flexible hiring structures, through temporary employment contracts and intermittent employment contracts (a worker who is called on demand and who works and gets paid by the hour). These new forms of contracting were joined by another important amendment to the CLT: the possibility of unlimited worker outsourcing. Previously, outsourcing was prohibited for the company's core activities, but can now occur in any activity. Finally, one of the biggest setbacks to the trade union movement was the change in how they are funded. At the time of the creation of the CLT – and as a way of keeping the unions under state control – a financing schema was created: the mandatory union contribution that corresponded to the annual payment to the union of the value of a day's salary of every worker. This funding regulation was abolished by the 2017 labor reform without the creation of any alternative source of funds. One year after the implementation of the reform, the total amount collected by all unions in Brazil dropped by almost 90%. Although the reform was marketed under the slogan of "increasing jobs", its content focused on deregulating workers' rights and disrupting unions.

Under the Bolsonaro government, the economic neoliberal agenda got even more intense and became associated with attacks on any progressive views on race, gender, environmental conservationism and even basic human rights. In 2019 a pension reform was signed, extending the age of retirement, adding new requirements and reducing the value of the pensions. The Brazilian Central Bank (BCB) was granted “political autonomy” with mandates for its president and board. Furthermore, the administration engaged in a series of privatizations of state-owned companies, and in the case of Petrobras (Brazil’s largest oil company) selling a considerable part of its assets.

It is therefore clear that structural and conjunctural problems concurred to make the Brazilian economy highly vulnerable when the pandemic hit the country. Concerning the very recent period, Brazil was, from an economic perspective, slowly coming out of the deep recession of 2015-16; and from a political point of view, it was under a far right-wing government, whose attitudes towards the pandemic and who’s perspective on the role of the state contributed to make the health crisis harsher and longer.

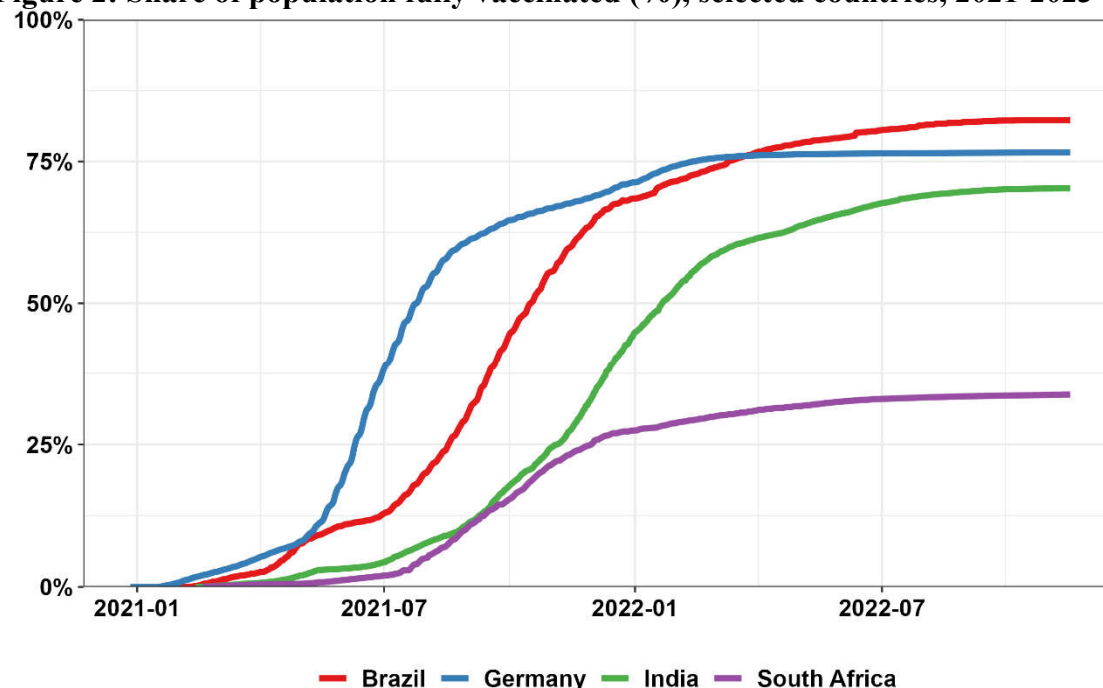
Brazil had three main waves of Covid-19 infections: March-August 2020, mid-2021 and early 2022. Figure 1 shows that most of the deaths occurred in the second wave (2021). The third wave, mainly due to the Omicron variant, infected more people but with almost $\frac{3}{4}$ of the population fully vaccinated (Figure 2) the fatal infections were not as high as in the previous waves. The tally of registered deaths by Covid-19 has nearly reached 700,000, placing the country as the second highest in absolute terms in the world. When considering deaths per capita, Brazil ranks 17th.

Figure 1: Four weeks rolling average of deaths per 100 thousand people, selected countries, 2020-2023



Source: Authors' elaboration based on data from *COVID-19 Data Hub*.

Figure 2: Share of population fully vaccinated (%), selected countries, 2021-2023

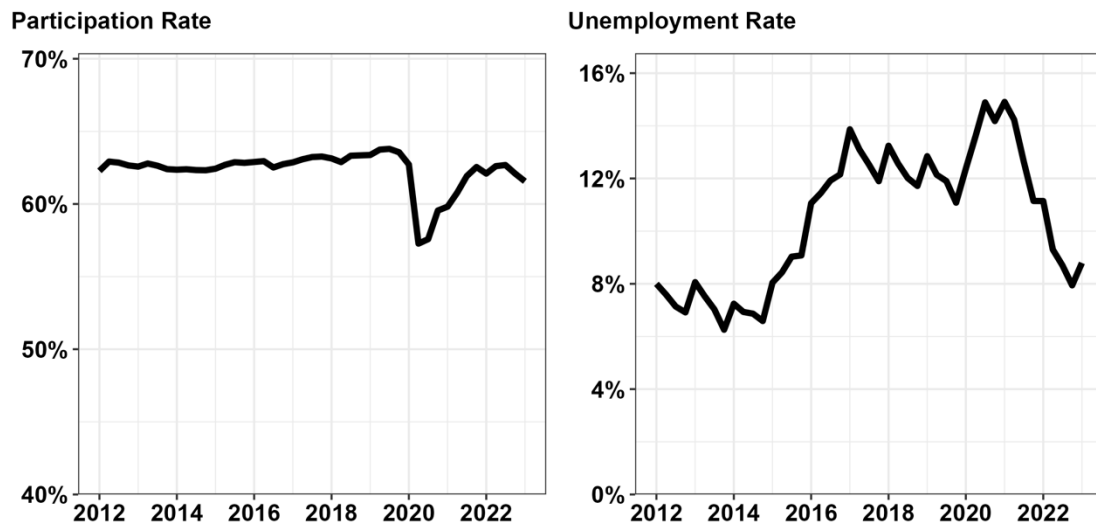


Source: Authors' elaboration based on data from *COVID-19 Data Hub*.

Unsurprisingly, the pandemic had profound socioeconomic impacts in Brazil and one of the most important consequences concerns the destruction of jobs. From January to August 2020, 12.5 million workers ceased to have an occupation, meaning a 13% drop in this first seven months of the pandemic. Yet, the number of people looking for work, that is, the unemployed, rose by only 2 million people in the same period. Therefore, the

unemployment rate rose to 15%, but it is not a proper sign of what was happening in the Brazilian labor market. In fact, the most important change was in the participation rate (-6 p.p. from early to mid-2020 – see Figure 3), since people left the work force momentarily, – becoming neither occupied nor looking for work, due to the lack of prospects of finding a job amidst this harsh context. The participation rate was additionally affected by the increase of unpaid care work (mostly conducted by women), given the temporary closing of schools and/or the high incidence of elderly people infected by Covid-19.

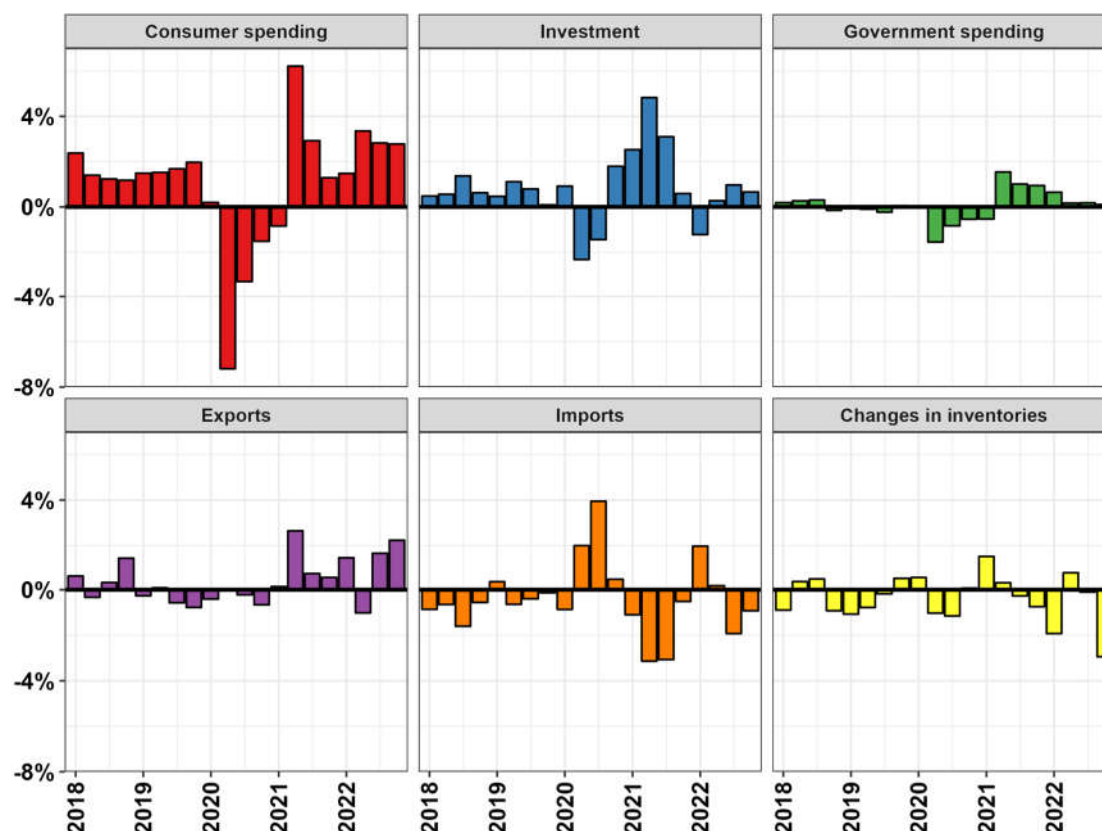
Figure 3: Participation rate and unemployment rate - Brazil.



Source: Authors' elaboration based on data PNADCT/IBGE.

The economic shock of the pandemic was stronger in 2020. GDP fell 9% in the second quarter of 2020 compared to the previous one (deseasonalized series). The main contributions to this drop came from household consumer spending and investments (Figure 4).

Figure 4: Contribution to GDP variation, Demand side – Brazil (Year-to-Year variation, %)



Source: Authors' elaboration based on data from Trimestral Brazilian National Accounts. Decomposition methodology from Lara (2015).

In light of this serious negative shock to the economy, the national government – after some hesitation – implemented an Emergency Aid Program aimed at providing support to the poorest population in the country¹². During its first phase, which lasted from April to August 2020, approximately R\$ 300 billion (equivalent to around US\$ 60 billion) were allocated to pay each beneficiary five monthly installments of R\$ 600 (equivalent to approximately US\$ 120), or R\$ 1200 (roughly US\$ 240) for single mothers. As the pandemic continued throughout the year, the second phase, from August to December 2020, was an extension of the program with half the monetary installment, again for five months. The third and last phase lasted from April to October 2021 with stricter requirements. From October 2021 onwards the Emergency Aid program was terminated, but the beneficiaries of the *Bolsa Família* program (rebranded as *Bolsa Brasil*) kept the R\$ 600 value, which was received by about 17 million of the poorest families. The Emergency Aid Program benefited about 68 million people, which accounts

¹² The main criteria for eligibility for the assistance were: a) being over 18 years old, except in the case of teenage mothers; b) not having an active formal job; c) not being a recipient of a social security or welfare benefit, or unemployment insurance or transfer program, except the *Bolsa Família*; d) having a monthly per capita family income of up to 1.5 minimum wages or a total monthly family income of up to 3 minimum wages; e) not having received taxable income above R\$ 28,559.70 in 2018; and f) working as an individual microentrepreneur (in the Portuguese Acronym “MEI”), informal worker, whether employed, self-employed, unemployed, of any nature, including the inactive intermittent worker, registered in the Single Registry for Social Programs (“CAD Único”). The Emergency Aid Program was limited to two members of the same family.

for approximately one-third of the Brazilian population (approximately 50% of all households had at least one beneficiary).

It is important to emphasize that the executive office, headed by President Bolsonaro and Paulo Guedes (the Minister of Economy), worked diligently against a more robust Emergency Aid Program and as heralds of “public fiscal solvency”. Reluctantly, under the force of the national congress, they consented to the program’s final design. Nonetheless, with the new budgetary year starting in January 2021, the government once again started implementing harsh fiscal measures in order to meet the self-inflicted target for the public budget. As the pandemic was even stronger in May 2021, the so-called War Budget¹³ was renewed and the government again had the possibility to fund social and health measures (Orair, 2022).

In addition to cash transfer programs directly for households, the government introduced various measures aimed at protecting the formal labor market. The most important measure was the "Emergency Program for the Maintenance of Employment and Income". This program allowed companies to temporarily suspend workers' contracts or reduce their working hours and wages by up to 70% for several months, either on an individual or collective basis. The government would then bear the payment of part of this reduction in income. The maximum duration of this suspension or reduction was 120 days, after which the worker would have job stability for the same period.

The government justified this policy as a means of preventing mass lay-offs, but it had a significant downside: the income was modulated by the value of the unemployment benefits and this, in all cases but the minimum wage level, resulted in a lower income for the worker. For example, someone earning around US\$ 1,000 may have lost 65.3% of his/her monthly income (Welle et al., 2020). The program was in effect during 2020 and was relaunched between April and August 2021. During its lifespan, 2.1 million employers (both companies and individual employers) used the program, and 12.4 million workers had their contracts suspended or their working hours reduced, representing more than one third (35.3%) of the total population with formal contracts in the private sector during the first quarter of 2020.

