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# Article

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# Research Article

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# Dynamics in the automotive industry in Germany, Brazil and India – changes triggered by the COVID-19 pandemic

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This article compares modes of response to the COVID-19 pandemic in three national automotive sectors. Our analyses of the automotive sector in Germany clearly demonstrate that trade unions were included and their interests considered at the national, industrial, and company level, and in the negotiations on how EU funds were to be used for technological upgrading. In Brazil and India, on the other hand, large parts of the risks were shifted onto the workforce, thereby further weakening their negotiating positions and without making any progress in catching up with the Global North. Thus, we argue that industrial relations, power and competitive advantages, state assets, and policies at the national level remain the key resource for crisis responses.

**Keywords:** *industrial relations, COVID-19, Global South, automotive sector, technological upgrading* 

JEL codes: 017, 057, P52

# 1 INTRODUCTION: STARTING POSITIONS AND INSTITUTIONAL CONTEXTS OF CRISES RESPONSES

The COVID-19 pandemic and subsequent crises have disrupted global value chains (GVCs), possibly in the long term. While many expected to see the breakdown of GVCs away from relocation and outsourcing, various contributions show that outcomes have so far been differentiated to a greater degree (Gong et al. 2022). As the automotive sector is organized around end markets, regional suppliers are likely to retain their strategic importance. At the same time, lead companies continue to have an interest in passing on flexibility costs and risks to their suppliers (Butollo/Staritz 2022: 398).

Not only the previous model of globalisation, but also national policy responses to the crises are up for discussion: macroeconomic and industrial policy, nation-state labour

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policies, and trade unions. Furthermore, the exact impact can diverge between lead companies and suppliers, big and small companies, and multinational and national firms.

In many dimensions, the crises, when viewed from the perspective of the Global North versus the Global South, also encountered very different starting positions and institutional structures. This contribution therefore aims to bring into play the expertise that is underrepresented in the European context, from two emerging economies (see critique by Hammer et al. 2022). For instance, corporate and political reactions in the context of a predominantly informal labour model, such as in India, can be brought into the academic discussion.

The GPN School measures relative positions of national automotive industries using three interconnected factors (among others): a 'combination of trade-based positional power, ownership and control power, and innovation power' (Pavlínek 2022: 59). Germany is considered a 'core region' of the automotive industry, as the national sector combines the following characteristics: 'the presence of strategic functions (especially R&D), management (decision-making), and marketing, and complex activities based on highly skilled labor, such as the assembly of high-end models and components requiring complex knowledge' (Ibid.: 60). Brazil and India are not among the core regions of the automotive value chains and also represent countries with a lower degree of union power. The automotive sector is transnationally still characterised by above-average union coordination.

Countries in the Global North often have a power advantage because high-value-added activities have been kept under the control of lead firms who organise the GVCs, and low-value-added activities have been increasingly offshored to suppliers (Teipen et al. 2022). These asymmetries can further be amplified by different industrial as well as monetary and fiscal policy capacities (see De Conti et al. 2023).

If the crises, although global in nature, have been mediated differently through various national institutions, this makes a Comparative Capitalisms approach to the topic particularly relevant. For our purposes, the type of state-permeated market economies for large emerging markets, as conceptualized by Nölke et al. (2020), is particularly interesting.

To anticipate the critique of supposedly static institutions, we are inspired by the tradition of social blocs (see also Handley/Martin 2023) and governance compromises (Amable 2003) in the 'wage–labour nexus' in which institutions mediate the tension between capital and labour in varying ways. Labour markets can also be highly segmented between a (shrinking) segment of protected and stable permanent workers, and a (growing) segment of unprotected, informal, and precarious workers.

Positioning and power in GVCs also interact with national- and industry-specific sources of power (Teipen/Mehl 2021). Particularly in German lead companies, works councils and trade unions are highly involved in crisis management (own interviews).

In the Global South, relatively higher real wage levels and better working conditions are observable in the Brazilian automotive sector compared to its Indian counterpart. This is mainly attributable to the greater strength and influence of trade unions in the national social bloc, which also includes national authorities such as labour inspectors, despite strongly changing governments. In contrast, in the Indian automotive industry, unions have not been able to boost their influence against the dominating anti-labour coalitions, resulting in an increasing informalisation and precarisation of employment (Teipen et al. 2022).

Our hypothesis is that the nature of pandemic response depends on a national sector's position in the GVC, trade union power resources and institutional pathways that can be leveraged. Therefore, it is particularly important whether there are domestic lead firms, and how the relationships between lead firms and suppliers are structured. We also

consider the ability to activate and invest in monetary, fiscal, and industrial policy to be central, as well as how and whether trade unions are involved in problem-solving. In the following, we will present our empirical research results<sup>1</sup> in the three countries: Germany, Brazil, and India. Our case studies are based on substantive engagement with the relevant secondary sources, which are in the public domain, and conversations with a number of stakeholders, including industry experts, policymakers, representatives of workers, and workers in this industry.