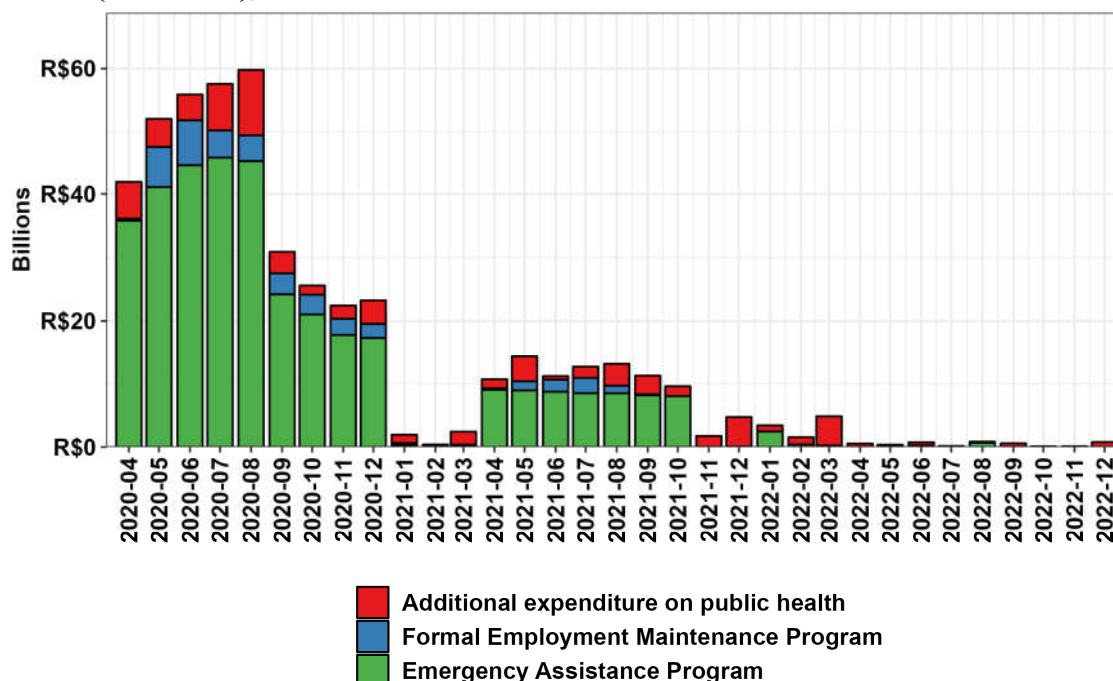
The Brazilian government has taken some additional measures to help ease the economic downfall. One of them was the suspension of certain taxes, such as the IOF (*Imposto sobre Operações Financeiras*), which is a tax on financial transactions. Additionally, the Brazilian government has extended the deadlines for paying federal taxes. For example, taxes which were originally due in March and April would be collected in July and September, giving businesses more time to manage their finances during the pandemic. The government has also reviewed the deadlines for active debts. Furthermore, to ensure that healthcare professionals and facilities have access to the necessary equipment and supplies, the Brazilian government has zeroed the import duties on health articles. Is important to say that these measures aimed at the businesses were constructed with the intimate help of the employees' institutions; that is to say that the political representatives of those economic sectors had full access to the government at the time, something that we didn't see with the workers' representatives.

In spite of the variety of measures, the amounts devoted to the Emergency Aid Program were by far the highest. Figure 5 shows that they were much higher than those devoted to the Program for the Maintenance of Employment and Income, and also much higher than the additional resources addressed for expenditures on the public health

¹³ Enabled by a decree of public calamity approved by the Brazilian National Congress, the “war budget” refers to a parallel budget created to cope with the needs of the pandemic, which was much more flexible in terms of the financial constraints and the bureaucracies involving the public expenditures. For details, see De Conti (2022).

system. The figure also makes evident that the resources allocated for such policies were completely concentrated in the first year of the pandemic, showing that the reversion on the effectiveness of the policies was quite quick, as we will further discuss below.

Figure 5: Central Government expenditure on major Covid-19 related programs – Brazil (R\$ billion), 2020-2022

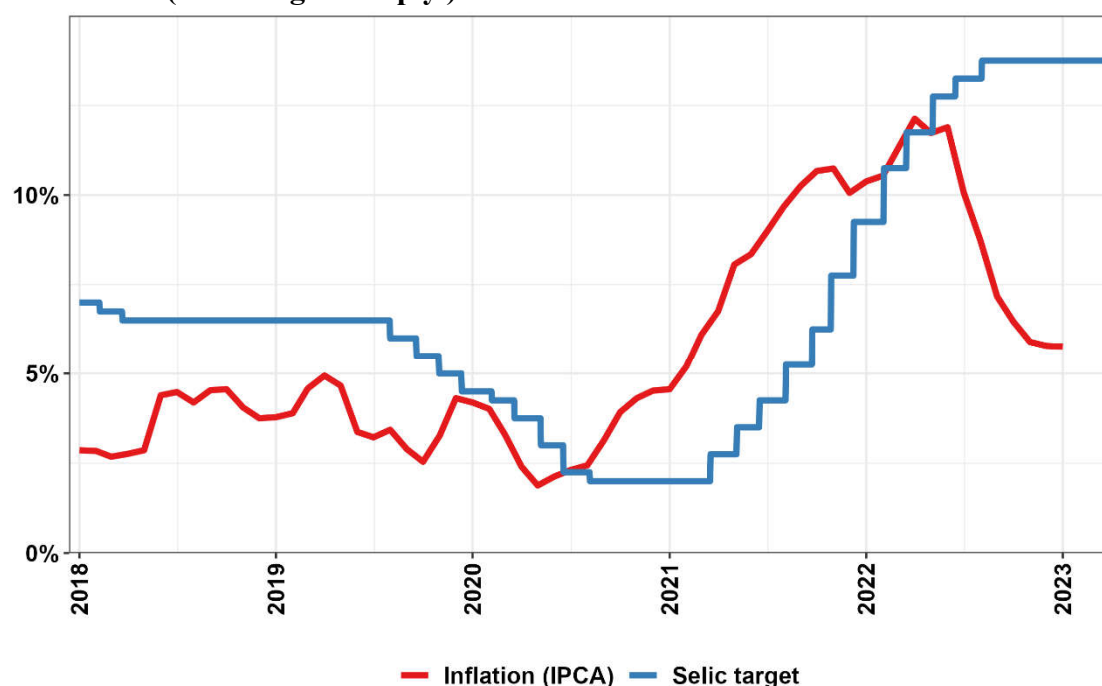


Source: Author's elaboration based on data from Brazilian Ministry of Economy.

Thanks to mass vaccination in Brazil and the gradual recovery of the world economy, the Brazilian economy started rebounding in 2021, but new problems appeared. Very importantly, several inflationary elements were putting pressure on general price levels at the same time. First, consumer spending was back (also due to the purchases that were postponed in 2020) pushing prices via increased demand. Second, international supply chains were disrupted, provoking a shortage of inputs. Third, in 2022 the war in Ukraine also led to an increase in international oil prices (and although Brazil is self-sufficient in oil and Petrobras is controlled by the government, the policy implemented by President Temer defined a full pass-through of international price variations to the domestic prices)¹⁴. Another significant factor was the depreciation of the Brazilian currency (Real), which made imports more expensive and diminished the purchasing power of Brazilian consumers. As a result of this set of inflationary forces, the Brazilian consumer price index (IPCA) rose from an annual rate of around 3% in 2020 to more than 12% at the end of 2022 (Figure 6).

¹⁴ This policy was changed by Lula's government, in 2023.

Figure 6: Broad national consumer price index (IPCA in 12 months) and Policy interest rate (Selic target - % p.y.) - Brazil



Source: Authors' elaboration based on data from the Brazilian Central Bank

In response to rising inflation – and even knowing that the inflation pressures were also coming from the shocks in GVCs – the recently autonomous BCB implemented the usual orthodox prescription to control inflation, i.e., raising the policy interest rate (Figure 6). Brazil has had, historically, one of the most elevated interest rates in the world, in nominal and real terms. After a short interregnum in the early phase of the pandemic when the interest rates were set at low levels – in line with the monetary policy that was being implemented in most of the world –, from mid-2022 onwards Brazil returned to this position. The multifaceted inflation seen in Brazil is also felt in most countries of the world in the current context, but the one-minded mechanism to deal with it, via monetary policy alone (along with the particular intensity undertaken in Brazil) is an additional coup over an economy which is barely trying to recover.

To sum up, the Brazilian economy was already facing a deep socioeconomic and political crisis from 2014 to 2019, and the initial impacts of the pandemic were very severe. The policies implemented by the national government – especially the Emergency Aid Program – were important in curbing the effects of the crisis, but they were insufficient and, in our opinion, precociously reverted. As a consequence, economic recovery is timid and vacillating. Yet, it is necessary to perceive that the impacts of the coronacrisis on the different economic sectors were very diverse. The analysis of the automotive and the textile sectors (Sections 3 and 4) indicate the common shocks, but also the different consequences in these two paradigmatic industrial sectors.

3. Automotive Sector

3.1 Overview on the Brazilian automotive sector

Bus and car assemblers were established in Brazil beginning in the early 20th century. Nevertheless, the genesis of an organized automotive industry in Brazil dates

back to the 1950s, when President Juscelino Kubitschek created the Automobile Industry Executive Group (Marx, Mello and Lara, 2020). The national government considered this sector to be a priority for the development strategy, and the plan was to attract multinationals which would produce in Brazil instead of only assembling the vehicles, generating spillovers for the autoparts subsector as well as for other sectors. For roughly four decades, the market was totally dominated by VW, GM, Ford and Fiat, and in the context of high import taxes the presence of these multinationals indeed enabled the formation of important national autoparts companies (Fleury and Fleury, 2020)¹⁵.

In the 1990s, Brazil – along with most Latin American economies – started an opening up process (Lopez and Carvalho, 2008) which, combined with the adoption of the so-called “Automotive Regime”, restructured the sector in the country, notably through the attraction of new multinationals. At a rapid pace, several corporations established factories in the country, such as Honda, Toyota, Mitsubishi, Peugeot-Citröen (PSA Group), Renault, Chrysler and Mercedes Benz (Marx, Mello and Lara, 2020)¹⁶.

In spite of the increasing production and the diversification of brands, the process of commercial liberalization combined with a macroeconomic framework which, as discussed in section 2, was harmful for industrial competitiveness – especially due to the currency appreciation and the high interest rates – resulted in a relative decline in the importance of the national autoparts companies. Throughout the first decades of the 21st century, many of these enterprises went bankrupt or instead became importers and resellers of foreign produced inputs to the automotive assemblers.

As a consequence, in spite of the relevance of the automotive sector in terms of production and jobs – which will be discussed below – the participation of national capital is low and declining. Not only the carmakers are subsidiaries of foreign multinationals, but most of the first-tier suppliers are foreign companies (*op. cit.*). Not surprisingly, most of the parts with high standards of technology are not produced locally, but are imported – reducing the value added for the Brazilian economy and creating significant problems whenever there is a disruption to GVCs, as we will discuss below.

Following the general standard of multinationals in regard to their subsidiaries, R&D investments in the automotive sector are not very relevant in Brazil. Rather, the effort has been in the adaptation of the models to the local conditions, notably in two dimensions. First of all, to a policy implemented in the 1990s providing subsidies for cars up to 1000cc, which gave rise to a boom in the production of these low cylinder capacity engines. Secondly, heavy stimulus from the national government¹⁷ has fomented the adaptation of engines to work with “flexible fuel”, i.e. gasoline and sugar-cane ethanol combined in any proportion and stored in the same tank¹⁸.

Currently, the automotive industry in Brazil corresponds to 57 vehicle factories, belonging to 26 foreign multinationals. In addition, there are around 400 autoparts companies operating in the country. Globally, Brazil ranks 8th in terms of production of auto-vehicles and 7th in terms of consumption (ANFAVEA, 2023). The primary hub for automotive manufacturing and employment is the state of São Paulo. Particularly the metropolitan region of São Paulo City has numerous automobile assembly plants and component suppliers, making it the industrial powerhouse of the Brazilian auto industry.

¹⁵ In 1969, a national company aimed at producing a “100% national car” was created (Gurgel), but it went bankrupt with the commercial opening up process of the 1990s. For further details on the history of the automotive sector in Brazil, see Sarti and Borghi (2017).

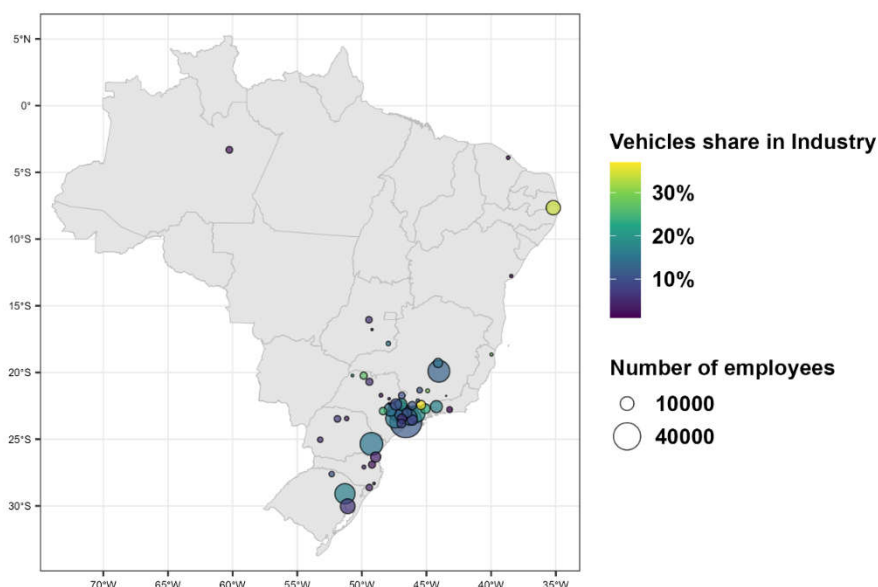
¹⁶ It is also worth noting the entrance of Chinese companies in the Brazilian market in the 2010-20s (e.g. Chery and BYD).

¹⁷ The “Proalcool” was implemented in 1970s to reduce the country’s dependency on oil.

¹⁸ Cf. Marx, Mello and Lara (2020).

Additionally, the states of Paraná, Santa Catarina, and Rio Grande do Sul also have significant concentrations of automotive employment, especially in the supplier network established in cities such as Curitiba, Joinville, and Porto Alegre and Belo Horizonte (Figure 7).

Figure 7: Formal employment in the Vehicles industry by location (cities) and share of Vehicles sector in the local industry (%) – Brazil, 2021



Source: Authors' elaboration based on data from RAIS-Brazil.

The market for cars and light commercial vehicles is dominated by Fiat-Jeep, General Motors and Volkswagen – which jointly represented 57.7% of the market share in 2022 –, but important changes have occurred in recent decades, notably the increasing importance of some Asian companies (e.g. Toyota and Hyundai) and the declining share of Ford – Table 1.

As for the national economy, in 2018 the sector represented 6.3% of the industrial value added in Brazil (3.5% related to the production of auto-vehicles and 2.8% corresponding to the production of autoparts). According to ANFAVEA (2023), if we consider the whole automotive chain in 2019, it represented about 2.5% of the total GDP. It is clear therefore that it is a very relevant sector for Brazil, both in the economic and social dimensions.

The direct jobs generated by this sector reach approximately 650,000¹⁹. Considering also the indirect jobs, it reaches approximately 1.2 million, representing around 1.5% of the total jobs in Brazil (ANFAVEA, 2023). The workers profile in this sector is characterized by a high predominance of male workers (around three quarters), a slight majority of white workers, and a proportion of workers with high school degree which is high for Brazilian standards (more than 50%). Although declining over the last five years (details below), the average wages in this sector are higher than the average of the whole labor market. In 2022, it was around R\$ 3800 (approximately US\$ 760), which was more than three times the minimum wage at that period. These relatively high wages are totally related to the extremely high rate of formalization, which reaches around 95% (see Figures 25 to 29 in the Appendix).

¹⁹ Authors' estimation based on the Quarterly National Household Survey (PNADTC).

Table 1: Market-share – Cars and light commercial vehicles – Brazil (% in units)

Company	2007	2013	2019	2020	2021	2022
Fiat + Jeep	25.9	21.3	18.7	22.2	29.4	29.0
GM	21.2	18.2	17.9	17.4	12.3	14.9
Volkswagen	23	18.6	15.5	16.8	15.3	13.8
Toyota	3.1	4.9	8.1	7.1	8.8	9.8
Hyundai	0.8	6	7.8	8.6	9.3	9.6
Renault	3.1	6.6	9	6.8	6.5	6.5
Honda	3.7	3.9	4.9	4.3	4.1	2.9
Nissan	0.5	2.2	3.6	3.1	3.3	2.7
Peugeot	3.4	1.6	0.8	0.7	1.5	2.1
Ford	10.6	9.4	8.3	7.1	1.9	1.1
Other	2.6	5.5	4.4	5.3	6.5	7.6

Source: MAConsulting; Fenabrave. Author's elaboration.

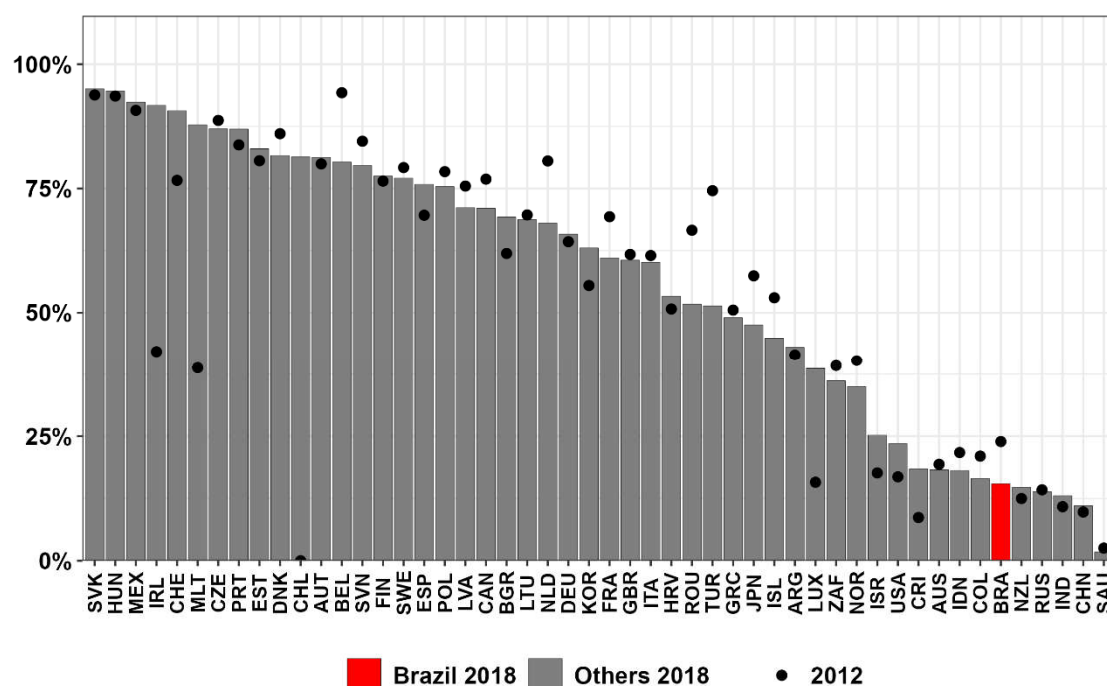
Note: trucks and buses are not considered here, but their relative importance is minor for the total market of vehicles.

Concerning the global scenario, Brazil is not among the most important countries in the world for the automotive production, but it plays a relevant role in Latin America. For autoparts, the value of exports in the last years has varied from US\$ 5 billion to US\$ 8 billion and the net external trade is having negative results for the last fifteen years (with a huge increase during the pandemic, as we will discuss below). The main destination for the exports of autoparts are Argentina (36.3% in 2022 – in value), the USA (17.3%) and the EU (14.1%). The main origins of the imports are the EU (30.4% in 2022), China (16.3%) and the USA (12.7%). For vehicles, the value of exports is also around US\$ 5 billion and the net result of the external trade is close to zero. The main partners for Brazilian vehicles exports are Argentina (28.3% of total value) and Mexico (14.8%); for imports, in 2022 Argentina alone constituted 75.7% of the total²⁰.

Figure 8 shows that the share of domestic employment embodied in foreign final demand for vehicles in Brazil was around 13%, one of the lowest of the investigated group. It corroborates, therefore, the perception that Brazilian automotive production is obviously integrated in GVCs, but to a degree which is not so high.

²⁰ Data for the value of vehicles exports and imports (ANFAVEA, 2023).

Figure 8: Share of domestic employment embodied in foreign final demand 2012 and 2018 – Vehicles

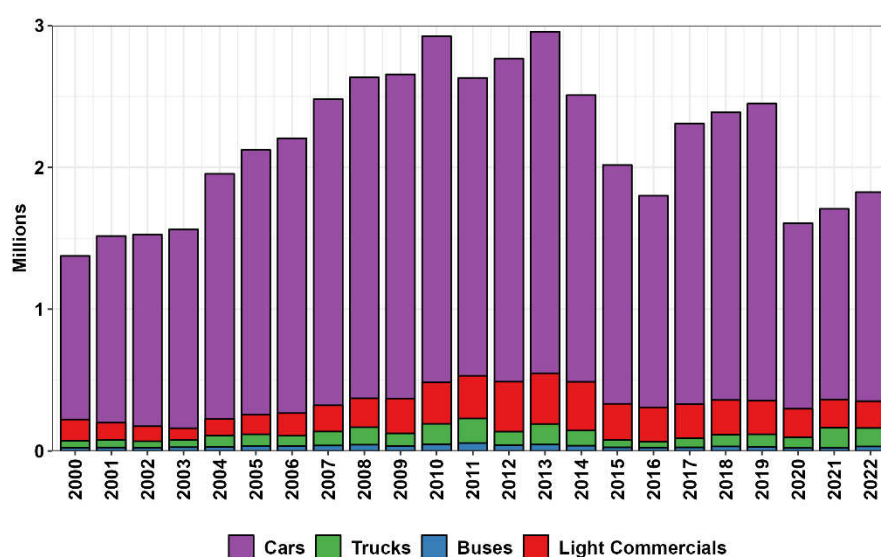


Source: Authors' elaboration based on data from OECD - Trade in employment (2021 Ed.). Series code: EMPN_FFDDEM. Note: Vehicles sector comprises "Motor vehicles, trailers and semi-trailers".

Aware of the different phases of the constitution of the automotive industry in Brazil and the general pictures of this sector, it is important to analyze the main data regarding the evolution of this industry (which includes the vehicles and the autoparts subsectors) in the last decades. Figure 9 shows that the production of auto-vehicles (cars, light commercials, trucks and buses) in Brazil increased substantially in the first decade of the 21st century, thanks to the high economic dynamism of the Brazilian economy in this period associated to a higher availability of credit lines to the population over these years²¹. From 2013 onwards, the automotive sector was severely hit by the economic crisis in Brazil, but also – and very importantly – in other Latin American countries, which are major destinations for Brazilian vehicles (notably Argentina). As a result, the production of vehicles in Brazil declined by 41.3% between 2013 and 2016. From 2017 onwards, production slightly recovered, but by 2019 it had still barely equalized to the level of 2007. This means, therefore, that the pandemic came as a very hard coup over a sector which was trying to recover from a severe crisis.

²¹ Enabled by the higher incomes of the population, but also by the implementation of a new credit policy during Lula's government (2003-2010).

Figure 9: Brazil – Total production of vehicles (units)



Source: ANFAVEA. Authors' elaboration.

3.2 Brazilian automotive sector in the pandemic

Similar to what happened in the rest of the world, the automotive sector in Brazil suffered a twofold shock in 2020. In terms of demand, the economic crisis suddenly hindered the consumption of new vehicles. In terms of supply, the analysis above revealed the dependence of the Brazilian automotive industry on the import of foreign intermediate goods, and GVC disruptions provoked a shortage of inputs; moreover, in spite of the lack of a national policy in Brazil for the containment of the pandemic, the states and municipalities implemented measures of social distancing, with inevitable effects on the conditions for industrial production.

Altogether, the situation caused the temporary closing of all automotive factories in Brazil – some of them for two months –, collective holidays and disseminated reduction on the working journeys. Concretely speaking, the outcome was a 31.6% drop in the total production of vehicles in 2020 (Figure 9 above). This is almost the double the impact of the pandemic on the global automotive industry, which was estimated to be -16% in 2020²². This clash was particularly high in Brazil because of the severe impacts of the pandemic on household incomes and the uncertainties related to a mismanagement of the pandemic by the federal government, but also because of a particularly intense disruption in supply chains (details below).

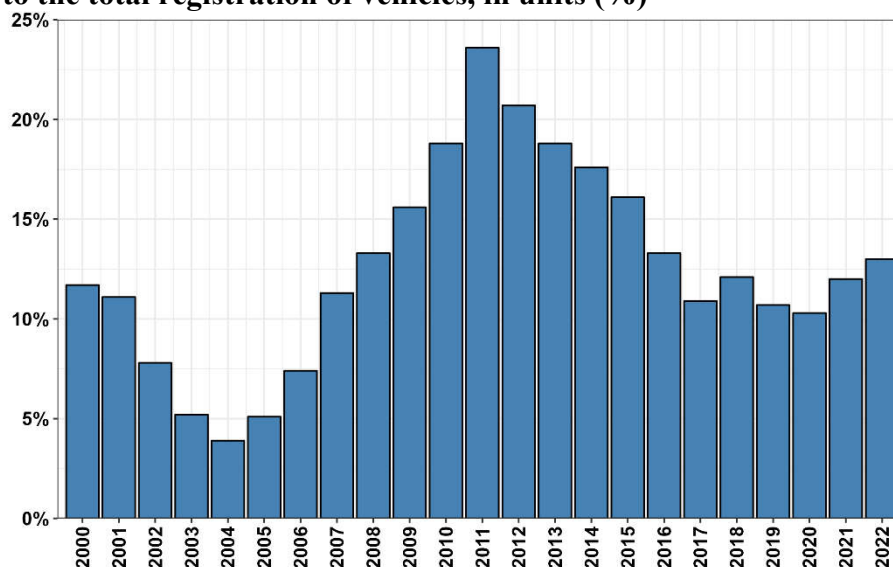
In 2022, the sector produced 2.4 million vehicles, representing a considerable increase in regard to 2020 (17.3%), but a level which is still 18.7% below the production obtained in 2019. Throughout the pandemic period, there was an alternation of moments with problems on the demand side (given the social distance, the reduction on incomes and the uncertainties related to the near future), and obstacles related to shortage of inputs, especially semiconductors.

The quantity of imported vehicles suffered a significant decline in 2020 when compared to 2019 (-28.9%), but had a strong recovery in 2021-2. The level is still lower than the pre-pandemic one (-8.1%), but the recovery is higher than the one verified for the national production, indicating a loss of market share for domestically produced

²² Cf. Fernandes (2021)

vehicles. As a result, the share of imported vehicles in the total registration of new vehicles has increased in recent years, reverting a tendency of reduction that was verified from 2011 to 2020 (Figure 10).

Figure 10: Registration of new vehicles in Brazil – Share of imported vehicles in relation to the total registration of vehicles, in units (%)

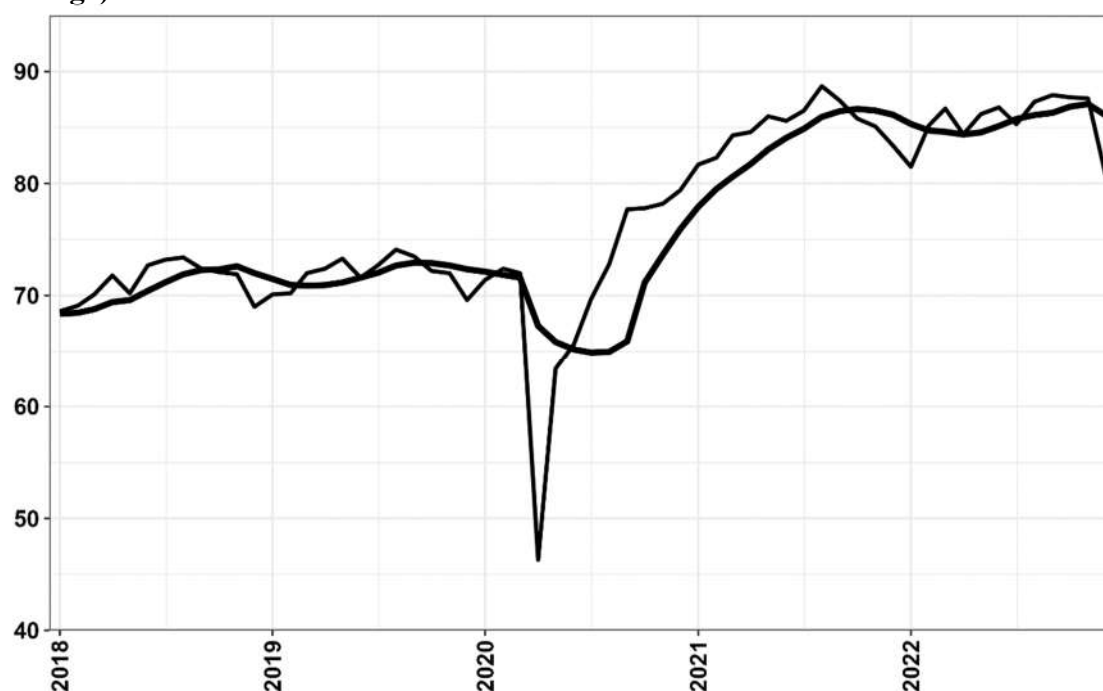


Source: ANFAVEA. Authors' elaboration.

Figure 11 shows that in Brazil during the early phase of the pandemic, the capacity utilization rate declined to less than 50%. The rebound was relatively quick and the new level is higher than the pre-pandemic one. This is due to the partial recovery of production, discussed above, but not only, as it still did not reach 2019 levels. In fact, this is explained by the closure of important factories, which resulted in a decrease in the total installed capacity. Very meaningfully, Ford, the oldest car assembler established in Brazil, closed its three factories in the country²³. In addition, Mercedes-Benz interrupted its production of cars in Brazil (details below).

²³ The operations were transferred to Argentina, which is now chosen as the main platform for exports to Latin America.

Figure 11: Capacity Utilization Rate - Vehicles sector (with 6 months rolling average) - Brazil

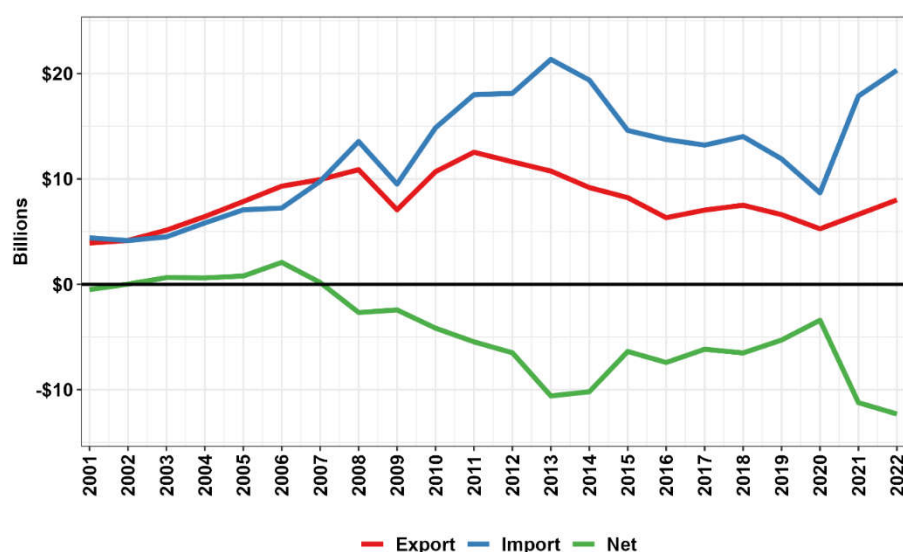


Source: Authors' elaboration based on data from CNI – Brazil.

In spite of the decline in the production of new cars in Brazil during the pandemic, the autoparts subsector involves the sale of parts for replacement. Hence, the extraordinary hike in the prices of many autoparts – due to the shortages – and the dynamism of the replacement market allowed the subsector to experience increasing incomes in 2020-21. Yet, in 2022 the total income of the subsector declined by 2.9% (in real terms).