# 2 COORDINATED TECHNOLOGICAL UPGRADING IN THE GERMAN AUTOMOTIVE INDUSTRY

The automotive industry forms one of the backbones of the industrial sector in Germany and the political economy model as a whole. Still in 2021, it accounted for 11.5 per cent of GDP,<sup>2</sup> while the Brazilian car industry, for example, accounts for only 2.5 per cent of GDP. With an export quota of 64 per cent in 2020 (Statista 2021), the automotive industry is a major pillar of the German export model. Its relevance is also strongly reflected in employment numbers. In 2020, 470,046 persons<sup>3</sup> were employed in the automotive manufacturing (OEMs) and 300,882 persons<sup>4</sup> in the supplier automotive industry (Kords 2021).

### 2.1 Value chain characteristics and current restructuring dynamics

The sector is dominated by the 'Big Three', that is, domestic-owned lead firms Volkswagen (VW), BMW, and Mercedes-Benz Group. Suppliers range from multinationals such as Bosch, ZF Friedrichshafen, and Continental, to a wide array of small and medium enterprises (SMEs), many of them leading specialists for particular parts. The competitiveness of German OEMs relies heavily on foreign markets, which contribute with increasing significance to final output and turnover. Nevertheless, production capacities in Germany remain constant and primarily serve the German and European sales markets. This can be attributed to the development of a regionalised production and innovation network, which supplies markets worldwide from regional bases of production (Pfäfflin et al. 2019).

After many years of outsourcing to suppliers and concentration and centralisation processes among higher tiers of the automotive industry, the COVID-19 pandemic in 2020 and successive crises catalysed and deepened a more profound reconfiguration of existing value chains. In terms of effects on industrial manufacturing processes, digitalisation has increased continuously, for example, the automation of the production process that has been taking place for decades (Krzywdzinski 2021) as has integration of software and electronics into the products. New competitors entered the German automotive market and 'the country's three largest car manufacturers—BMW, Daimler, and VW— ... have relied heavily on technological partnerships with the key US American cloud-industry companies' (Lechowski/Krzywdzinski 2022: 677). The industry is also increasingly

<sup>1.</sup> They are based on two research projects funded by the Volkswagen Foundation and the German Research Foundation (DFG). The empirical basis is provided by self-collected qualitative interviews with experts as well as quantitative analyses of data.

<sup>2.</sup> Own calculations based on VDA and Statistisches Bundesamt.

<sup>3.</sup> This number covers employment numbers by firms manufacturing motor vehicles.

<sup>4.</sup> This number covers employment numbers by firms producing automotive parts and accessories.

dealing with climate protection regulations on combustion engines at the state and EU level, and qualification requirements. Previous core competencies will become obsolete and not all existing suppliers will be able to adapt (own interviews).

As a direct consequence of the pandemic, but since the end of 2021, aggravated by the Ukraine war and cancellations at short notice that could not subsequently be reversed, the automotive industry has been confronted with recurring bottlenecks in the area of microchips, as well as other important production components. This has led to scientific hype around the topic of supply chain resilience and, in corporate practice, to strategic prioritisation of dependencies versus cost savings through outsourcing.

### 2.2 Corporate and industrial policy reactions to COVID-19

Primary reactions regarding reshoring versus further outsourcing seems to differ – based on our own interviews – between more influential lead companies and more dependent suppliers. VW, a standard-setter within the industry, switched to electrified engines in June 2020. With regards to relocations and plant closures, there are accentuated differences between OEMs and suppliers. OEMs are reacting by vertical (re)integration to safeguard development competences and value creation in strategic areas such as IT and battery chemistry (own interviews) and employment – contrasting some hypotheses at the beginning of the pandemic. Works councils have a stronger negotiating position than in the supplier segment with regard to the future of the remaining employee segment.

Suppliers experience more pressure, depending on their position in the value chain and their innovative capacities. Selected tier-1 suppliers remain valuable partners for OEMs if they contribute to new strategic competences, for example, battery systems. Larger suppliers are increasingly relocating, especially production, but also R&D, towards low-wage countries, particularly to Southeast Europe and North Africa (own interviews).

The German government has reinforced the temporal coincidence of the pandemicinduced crisis and the previously described trends, by strategically attaching COVID-19 financial assistance for the automotive industry to the transition to electromobility, and thus created a strong link between short-term crisis management with long-term technological transformation goals.

The crisis management implemented by the German government tailored to this sector – alongside general support programmes and policies accountable to the whole economy – encompasses three elements. First, there are purchase premiums for electric cars. These also include hybrid cars, so that some suppliers with components related to the combustion engine have some time for adjustment. Second, investment funds have been established which target the technological transformation. Third, investments in charging infrastructure for electric cars and R&D projects for e-car components and battery technology were advanced.