Regarding external trade, the most significant change was a huge increase in the imports of autoparts in 2020-21 (Figure 12). This is certainly related to the increasing prices and the currency depreciation (details below), but also to a substitution of domestically produced goods with imported ones. During the worst part of the pandemic, it may have been due to the interruptions of domestic production that led the companies to search for inputs abroad. Yet, since this tendency was maintained in 2022, it may be a sign of a persistent movement. In 2022, the autoparts subsector registered its worst deficit in history (US\$ 12.3 billion).

Figure 12: Autoparts – External trade – US\$ billion (FOB)



Source: Authors' elaboration based on data from Sindipeças.

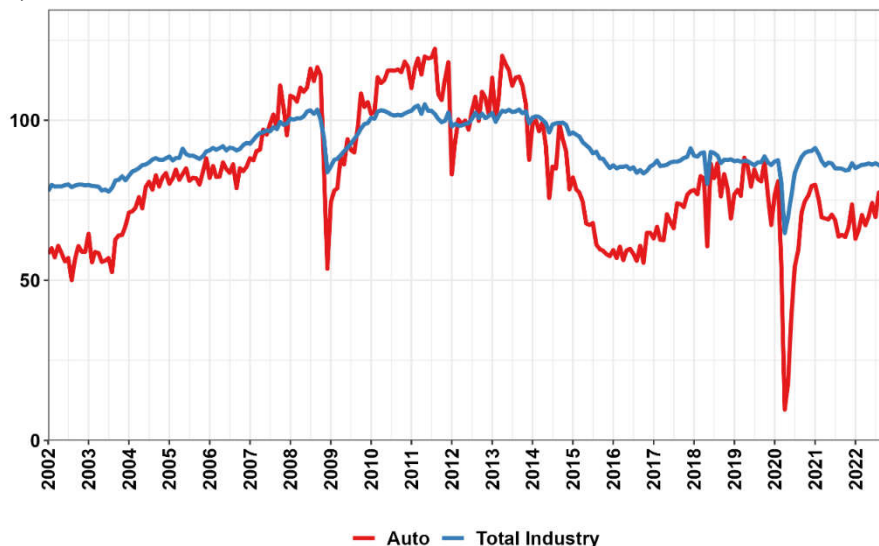
As indicated above, the depreciation of the Brazilian Real in the early phase of the pandemic is undoubtedly one of the reasons for the increase in the value of autoparts' imports in 2021. Yet, Figure 13 shows that in 2022 the real effective exchange rate of vehicles sector adjusted to the level it had been in mid-2019. According to our interviews, this volatility of the exchange rate is extremely harmful for the formation of strategies aimed at increasing local production of inputs.

Figure 13: Real Effective Exchange Rate of Vehicles sector – Brazil (January 2019 = 100)



Taking into consideration the whole automotive industry (i.e., the production of vehicles and autoparts), Figure 14 shows that the shock was more severe and the recovery is being slower than the one observed for the total Brazilian industry.

Figure 14: Physical production Index – Auto and Total Industry, Brazil, 2002-2022 (2012=100)

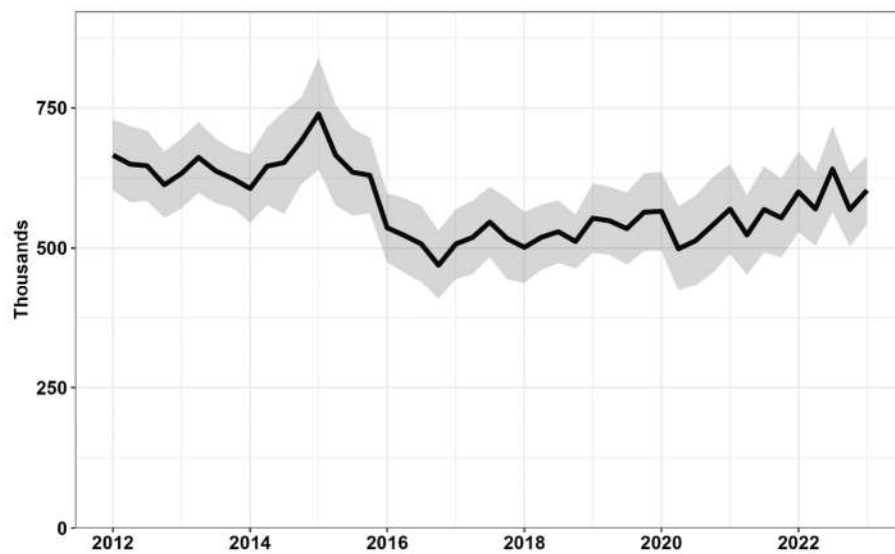


Source: Authors' elaboration with data from PMI/IBGE.

In terms of employment, while the pandemic provoked an important decline in the automotive sector in 2020, this decline was much less pronounced than the impact to production. This is evidence that the emergency programs implemented by the national government aimed at avoiding massive dismissals – discussed in Section 2 – were relatively successful, but our interviews showed that it is also the result of important struggles initiated by the labor unions, notably in the vehicles' sector. After the decline in the first months of 2020, there was a recovery and the current level is slightly higher than the pre-pandemic one (Figures 15 and 16). Yet, this recovery is not homogeneous throughout the whole sector, but is exclusive to the autoparts subsector. In the vehicles' subsector the number of jobs declined by approximately 5% in 2020 and this level was maintained in the following years²⁴. Figure 16 makes also evident that, as expected, the volatility in the number of workers is much lower in the formal sector

²⁴ Data from ANFAVEA (2023).

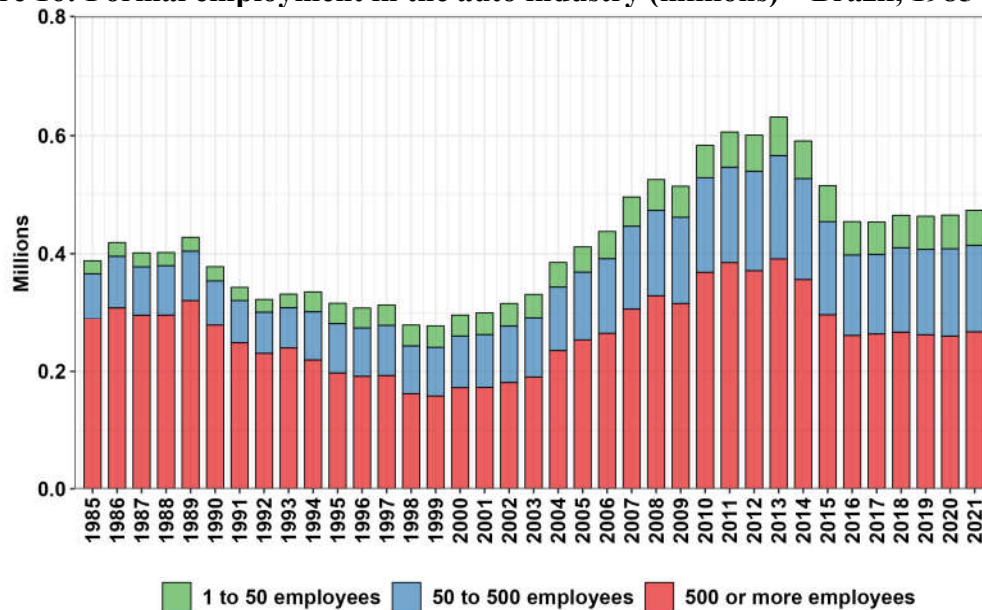
Figure 15: Number of workers in the automotive sector, thousand people, Brazil, 2012-2022



Source: Authors' estimation based on data from PNADCT.

Note: shaded area represents 95% confidence interval.

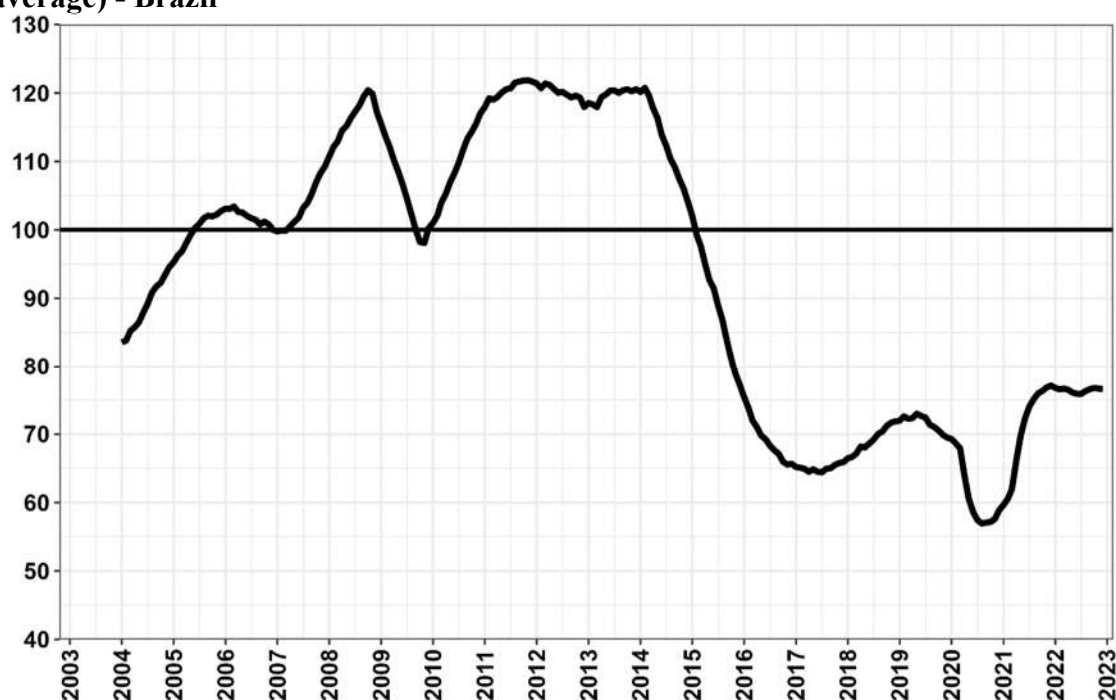
Figure 16: Formal employment in the auto industry (millions) – Brazil, 1985-2021



Source: Authors' elaboration based on data from RAIS-Brazil

Figure 17 confirms that the total hours worked reached a level which is higher than the pre-pandemic one, but a longer term perspective shows that it is only a slight recovery of a very deep valley that has been dragging on since 2014.

Figure 17: Total hours worked (index) - Vehicle sector (with 12 months rolling average) - Brazil



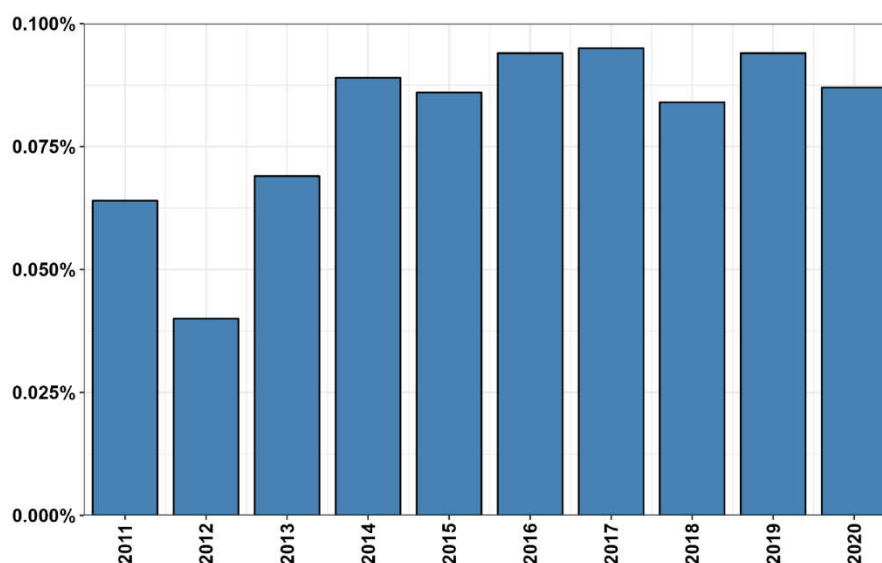
Source: Authors' elaboration based on data from CNI – Brazil.

Despite the recovery in the number of jobs, the real average income in the automotive sector kept the declining trend initiated with the outbreak of the pandemic. From January 2020 to December 2022, it decreased by approximately 20% in real terms (see Figure 29 in the Appendix). This is due to the high inflation rates during the pandemic, but also: i) in the case of the carmakers, to the agreements the unions had to establish with the companies, abdicating them from pressures for wage increases in exchange for employment stability; ii) in the case of the autoparts' companies, to high turnover, meaning the dismissal of workers with higher wages (specially in 2020) and the re-hiring of workers with lower wages (notably in 2021-22).

Having analyzed the impacts of the pandemic on the performance of the automotive sector, it is important now to discuss the reactions from the government, companies and trade unions. In contexts of crises the automotive industry has normally been one of the privileged sectors when anti-cyclical policies were designed in Brazil. As a matter of fact, in the aftermath of the outbreak of the global financial crises (2007-8), this sector was one of the main targets of the stimulus policies implemented by Lula's government in 2010, notably through waivers on taxes²⁵ and subsidized credit lines (especially through the Brazilian Development Bank, BNDES). In addition to these anti-cyclical policies, the sector is one of the main ones that benefits in the so-called "fiscal war", in which the different states and municipalities promote a competition – normally through tax waivers – to attract factories to their territories. Figure 18 shows the elevation in the incentives from 2014, in response to the crises (in the sector and in the overall economy), but the level did not change with the advent of the pandemic.

²⁵ Notably, waivers on the "Industrial Production Tax" (IPI is the acronym in Portuguese). It is therefore a tax which is paid by the producers, but the expectation is that this cost reduction will be transferred to the final price of the vehicle.

Figure 18: Fiscal expenditures aimed at stimulating the automotive industry (waivers, credit and subsidies) – %GDP



Source: DIEESE/SMABC. Authors' elaboration.

Hence, it becomes evident that unlike other crises, during the pandemic the automotive sector was not prioritized. Not only in terms of the values allocated to stimulate the sector, but also in terms of the design of the policies. In fact, with the outbreak of the pandemic the Ministry of Economy reunited some working groups involving policy makers and representatives of the private sector in order to discuss the crisis and the possible reactions from the government. Very importantly, the National Industries Confederation (CNI) had representatives in many of those groups, but not the labor unions. In the end however, the government opted to implement important policies to create a buffer in the economy, but – as anticipated in section 2 – they were not addressed at specific sectors, but rather general policies, aimed at coping with the conjunctural downturn in the economy.

According to our interviews, during the pandemic several carmakers were in need of credit for working capital, but they could not benefit from special lines in public banks²⁶, thus having to use the pre-approved credit they had with private banks and/or get credit with the headquarters.

Yet, the abovementioned programs were undoubtedly very important for curbing the economic and social harms of the pandemic. As stated by Luiz Carlos Moraes, the President of the Brazilian Association for the Automotive Industry during the pandemic, “the results [in 2020] are absolutely worrying, and they would have been even worse if we did not have the strength of agribusiness and the big injection of emergency resources in the economy made by the government” (ANFAVEA, 2021). As discussed above, the dramatic fall in the levels of production, sales and net revenues did not result in an analogous decline in terms of jobs partially thanks to the governmental emergency policies²⁷.

Nevertheless, three important problems must be discussed. The first one concerns the timing of the policies, since they were all designed for only a few months. The

²⁶ Historically, the Brazilian Development Bank does not offer credit for working capital and even if the carmakers claimed for a special line during the pandemic, they were not successful.

²⁷ Although there were no dismissals in most vehicle assemblers, it is important to underline that Mercedes-Benz, Ford and Renault fired a very high contingent of workers (details below).

“Emergency Aid Program” and the “Program for the Maintenance of Employment and Income” were eventually renewed, but not the other policies²⁸. The second problem – which is related to the first one – comes from the lack of connection of these emergency programs with long-term strategies. In fact, the only goal was dealing with the economic downturn, with no concern for the structural problems. As a matter of fact, the context was not used for the government to implement any kind of industrial policy or any policy related to sustainability. The third problem derives from the whole set of requirements and bureaucracies involved in the new programs and credit lines, which made them not very accessible for Small and Medium Enterprises (SMEs) – details below.

As for the corporate reactions, the companies at first reacted by temporarily closing the factories, allowing the workers to stay at home. Initially, they used internal expedients such as mandatory vacation and time bank to compensate for the non-worked days, but in April 2020 when the “Program for the Maintenance of Employment and Income” was approved, it was widely used. Nevertheless, our field work showed that in spite of its (almost) generalized use by the vehicle assemblers²⁹, many small autoparts companies were not able to access it, due to its strict bureaucratic requirements.

When the factories were closed, they started doing all necessary adaptations to respond to the sanitary measures prescribed in the pandemic context – with the support of the labor unions, as we will discuss below. They involved changes notably in the cafeterias to allow the social distancing; the availability of more shuttles to transport the workers; the provision of masks and alcohol gel; and, in some cases, the reduction in the pace of the conveyor belts, allowing the workers to clean their hands and tools before changing their tasks. At the same time, many measures were needed to keep the administrative workers in home office, such as the provision of platforms for virtual meetings, the intensification of data protection, the enablement of methods to control the working journey, etc. Given the perception that the home office is viable for most of these administrative workers and results in important reduction of costs, many companies are keeping it – or a hybrid system – even after the end of the pandemic.

Challenged by a temporary interruption of their activities, the vehicle assemblers made general cancellations of their orders, with harsh impacts all over the chain. As discussed above, when the factories were re-opened they faced serious problems with the lack of inputs. The most dramatic problem concerns the lack of semiconductors, since the producers of this element, confronted with the cancellation of orders from the automotive sector, channeled their productions to the (increasing) demand from the sector of electronic devices³⁰. Yet, throughout 2020 and 2021 there has been a generalized lack of inputs, including steel, rubber and even screws.

Reacting to this situation, many assemblers started prioritizing the production of cars with more value added. This meant a change in the previous strategy, since the absolute priority became the revenue, with no more important concerns about the market-share. As a matter of fact, the best-selling car in Brazil in 2019 (Onix) had its production interrupted for six months in 2020 and became a non-priority car for GM.

Likewise, companies started looking for new suppliers, both domestically and internationally. The context created a general perception that it is better to avoid a high dependency on inputs from a company or country. There was a natural tendency of concentrating purchases to reduce costs, but “now there is a growing tendency of

²⁸ In spite of the recommendations from the National Confederation for Industry (CNI).

²⁹ Maybe with the sole exception of the truck factories, since the demand for trucks did not decline.

³⁰ According to the Technology Manager of the Brazilian Association for the Electric and Electronic Industry, one structural problem is that “the automotive sector has never seen the sector of electronic components as a partner, but only as a supplier” (information obtained in the field work).

balancing costs and vulnerability”³¹. Moreover, many assemblers implemented a policy of centralized decision making with a focus on inputs from headquarters. Notably for the semiconductors, this policy was made to avoid disputes for inputs between branches of the same organization, but the outcome was a reduction in the autonomy of these branches³².

Evidently, the autopart companies were highly affected by this context, initially due to the cancellation of orders and later by the obstacles of the assemblers to resume to a normal pace of production. The force of the blow depends on the degree of dependency of these autopart companies to the assemblers. For those which operate in other sectors, which produce inputs for trucks or which sell also for the after-market (i.e., for second hand cars³³), the troubles were less critical. For those however whose sales were mostly for assemblers, the complications were very serious³⁴.

Given the long-lasting lack of electronic components and to avoid excessive inventories of some autoparts and/or unfinished cars – along with the volatility in the demand –, the assemblers alternated moments with more intensive and less intensive production. As a result, they conditioned the purchase of many autoparts to the perspective of reception of electronic components. Hence, some autoparts companies functioned intermittently during the pandemic: for some periods, they had low – or no – production; whenever the assemblers came to know they would receive electronic components, they made urgent orders to the autoparts companies, which suddenly had to operate with very intensive rhythm of work. Afraid of losing their jobs, the workers had to accept this alternation between no work and intensive work³⁵. This situation shows very clearly the hierarchies within the chain: the pace of the production is given by the semiconductor producers; the assemblers demonstrate a strong resilience and transfer part of the problems to their suppliers; in spite of the big losses, the large autoparts companies (notably the multinationals) can also resist; and the small ones suffer the main harms³⁶. Although there are no consolidated data –because even the juridical process of closing an enterprise is very time demanding in Brazil – our fieldwork shows that the crisis provoked the bankruptcy of small autoparts companies in the country, which has probably resulted in a higher market concentration in the subsector.

Our investigations also indicate that no upgrade in the automotive global chains may be expected for Brazil in the near future. On the contrary, the definitive interruptions in the production of cars in the country by Mercedes-Benz (December 2020) and Ford (January 2021) reflect the bad sign that without any kind of governmental stimulus, organizations which want to engage in structural changes are deciding to do it elsewhere (Mercedes-Benz alleges that it closed its car factories in Brazil because it is involved in the effort of transition for electric vehicles; Ford explained the shut of its factories in the country by its effort to concentrate its operations in cars with more value added).

To finalize the analysis of the corporate reaction in the automotive sector, it is important to underline workers’ perceptions that the pandemic is being used by companies as a justification for decisions that were previously taken. As a matter of fact, the closure of the Mercedes-Benz and Ford factories, and the dismissal of 747 workers by Renault (to be discussed in the next section) occurred during the pandemic, but were

³¹ Information provided by a Senior Manager at Bosch Brazil in our field work.

³² In Volvo for instance, the electronic components were distributed to the branches according to their performance.

³³ With obstacles to resuming the production of new cars, the second-hand car market was highly dynamic in 2021.

³⁴ For an analysis of the problems of the monopsonies in GVCs, see for instance Teipen et al. (2022).

³⁵ Information provided by a workers’ representative of Faurecia Brazil.

³⁶ For a theoretical discussion on the power relations in the GVCs, see Scherrer (2022).

rather the result of previous determination by the headquarters, arising from global strategies of production.

As for the possibilities of a transition for electric vehicles, the perspectives in Brazil are very disappointing. According to our fieldwork, ANFAVEA is totally against it and makes relentless lobby in the national government and the National Congress to avoid policies aimed at forcing a rapid transition. Unlike what is happening in other countries – such as Germany – in which the policies implemented during the pandemic are accelerating the transition, in Brazil the goals previously defined by the “Rota 2030” Program, which were already very loose, were postponed under the allegation that the pandemic was disturbing the process.

As a result, out of the total registration of new vehicles in Brazil in 2022, only 2.4% were electric vehicles. The predominant fuel type is the flex fuel (gasoline and sugar-cane ethanol), which corresponded in this year to 77.6% of the total registrations. It is also important to highlight that the market for second-hand vehicles is very wide and involves consumers of very diverse income levels. This means that the new vehicles entering the market are much more numerous than the ones which are taken out of circulation. Just to illustrate, over the last decades – and regardless of the economic crisis discussed above – the Brazilian vehicles’ fleet has been always increasing. In 2022, it reached 46.1 million vehicles, corresponding to a 138.6% increase when compared to 2000. Therefore, in terms of the electric transition, there are two big problems: i) the share of electric vehicles is still very low; ii) each electric vehicle entering the market does not mean the withdraw from circulation of the old (and polluting) cars. As for the bioethanol, its emissions are not as polluting as those of gasoline combustion, but the productive process of the sugar-cane is extremely harmful to nature, given the intensive use of pesticides and the tendency it engenders for the consolidation of a monoculture in many regions in Brazil. All in all, there are clear signs that the transition for sustainable vehicles in Brazil is still not on the foreseeable horizon.

After analyzing the reaction of the national government and companies on the automotive sector to the pandemic context, we will move to a discussion on the role of trade unions in regard to the national policies and the structural adjustment measures. The Bolsonaro government (2019-22) was extremely authoritarian and averse to dialogues with social movements and workers representatives. Therefore, in spite of the frequent efforts of the labor unions and centrals to participate in the discussions related to the pandemic, they were not included in the appropriated forums and working groups related to the emergency policies. Nonetheless, in general, the Brazilian automotive and metallurgical unions are strong and combative³⁷, having had an important role in the defense of workers during the process of implementation of adjustment measures in the automotive companies – notably in regards to the vehicle assemblers.

First of all, when the virus arrived in Brazil and the cases of Covid-19 started to quickly accelerate, they were important in the effort to convince the companies’ managers to temporarily interrupt their activities. As discussed above, the national government was applying pressure to continue normal economic activities, and the subnational spheres (state and city governments) took some time to take on this role, so the unions had harsh disputes with the companies to persuade them that keeping the factories in normal functioning would create significant risks for the workers. After a while, many state governors and city mayors imposed the temporary closure of non-essential activities. Simultaneously, the unions were involved in the discussion and implementation of sanitary measures in the factories to reduce the risk of contagion after the return to the

³⁷ For details, see Santos et al. (2022).

activities. In fact, the union doctors worked along with the companies' medical departments to ensure safer working conditions for the employees.

Moreover, the unions were very important in the defense of workers during the implementation of the abovementioned "Program for the Maintenance of Employment and Income". Primarily because the program allowed agreements to be made individually, but the unions were successful in their demand to the companies that they should be made collectively. Moreover, in some assemblers they managed to sign collective agreements through which the potential loss of incomes for workers arising from the adhesion to the program was compensated by the company (in some companies, there was full compensation, in some other only partial compensation³⁸).

Finally – and very importantly –, thanks to the unions' struggles, collective agreements were implemented in many vehicle assemblers to avoid dismissals during the pandemic. In the four VW factories in Brazil for instance, an agreement was signed giving the workers five years of stability³⁹. In return, the unions accepted lower wage increases⁴⁰ and a reduction in the participation on the companies' profits. Nevertheless, when it comes to the autoparts subsectors, this modality of collective agreement was unusual, and the dismissals were frequent – mainly in the SMEs.

However, there were also massive dismissals in some assemblers, as discussed above. Ford, for instance, fired around 5,000 workers due to the closure of its factories in Brazil. Mercedes-Benz, dismissed around 370 workers. In a Renault plant in Curitiba (Southern part of Brazil), 747 workers were dismissed in July 2020 due to the closure of the night shift, but after a long and intense battle was carried on by the workers – involving a 21 days strike, the support of congresspersons, the important assistance from IndustriALL and the filing of lawsuits – the dismissals were revoked. The company then opened a program for "volunteer resignation", but 480 workers decided not to resign and return to work.

In a nutshell, the situation was – and still is – very serious, but the efforts of the unions in the automotive sector have been essential in avoiding a worse situation. Yet, an important limitation of these struggles is that they have been focused on reacting to the urgent challenges brought by the pandemic, rather than dealing with structural problems and permanent adjustments.

4. Textile Sector

4.1 Overview on the Brazilian textile sector

The core of the first industrial revolution, the textile and garment sector involves a plethora of economic actors, from informal self-employed workers to the large industrial multinationals. Given the relatively low-entry barriers, this sector normally faces intense internal and external competition, creating pressure for minimal profit margins – with the obvious exception of the multinational whose brands or distribution channels permit them to operate as oligopolies. While textile goods are essential, consumers can often defer purchases, making demand highly dependent on positive economic expectations and disposable income of the households. With those characteristics, the whole sector is highly susceptible to economic fluctuations – and, as discussed above, economic volatility has been a common trend in the Brazilian economy, even before the pandemic.

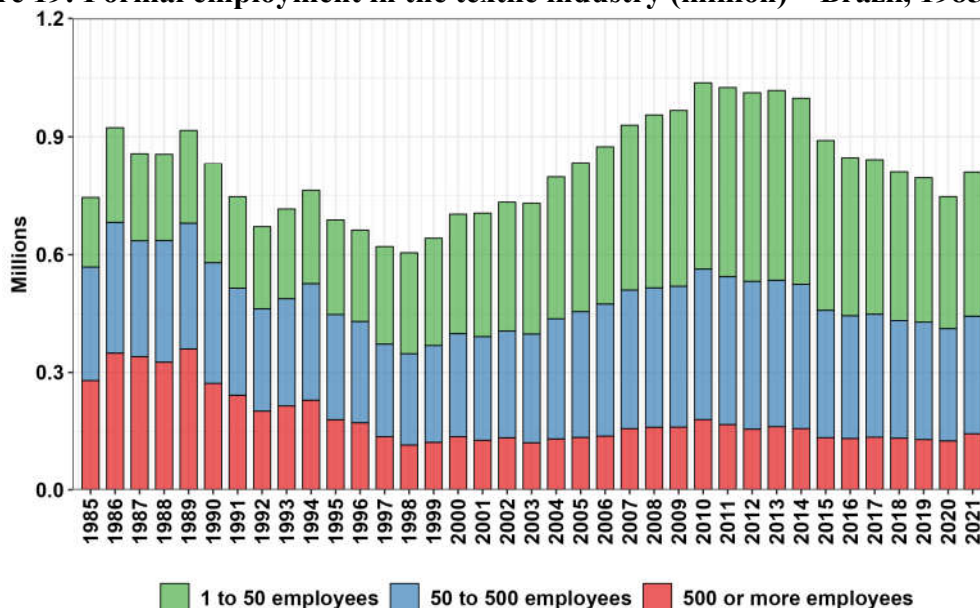
³⁸ In this last case, the compensation was in general inversely correlated to the workers income – i.e., lower income workers had a higher compensation.

³⁹ For details on the tradition of collective bargaining at VW Brazil, see Santos et al. (2022).

⁴⁰ In nominal terms, meaning generally wage losses in real terms.

Brazil is a significant player in this sector, ranking sixth globally in terms of production of textile goods. Despite that, the long-term trend in formal employment is not very auspicious. The sector was responsible for around 900,000 formal jobs in the 1980s, experiencing a decline to around 600,000 in the 1990s – a decade of very low economic dynamism in Brazil –, and a gradual recovery to more than one million jobs in 2010 (Figure 19). Since then, formal employment has declined in the sector, and we currently see a level which is slightly lower than the one of the 1980s (around 850,000 jobs). The share of the textile and garment sector formal employment of total formal employment went from approximately 4% to 2% in the same period.

Figure 19: Formal employment in the textile industry (million) – Brazil, 1985-2021

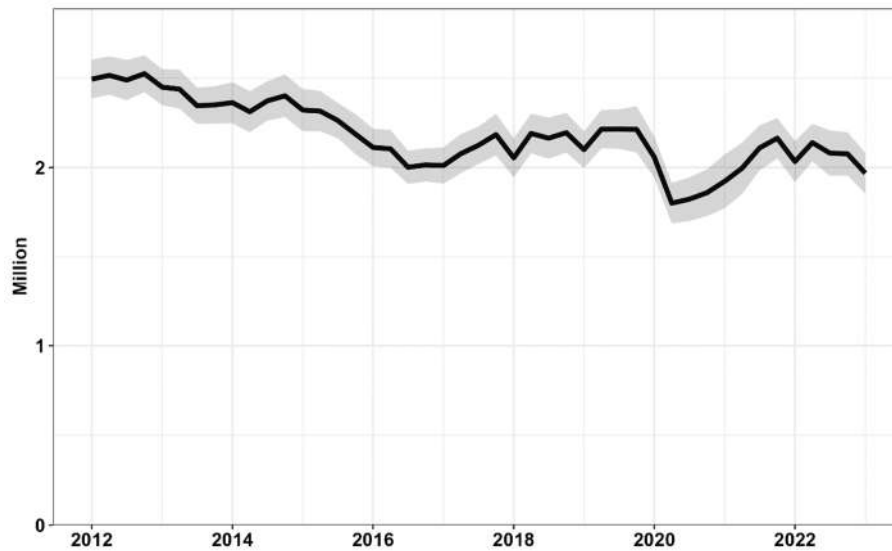


Source: Authors' elaboration based on data from RAIS-Brazil.