This is in line with the EU Commission, which is attempting to contribute in terms of industrial policy to keeping value creation within the European Union and to support the long-term survival of domestic companies. This orientation of public policy responses is partly due to the increasing competition with the US, and increasingly with China, where competitors are gaining considerable technological leads in areas such as battery production and other electromobility components. Additionally, the Commission is also resolutely pursuing environmental policy objectives, such that any financial assistance has to support decarbonisation goals. Therefore, the German government, together with social partners (the automobile employer association and metalworkers trade union IG Metall) has made maximum use of the little leeway left by the EU Commission in allocating the

funds from the EU's pandemic recovery plan to this industry (Lechowski et al. 2023). In the national context, the requirements of the EU played a significant role in ecologically modernising the automotive industry. The aim is to maintain the primacy of the automotive sector's competitiveness and thereby the preservation of jobs (Haas 2020: 9).

As an immediate response to the coronavirus outbreak, companies quickly introduced measures regarding the health risks of the industrial employees, by utilising established occupational health and safety procedures, in cooperation with works councils. Works councils were involved in the activation of tried and tested occupational health and safety measures among industrial employees in 90 per cent of all cases. Due to longer breaks and shorter cycle times, this however implied a reduction in productivity (own interviews). However, personnel cost savings were the subject of negotiations with works councils and trade unions, and were mostly either prevented or settled in a socially acceptable manner.

Employment numbers have altogether remained relatively stable, with higher reductions in temporary and mini-jobs, more prominent in suppliers than in lead firms, and without aggregate increases in staff. The short-time allowance (*Kurzarbeitergeld*) – a public support programme to maintain jobs during the economic downturn – was identified as the key mechanism to avoid major dismissals in Germany's automotive sector (see also Krzywdzinski et al. 2022: 6).

While OEMs topped up the public short-time allowances for many of their workers, suppliers also, using the short-time allowances, paid lower company-funded supplements for their employees (own interviews). Overall, the short-time work functioned as an instrument of internal flexibilisation, meaning that firms could reduce labour costs and reorganise work processes without being forced to dismiss employees.

### 2.3 Trade union involvement

As in previous crises, and despite fears of erosion of union power, COVID-19 crisis management again involved close coordination with social partners (own interviews) in a path-dependent way. Detje/Sauer (2020: 57) already identified that, for example, in large companies such as at OEMs with more than 17,000 employees, all bodies of the employee representation were involved. Traditionally, the automotive industry has been strongly union-oriented. Among both OEMs and suppliers, union density is relatively high compared to other industries, and works councils have had a considerable influence. Our experts have reported that measures were agreed in 90 per cent of companies through social dialogue (in approx. 70 per cent with written agreements). Dominant among measures agreed upon were on-site agreements and socially responsible workforce reduction in cooperation with works councils, with internal flexibility measures given priority over external ones.

An even more significant sphere of union influence is their involvement in industrial policy. Lechowski et al. (2023) consider the intensive negotiations between the government, employers, and unions in the corporatist tradition as a primary reason why a stable consensus in the design and direction of financial resources could be reached. Unlike in the French case, where the government acted in a more dirigiste and less negotiation-oriented manner, no German company pulled out of the electromobility-oriented pandemic action strategy, as all actors embraced the technological transformation of the European market as a crisis management instrument (Ibid.).

COVID-19 could therefore only be used as a transition accelerator in the field of electromobility because of the long-practiced coordination of many actors in the German auto sector. Political agreements over European and German state subsidies lead to spurring investments into electric mobility, thereby triggering the transformation of production models and supply chains. We interpret this as an expansion of the German model of corporatist arrangements in a coordinated market economy (Hall/Soskice 2001): drawing on corresponding formal co-determination rights, organisational strength and institutional power resources, but with high levels of government intervention in industrial policy.

# 3 AUTOMOTIVE PRODUCTION IN BRAZIL: A DEMAND/SUPPLY BLOW, GOVERNMENT NEGLIGENCE, AND THE ROLE OF UNIONS

The automotive industry in Brazil corresponds currently to 57 vehicle factories, belonging to 27 foreign multinationals, in addition to around 700 autoparts companies. More than 50 per cent of the market for cars and light commercial vehicles are dominated by Fiat-Jeep, GM, and Volkswagen. If we consider the entire automotive chain, in 2019, it represented about 2.5 per cent of the total GDP, and the direct and indirect jobs reached approximately 1.2 million – around 1.5 per cent of the total jobs in the country (ANFAVEA 2022). In this section, we will analyse the evolution of this industry in the last few decades in Brazil, with a focus on the impacts of the pandemic and reactions from the companies and workers.