For total employment (formal and informal) there are no official data, but our estimations based on the Quarterly National Survey of Households⁴¹ indicate that the sector had around 2 million workers in the beginning of 2020, then suffered a loss of nearly 200,000 jobs in the first two months of the pandemic, and subsequently quickly resumed to the pre-pandemic level (Figure 20).

⁴¹ PNADCT (IBGE).

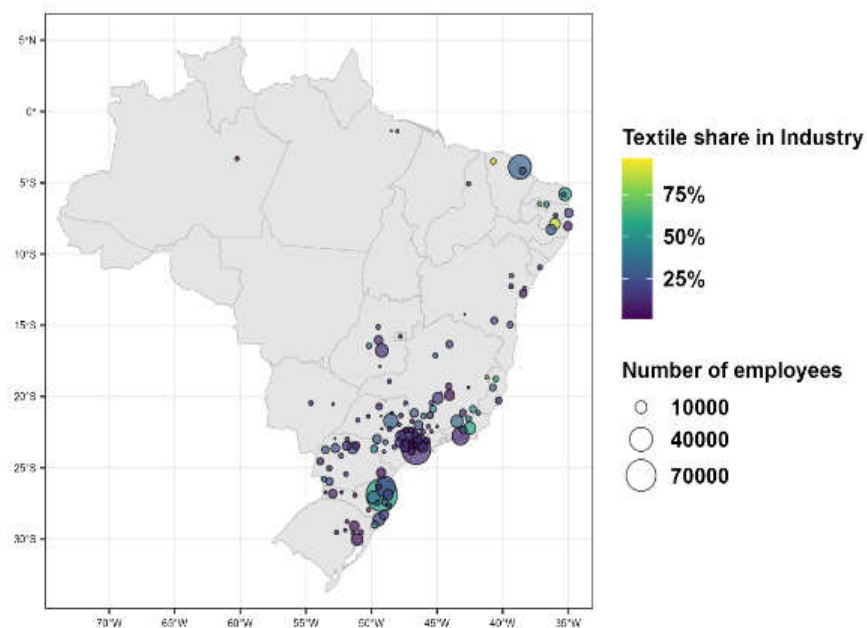
Figure 20: Number of workers in the textile and garment sector (million), Brazil, 2012-2022



Source: Authors' estimation based on data from PNADCT.

The sector has been changing geographically in Brazil in recent decades. Historically, the companies were concentrated in the Southern and Southwestern parts of the country (particularly the states of Santa Catarina and São Paulo). In the last few decades, however, some big companies moved their plants to the Northeast region in response to tax incentives and lower wage costs – meaning better conditions for companies to benefit from home-based, low-paid and unprotected labor, which is also a sign of weaker labor unions in this region (Figure 21).

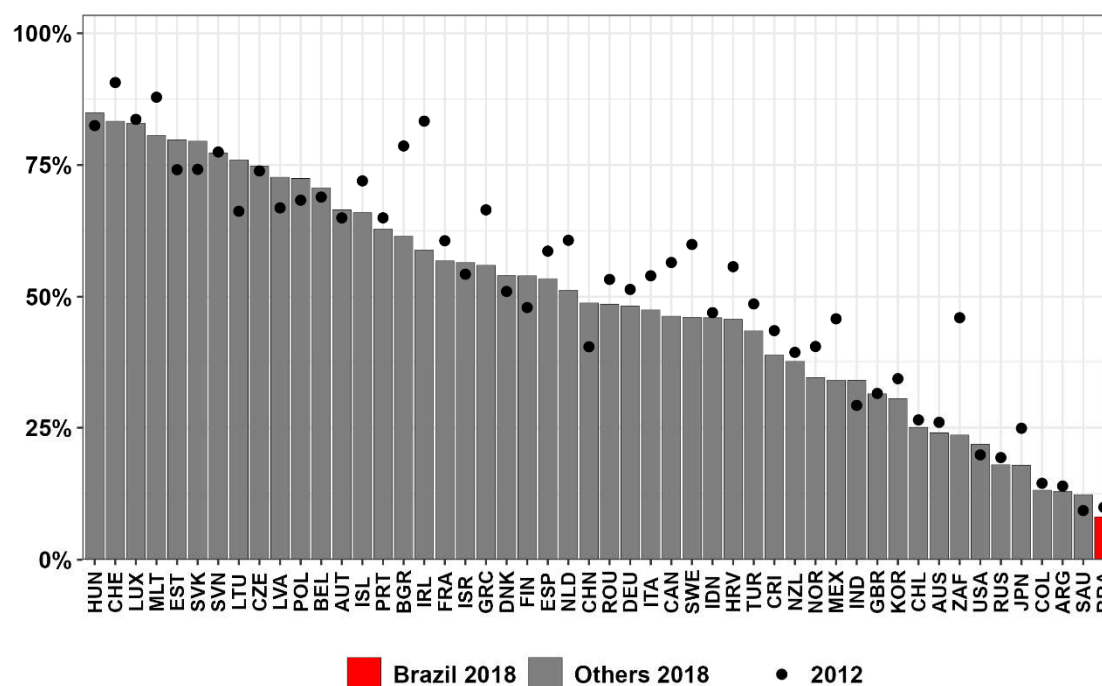
Figure 21: Formal employment in the textile industry by location (cities) and share of textile in the local industry (%) – Brazil, 2021



Source: Authors' elaboration based on data from RAIS-Brazil.

However, despite its significant production capacity, Brazil is not a major textile exporter. The vast majority of textile and garment production in Brazil has the internal market as a destination, with up to 90% of production being consumed locally. Figure 22 shows that the sector's share of the national employment estimated to be producing to attend to external demand is the lowest among all countries in the OECD survey (only 9.9% in 2018)⁴².

Figure 22: Share of domestic employment embodied in foreign final demand 2012 and 2018 – Textile



Source: Author's elaboration based on data from OECD - Trade in employment (2021 Ed.). Series code: EMPN_FFDDEM.

Note: Textile sector comprises "Textiles, textile products, leather and footwear".

It is important to highlight however that even if the national companies are usually not competitive at the external market, they keep an important position at the internal market because they are protected by import tariffs, but also because of the bridges already established with retailers – domestic firms are normally more flexible to respond to the necessities of the retailers.

Our investigations show that the textile and garment sector in Brazil is structured into three main segments: i) big indigenous companies, which produce textile products – garment, bedclothes etc. – for big and small retailers; ii) informal sweatshops, family-based or not, which do specific tasks – e.g. sewing – for those big companies; iii) small sweatshops, mostly informal and usually using foreign informal workforce – largely Bolivians - and producing for small retailers. This last segment takes place predominantly in São Paulo city (details below). Unlike other industrial sectors in Brazil, this is therefore not a segment with a strong presence of multinationals – although some of the domestic companies do produce for multinational companies.

One of the main characteristics of the textile industry in Brazil is the lack of formalization of firms and workers. According to our estimations, it is slightly less formalized than the Brazilian overall average, with approximately 50% of workers being

⁴² For the sake of comparison, the indicator in India is around 35% and in South Africa around 25%.

informal (see Figure 25 in the Appendix). It means therefore that half of the workers in the textile and garment sector do not have access to social security benefits or legal protection, and are extremely vulnerable to exploitation and economic instability.

Concerning the workers' profile, the primary characteristic is the complete preponderance of female workers, with female workers comprising 75% of total workers. In terms of race, there is a balance, since half are black and half are white. As for education, there is a high share of people with low levels of education, with only 10% of the workers having completed higher education, 50% having completed high school and 40% who only finished elementary school (Figures 26 to 28 in the Appendix). Hence, it is a sector which is composed of a high contingent of very vulnerable workers. Not surprisingly, these vulnerable groups were the most affected by the pandemic. As a matter of fact, Figures 26 to 28 in the Appendix show that the loss of jobs in early 2020 disproportionately affected the women, black and non-educated workers. After all, these groups are overrepresented in the informal workers, whose jobs are much more unstable.

The average income of the textile sector workers in Brazil is very low, with most workers earning close to the minimum wage. According to our estimations, the average earnings in the beginning of 2020 were approximately R\$ 1800 (around US\$ 450), corresponding to only 60% of the Brazilian average wages in all sectors at that time (see Figure 29 in the Appendix). In the informal sector of the garment industry, the payment per unit produced may result in earnings which are lower than the minimum wage. In our interviews, the textile and garment workers representatives defined it as one of the worst sectors in terms of wages and working conditions, stating that only those with no other alternative accept this kind of job.

In fact, companies in the three segments mentioned above draw on low-paid jobs, but the existence of trade unions in the first segment acts as an important curb to the excesses by those companies, and were vital during the pandemic. Notwithstanding the union role of fighting against precarious labor conditions, the big companies are circumventing it by increasingly outsourcing stages of production, like sewing and labeling.

4.2 Brazilian textile sector during the pandemic

In our investigations, we carried out a series of interviews among workers, managers and owners in this industry, covering different stages of the production chain (from input production to retail). In general, the declarations converge on a very similar perception of the course of events in the industry since the outbreak of the pandemic, though each actor has its own point of view about what occurred.

Not surprisingly, the beginning of the pandemic was quite harmful for the sector as a whole, with a total stop in production, the closing of factories and a lot of uncertainty. Yet, since it is a sector which normally involves small-amounts purchases and which may easily sell through e-commerce, it quickly started recovering (details below). It is worth noting however that the sector has not been hit evenly. One example cited to show this heterogeneity regards the differences for companies focused on party and formal clothing versus those which sell more comfortable clothing for staying at home. Many companies, large, small and self-employed workers reorganized themselves to try to change the focus of their production to new products, such as masks. However, not every company could

make such an adaptation⁴³. On the other hand, the intermediate and capital goods sectors⁴⁴ had many orders canceled and suffered a lot more in this early phase of the pandemic. The heterogeneous impact on businesses is specifically correlated with the size of the enterprise as larger firms have more access to credit and more means to overcome the bureaucracies necessary to access the government emergency programs (funding, suspension of work, and other programs). As expected, the impact on the businesses had direct effects on its workers (discussions below).

As for the policies implemented by the national government to alleviate the effects of the pandemic on companies, while they were undoubtedly important, they were ultimately designed for formal companies. As discussed above, this is a sector in which informality is particularly high, so most of the companies – precisely those which tend to be more vulnerable – had no access to such policies. Similar to the automotive sector, for the formal companies the most used policy was the Program for the Maintenance of Work and Income.

In addition, new lines of credit from the BNDES were created, with flexibility in guarantees, that is, with the acceptance of real assets as collateral. Between 2016 and 2019, the BNDES provided an average of R\$ 48 million per month to the textile sector (a very low level if compared to the period of high economic growth, between 2007 and 2011). In October 2020 it reached R\$ 216 million, showing that the policy was also widely used (although again its access was only possible for formal companies).

According to a survey conducted by the National Industries Confederation (CNI), Brazil has utilized the *public interest provision* in its anti-dumping legislation to suspend measures during the pandemic. As per the survey results, this mechanism has been employed during the health crisis to suspend or abolish 18 anti-dumping measures, which amounts to 35% of the total 51 measures that have been in effect since 2019 (Barbosa, 2022). This includes the suspension of an anti-dumping measure on polyester – the principal input on synthetic textiles – imported from India and China.

It is therefore clear that there were no policies directly addressed to the textile and garment sector, but the general measures adopted to help companies get through the initial period of the crisis were important for a group of companies within this sector. However, as we have seen, even if we consider only the formal companies, the sector is not homogeneous, and many of these measures were only accessed by large companies due to the bureaucratic difficulties involved.

From the workers' point of view, the consequences were even harsher. As discussed above, the sector has high informality, low wages and little penetration of union representation. According to reports from trade unionists, large companies used the pandemic as an excuse to make layoffs, massively in some cases. They also used the pandemic as an excuse to fire those who had slightly higher salaries and rehire new employees with even lower salaries. One interviewee even provided information about a company accessing the reduced working hours benefit provided by the Program for the Maintenance of Employment and Income (when the government paid part of the workers' salaries) and demanding that the workers remain at work for the entire journey. This fraud was denounced by the labor union, which took the case to the Public Prosecutor's Office and the company received a fine.

Another point reported by workers is the increased use of outsourced and precarious labor. There has been an increase in new work-from-home schemes where a

⁴³ The sector is also divided into companies devoted to the production of “light” and “heavy” clothes (e.g. jeans), and for the second group this transition for the production of masks was not that easy.

⁴⁴ For capital goods related to the textile and garment sector (e.g. weaving machines), the multinationals are important, as they are more resilient to the crisis.

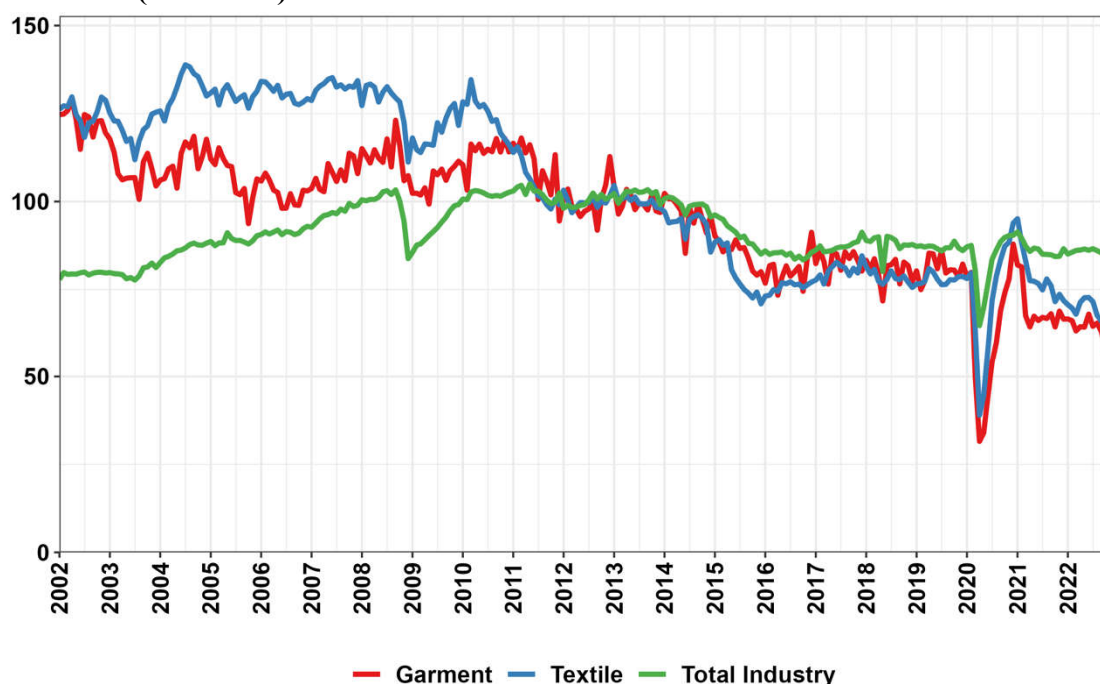
worker makes the product, or part of it, at home and delivers the parts to the factory. As a result, work can be carried out in different non-ideal ways: exhausting hours, work with family members and children, unhealthy and unsafe conditions, etc. In some cases, the sewing machine is provided by the hiring company, in some others they have to be bought by the workers themselves; the same with the cost of the electricity used for the production. Scandalously, our fieldwork also showed that in some cases the companies prefer to hire workers who live in favelas due to the illegal connection these houses have to the public grids, allowing them to have the benefit of free electricity.

The more extreme case of precariousness in the Brazilian textile and garment sector takes place at the richest Brazilian city, São Paulo. The production process, in this case, occurs in small sewing sweatshops located downtown which hire undocumented immigrants (especially Bolivians, but also Peruvians and immigrants from other peripheral countries, mostly women) in a particular mode of contract in which the sweatshop owner offers the worker lodging and food for her family. This mode of contract produces economic dependence and vulnerability for the families, because often the workers cannot afford the lodging and food costs and get into serious debt with the sweatshop's owners. According to our fieldwork, when the pandemic hit Brazil this situation became even worse and a large group of workers became seriously indebted. In fact, with the outbreak of the pandemic the sweatshops initially closed, but soon some started to produce face masks, paying a minimum amount for each mask produced (R\$ 0.15, around USD 0.03). This led to an intensification of the working day and an increasing indebtedness of the workers, as their incomes substantially declined. In this context, the workers' families moved to irregular settlements in the inner city, in order to not pay the rent. There, some of them started their own workshops, in conditions of total instability.

Furthermore, many of the undocumented immigrants could not get access to the government Emergency Aid Program discussed in section 2. In fact, there were no legal restrictions for them to access these benefits – after all, informal workers were precisely one of the targeted groups –, but several practical obstacles, such as language barriers, or lack of the information provided to the immigrants themselves and/or the public servants supposed to register the beneficiaries. In the absence of unions representing these workers, the local women's immigrant association played an important – although insufficient – role, but mostly with emergency aids, such as raising funds to distribute food hampers for the poorest families. Surprisingly, our fieldwork also showed that in spite of the critical situation these immigrants face in São Paulo, the pandemic intensified the arrival of new immigrants (especially from Bolivia) to work in these sewing sweatshops, making evident that the situation in their origin country was even worse. Needless to say, this augmented workforce resulted in lower earnings for the workers.

Nonetheless, even if the general framework for the workers was very difficult throughout the whole pandemic period, it is important to understand that the sector's production alternated between good and bad moments during this period. After a quick and deep decline, the sector showed surprising accelerated growth already in the second semester of 2020 (Figure 23). Some elements help to explain this growth.

Figure 23: Physical production Index – Textile, Garment and Total Industry, Brazil, 2002-2022 (2012=100)



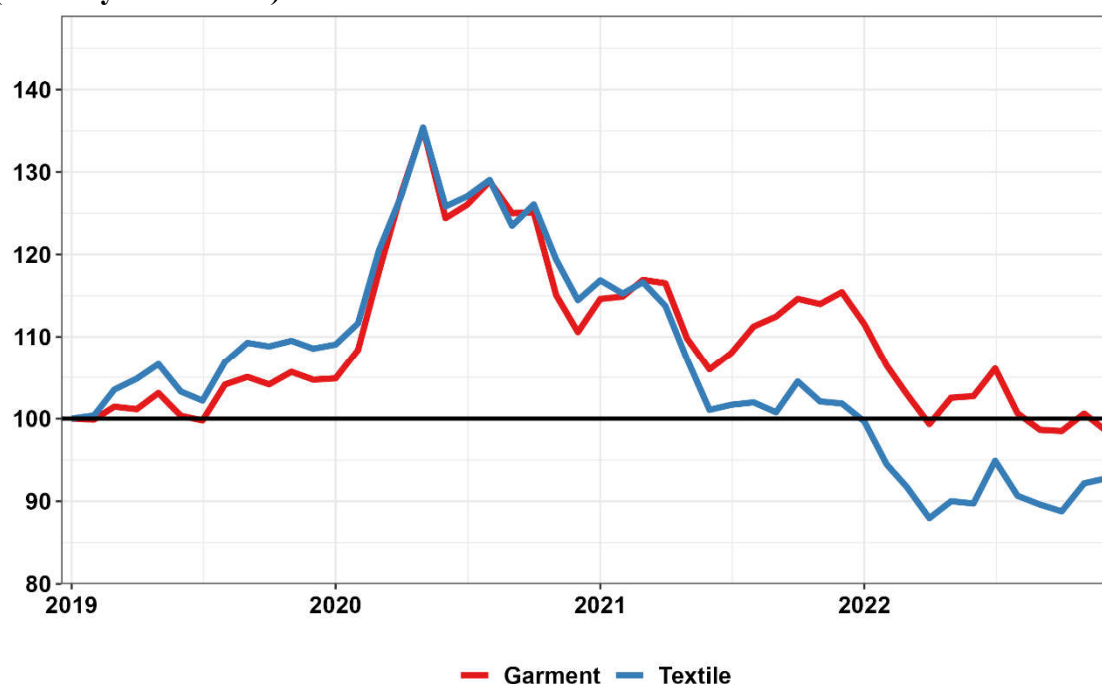
Source: Authors' elaboration with data from PMI/IBGE.

Firstly, from a supply point of view, the pandemic provoked in its early phase an increase of almost 50% in the nominal exchange rate of the Brazilian Real against the US dollar. Considering these sectors' real effective exchange rate, the currency depreciation was also very high, corresponding to almost 25% for the textile sector and 30% for the garment sector (Figure 24). Currency depreciation makes the international supply more expensive and, therefore, leaves room for replacing them with local production. It is worth noting that the existence of a well-developed industrial park in these sectors (albeit in decline in the long term), and the fact that contracts in these sector are usually short-term, both contributed to a relatively rapid substitution of imported goods by domestically produced ones⁴⁵. In addition, there was an international supply shock due to other factors, such as the increase in the price of maritime transportation⁴⁶, and the Zero-Covid policy imposed in China, one of the major exporters not only of textile products, but of other essential inputs and machinery.

⁴⁵ Section 3 showed that for the automotive sector this substitution is not that easy. It is important highlighting however that this context did not provoke a substantial increase in the exports of the textile and garment sectors, but only the temporary substitution of a parcel of the imported goods for domestically produced ones.

⁴⁶ For instance, the China Shanghai Containerized Freight Index that keeps track of the container price had an impressive fivefold increase between March 2020 and January 2022.

Figure 24: Real Effective Exchange Rate of Textile and Garment sectors – Brazil (January 2019 = 100)



Source: Authors' elaboration based on data from IPEADATA.

Secondly, from the point of view of demand, there was an important change in the consumption basket of households, with the replacement of spending on services (leisure, restaurants, travel) with spending on products such as clothes and linen purchased on the internet. Furthermore, our interviews indicated the perception that there was a need for new types of more comfortable clothes as the house became a place for work and living at the same time. Furthermore, this forced and prolonged stay at home led people to buy new household linen (bedlinen, table linen and towels). Finally, new hobbies for this period with restrictions on mobility also emerged, with an increase in people learning to cook, cultivating plants and, in the sector of our interest, sewing and knitting. Knitting yarn sales increased considerably during the most severe months of the pandemic. In any case, in addition to these changes in the household's consumption basket, in 2020 the most important factor for the increase in the demand for these sectors' goods in Brazil was the Emergency Aid Program. As we have seen, the aid was the most important government program during this period, aimed at the lower-income population, precisely those who have a high propensity to consume. That money freed up space in families' budgets for new spending on clothes⁴⁷.

Yet, Figure 23 (above) shows that after a consumption boom in the second semester of 2020, production declined very quickly in the garment sector and in a slower pace in the textile one, but in both subsectors the physical production at the end of 2022 was approximately 20% lower than in the pre-pandemic period. This volatility is a clear sign of the instability of the Brazilian economy over the last three years and also of the high sensitivity of this sector to quick oscillations in the economic ambience (particularly the population's average income) and in the macroeconomic variables (particularly the

⁴⁷ The first months of the Emergency Aid Program resulted in an alleviation in the poverty rate in Brazil. The intermittence of this program and the reduction in the beneficiary population and in the amounts distributed in its second and third phases determined however a quick rebound in the poverty rates already in 2021. For details, see De Conti et al. (2023).

exchange rate). The textile sector is less volatile than the garment one, but the abnormal demand of late 2020 has also come to an end – in addition to the decline in the garment sector production, this is also due to a peak in external competition, given the complete reversal on the exchange rate movement which had benefited the sector in the first phase of the pandemic, along with the reestablishment of a relatively normal functioning of GVCs. At the end of 2022, the garment sector was operating at 75% of its capacity utilization rate and the textile sector at 78% (after having reached 84% and 88%, respectively, during the “micro-boom” these subsectors experienced during the pandemic⁴⁸).

According to our fieldwork, in late 2020 when companies resumed production, they began to rehire those who had been laid off in previous months. The data show however that in spite of this revamp of the sector and the return to the pre-pandemic employment level, the real wages have stabilized at a new level, slightly lower than the previous one (see Figure 29 in the Appendix).

To conclude, our investigations indicate that there are no structural changes in the textile and garment sectors in Brazil. In fact, the observed changes were direct consequences of the oscillations of both the Brazilian economy and the external context over the pandemic period, but with no qualitative changes in the organization of the companies and chains. The substitution of imported goods by domestically produce ones was temporary, and quickly reverted by the re-appreciation of the Brazilian Real. As for the exports, they are still very modest and one of the important reasons is that it is a labor-intensive sector and even if the Brazilian workers have very low incomes in regard to the average income of the country’s labor market, the labor cost in US\$ is still much higher than in many countries in Southern Asia, Africa and Latin America (for a comparison with India and South Africa, see Figure 31 in the Appendix).

Still, it is important to highlight a meaningful change which does not directly concern production in the analyzed sectors, but rather the distribution channels. Very clearly, the Covid-19 pandemic led to a significant digital transformation in the garment’s retail sector. Online sales grew and many stores were converted into distribution centers and curbside pickups became more prevalent. This transition was accompanied by an acceleration and adaptation of digital processes that was already in place before the pandemic. Yet, these distribution channels are still dominated by big companies and there are no signs that they may result in the elimination of intermediaries between the small producers and the final consumers.

5. Final remarks

This article demonstrated that the crisis provoked by the pandemic hit the automotive and the textile sectors in very diverse manners in Brazil. In fact, durable and non-durable goods normally have different cycles, and suffered the effects of the coronacrisis in different ways. The automotive sector was severely hit throughout its whole chain. In 2020, it suffered a twofold blow, given the important decline in the demand and problems related to the supply of inputs (associated with the disruption of GVCs). In 2021, demand increased, but the sector’s production was still hindered by a shortage of inputs (notably semiconductors). In 2022, the uncertainties related to the Brazilian economy prevented the sector’s full recovery. After all, there is no major foreseeable change in Brazil’s role in automotive GVCs. Yet, the pandemic may have accelerated the declining importance of Brazil as a center for the Latin American

⁴⁸ Data from the Brazilian Industries Confederation (CNI).

automotive industry. Very importantly, instead of fostering the transition to electric vehicles, in Brazil the pandemic may have hindered this incipient process.

For the textile and garment sector, the pandemic caused a very volatile performance, making evident the high sensitivity of this sector to the short-term oscillations of the national economy. When Covid-19 arrived in Brazil, this sector suffered a big blow, but the recovery was extremely quick and in the second semester of 2020 the demand was much higher than in the pre-pandemic period. The main reasons were the recomposition of the consumption basket of Brazilian households, associated with the effects of the social policies – which in its apex transferred money to almost 50% of Brazilian households – and a high depreciation of the Brazilian Real. Yet, the rapid reversal in the reach of the social policies and the re-appreciation of the Brazilian currency, along with the configuration of a very uncertain economic scenario in 2022 led to a new drop in the demand for these sectors. After all, no structural changes have been identified in Brazil's participation in these GVCs. It is worth noting however that a serious impact of the pandemic was the setting of a new level for the average earnings in this sector, which were already very low and are currently lower than the pre-pandemic one.

The labor unions played an important role in avoiding further damages to the workers in both sectors, but with an important difference: the automotive sector is highly formalized and the textile and garment sector is not. Regardless, even in the automotive sector unions had no effective actions in terms of dealing with structural problems and long-term strategies. It is clear therefore that the urgency of the coronacrisis along with the hard shocks received by workers and unions since the 2016 coup d'état in Brazil resulted in a context in which the unions hardly succeed in the implementation of protections focused on structural challenges, envisioning the long-term or aimed at the acquisition of new rights. Instead, they are acting in a defensive way, dealing with the short-term troubles and fighting to merely defend their rights. As it usually happens in the context of deep crises, unionists have in general reported important conflicts with the companies' managers during the pandemic. Deprived of the possibility of dialogue with the national government, the channels of pressure that were used by unions in case of an open conflict with the companies were the search for support coming from the global unions, the assistance of representatives in the national congress and the appeal to the courts⁴⁹. Despite the differences in the effects of the pandemic on both sectors, one commonality is the deepening of the precarity of working conditions, with increasing turnover in some subsectors, alternation of periods with no work and periods with very intense work and a decline in average incomes.

⁴⁹ Information obtained in the fieldwork.

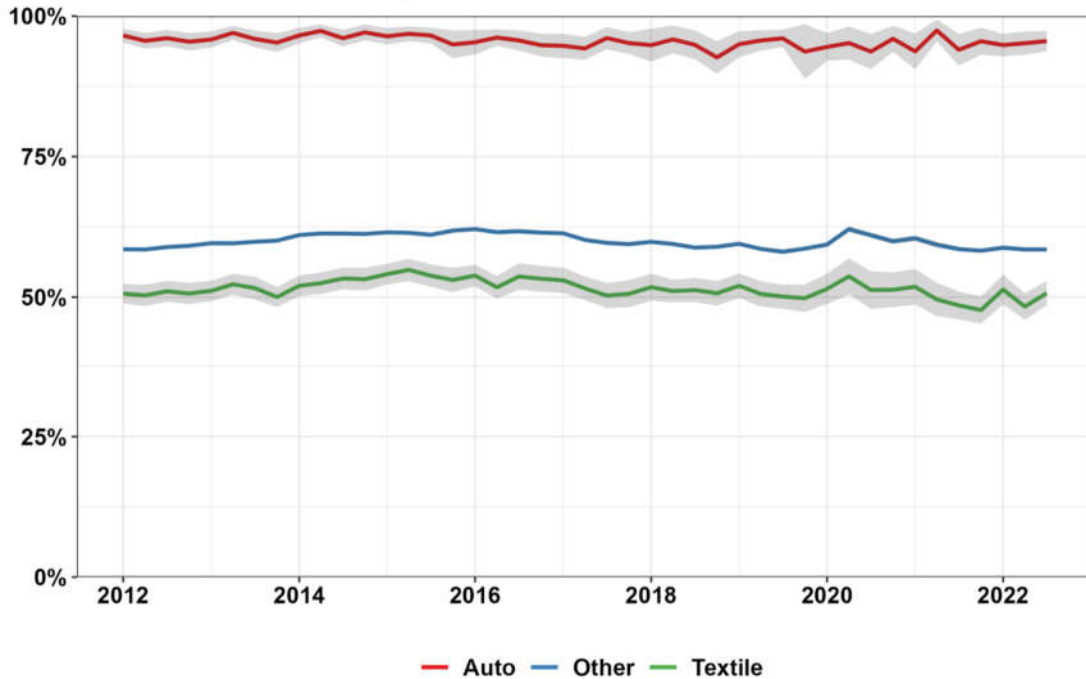
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7. Appendix

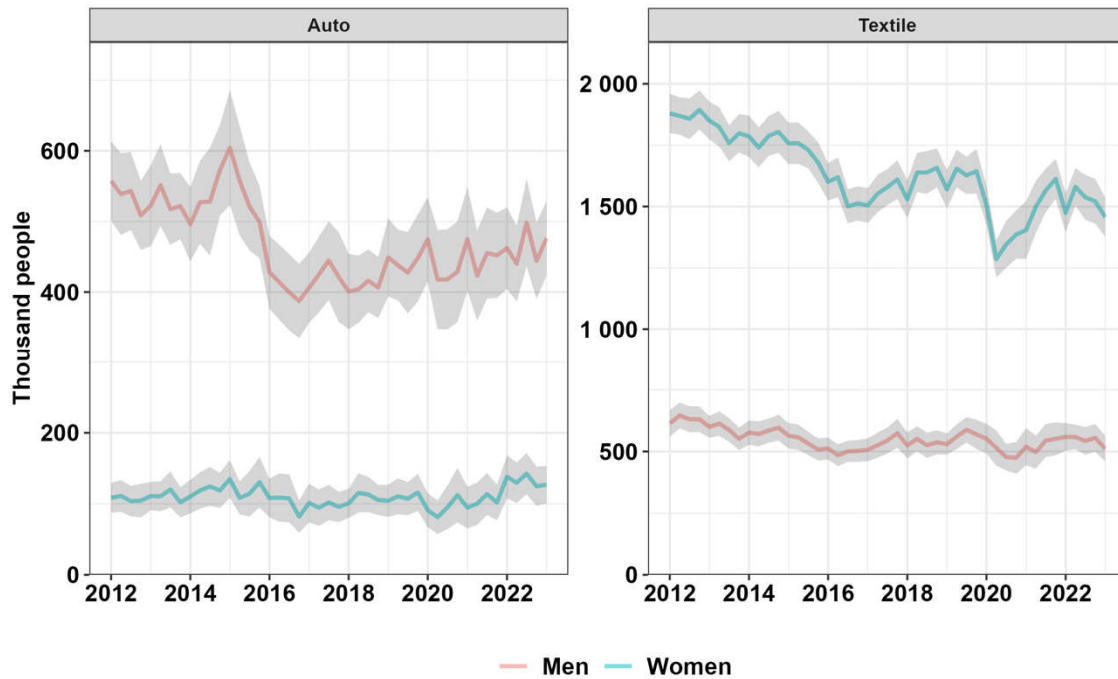
Figure 21: Formalization Rate by sector, Brazil - 2012 - 2022



Source: Authors' elaboration based on data from PNADCT.

Note: shaded area indicates 95% confidence interval.

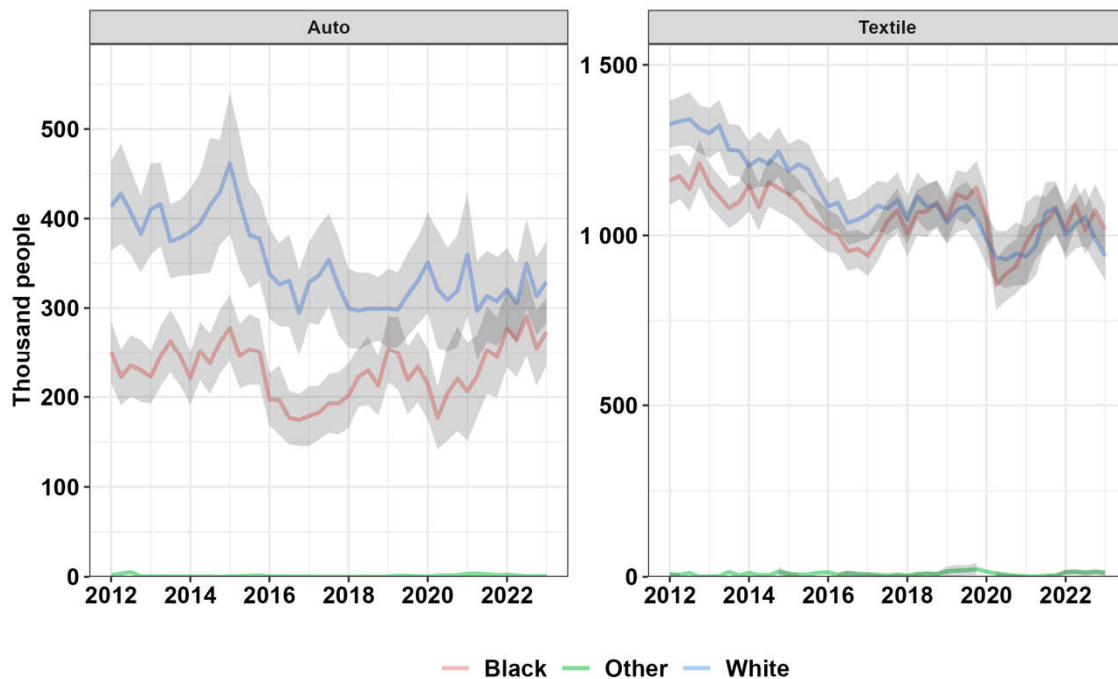
Figure 22: Workers by sector and gender (thousand people), Brazil - 2012 - 2022



Source: Authors' elaboration based on data from PNADCT.

Note: shaded area indicates 95% confidence interval.

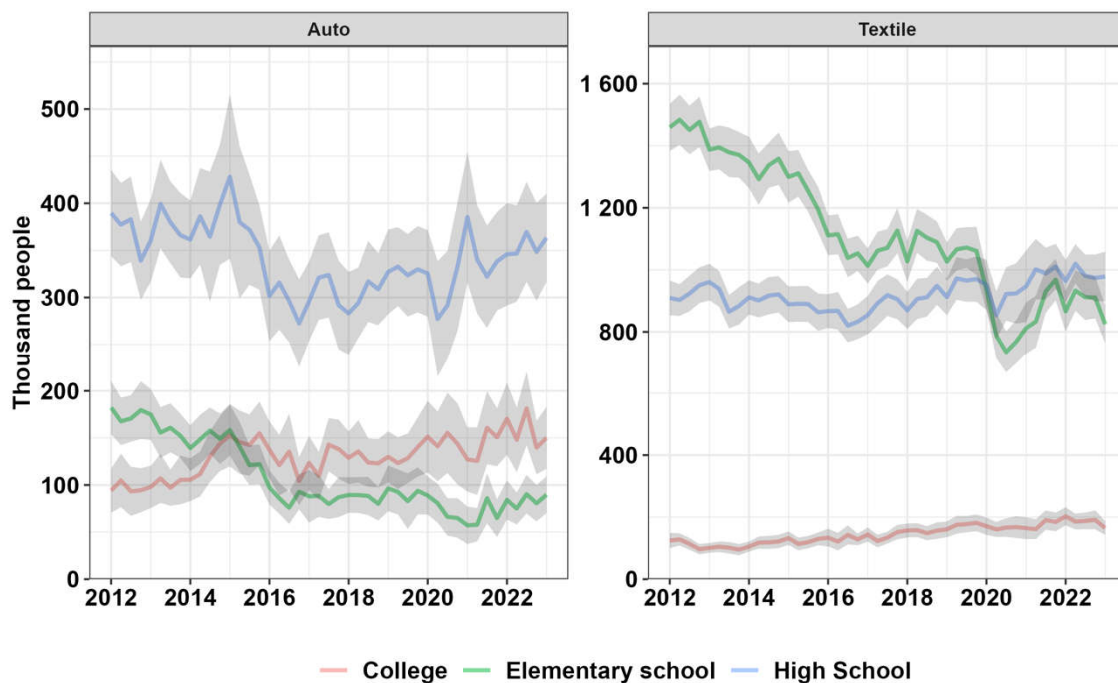
Figure 23: Workers by sector and race (thousand people), Brazil - 2012 - 2022



Source: Authors' elaboration based on data from PNADCT.

Note: shaded area indicates 95% confidence interval.

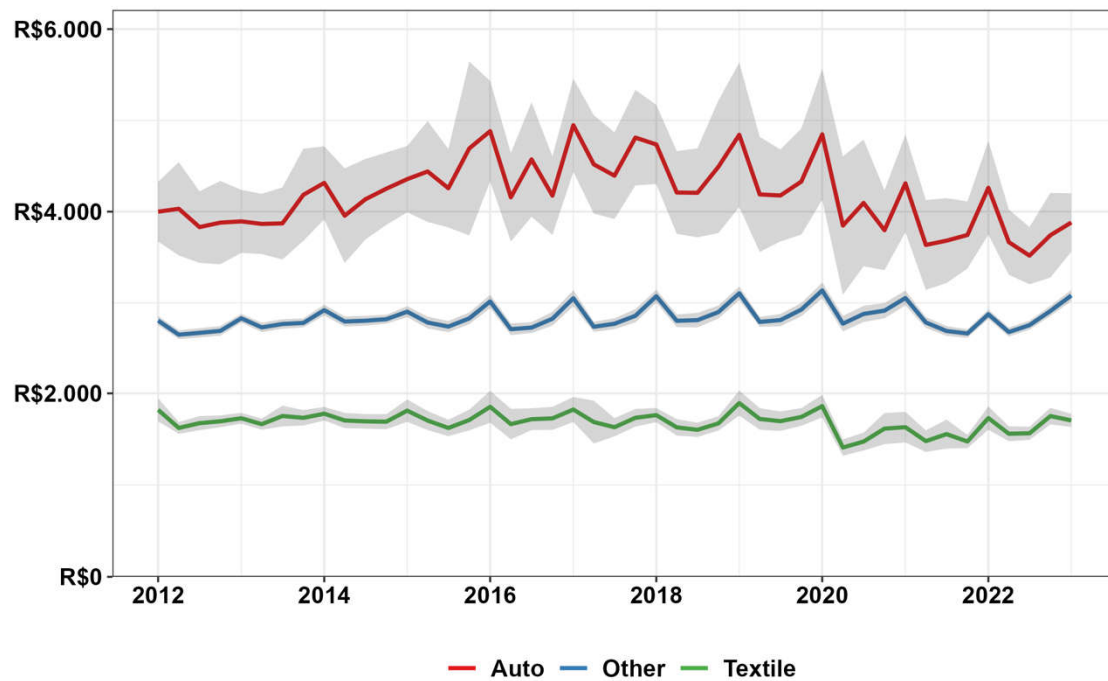
Figure 24: Workers by sector and education (thousand people), Brazil - 2012 - 2022



Source: Authors' elaboration based on data from PNADCT.

Note: shaded area indicates 95% confidence interval.

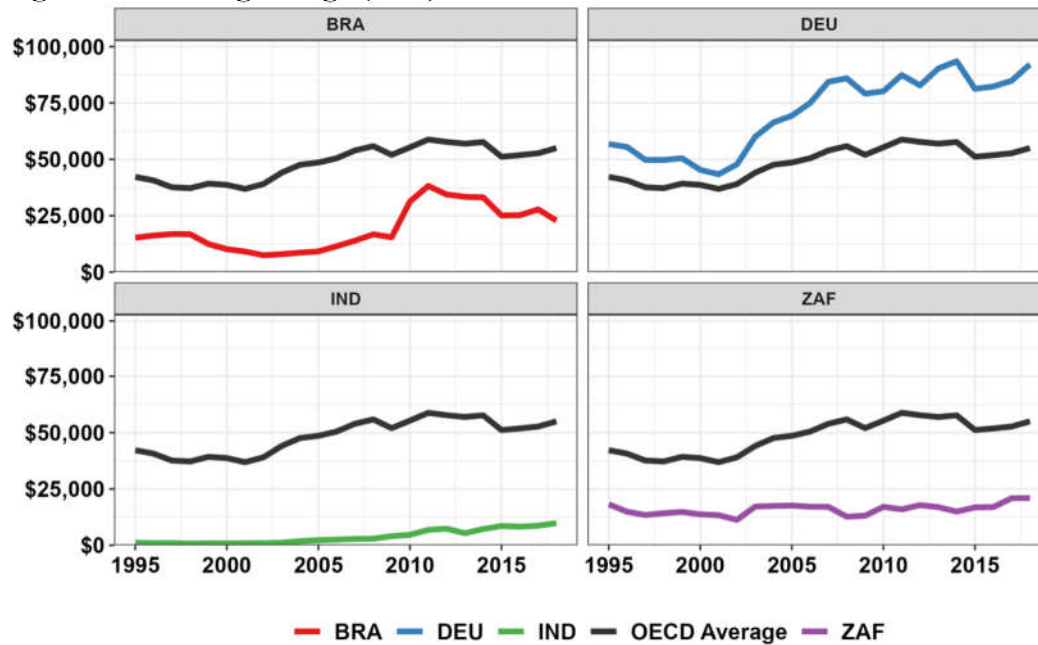
Figure 25: Real Effective Wage by sector (R\$), Brazil - 2012 - 2022



Source: Authors' elaboration based on data from PNADCT.

Note: shaded area indicates 95% confidence interval.

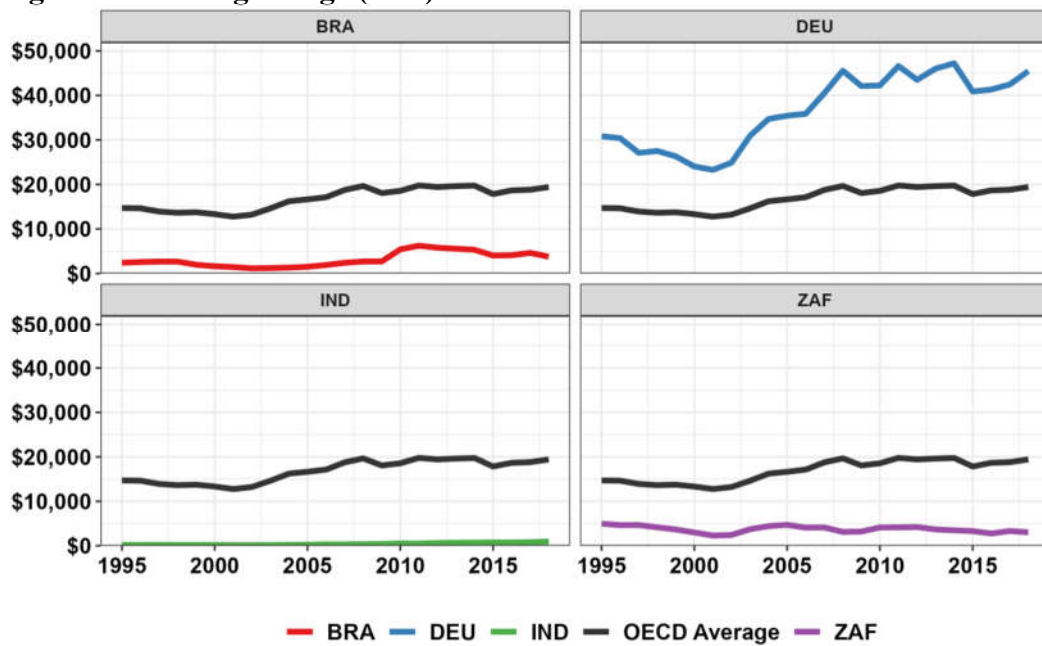
Figure 26: Average Wage (US\$) - Vehicles



Source: Authors' elaboration based on data from OECD - Trade in employment (2021 Ed.). Series code: EMPN and LABR

Note: Motor vehicles, trailers and semi-trailers

Figure 27: Average Wage (US\$) - Textile



Source: OECD - Trade in employment (2021 Ed.). Series code: EMPN and LABR

Note: Textiles, textile products, leather and footwear

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