### 3.1 Automotive production in Brazil during the pandemic

The production of auto-vehicles (cars, light commercials, trucks, and buses) in Brazil increased substantially in the first decade of the twenty-first 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. From 2013 onwards, the automotive sector was severely hit by a deep economic crisis, which affected not only Brazil, but also other Latin American countries which are major export markets for Brazilian vehicles (notably Argentina). As a result, the production of vehicles in Brazil declined by 41.3 per cent between 2013 and 2016. From 2017 onwards, production somewhat recovered, but in 2019 it had still barely equalised the 2007 level. The pandemic, therefore, was a hard coup for a sector still recovering from severe crisis.

As worldwide, the automotive sector in Brazil bore in 2020 a twofold stroke. On the demand side, economic crisis lowered consumption of new vehicles. On the supply side, disarrangement in GVCs resulted in a shortage of inputs. Last, but not least, the national government did not implement policies specifically aimed at supporting the automotive sector, rather only general policies which also served as a buffer for the automotive sector. In particular, the *Program for the Maintenance of Employment and Income* allowed companies to temporarily interrupt their contracts with workers or reduce the working hours by 25, 50, or 70 per cent, with the cost for the companies reduced proportionally and the government partially complementing the salaries of the workers.

Altogether, the COVID-19 pandemic resulted in the temporary closure of all automotive factories in Brazil – some of them for two months – collective holidays and disseminated reduction of working hours. Concretely speaking, the outcome was a 31.6 per cent drop in the total production of vehicles in 2020. This is almost the double the impact of the pandemic on the global automotive industry, which was estimated at 16 per cent in 2020 (*cf.* Fernandes 2021). This can be attributed to the severe impacts of the pandemic on household incomes in Brazil and to the uncertainties related to the mismanagement of the pandemic by the national government, but also to a particularly sharp disruption in supply chains. In 2021–2022, the sector produced around 2.3 million vehicles/year, representing a 12 per cent increase from 2020, but a level which was still more than 20 per cent below production in 2019. Besides long-lasting problems on the demand side, one of the big obstacles for the recovery was the persisting shortage of inputs, especially semiconductors. According to ANFAVEA (2022), the production of 2.3 million vehicles means that the sector has been operating with an idle capacity of 54 per cent. As a result of the increasing costs related to the disarrangements of GVCs, but also of this mismatch between supply and demand, the average price of new cars in Brazil increased by 14 per cent from January 2020 to December 2021.<sup>5</sup>

Symbolically, Ford closed its factories and terminated its manufacturing operations in Brazil in January 2021, representing the closure of the oldest car assembler in Brazil, in operation since 1919. Concretely, it meant that three factories closed their doors, dismissing more than 5,000 employees, with an indirect impact on 100,000 jobs (DIEESE 2021). However, although these closures were announced during the pandemic, it was not the only catalyst, as Ford had given indications beforehand. In fact, Ford also closed factories in France and Russia, highlighting an overall reconfiguration in the global strategy.

## 3.2 Autoparts production in Brazil during the pandemic

As one might expect, the autoparts subsector, similarly to the vehicles sector, suffered a heavy blow in 2020. The autoparts subsector is very heterogeneous, including both multinationals, large domestic firms and a myriad of SMEs. SMEs had overall less resilience during the crisis, resulting in several bankruptcies.<sup>6</sup>

On the other hand, some companies may have benefited from the currency depreciation which has taken place in Brazil since 2015 (with almost 100 per cent in nominal terms in 2015–2019), and continued during the pandemic (at approx. 30 per cent in 2020–2021). The expectations of companies as to the possibility of gaining ground in the internal market of autoparts can thus be observed through an analysis of investments, which indicates that even with the recovery of the automotive sector in 2017– 2018, companies were still functioning at significant idle capacity. Nonetheless, in 2019, there was a reasonably high increase in investments. However, investment levels were still low compared to the first half of the decade, indicating that additional uncertainties – such as political crises and the extremely high volatility of the exchange rate – dampened levels of investment in Brazil even before the pandemic. In 2018–2019, the idle capacity of the autoparts industry was around 30 per cent; it reached its peak in April 2020 (57 per cent), and from mid-2021 onwards, recovery in the sector allowed it to reach a more reasonable level (25 per cent).

Yet, the crucial point when analysing the role of Brazil in the autoparts GVC is the evident heterogeneity between the inputs produced in Brazil and those which are imported: the imported parts are typically associated with a higher degree of technological development. Hence, in the context of the inputs shortage provoked by the pandemic, even the Brazilian Automotive Industry Association (ANFAVEA) recognised that it was not possible to satisfy industry needs through national production of those goods.

5. Data from KBB Brasil.

6. Given the bureaucracies and the long period of time necessary for the formalisation of bankruptcies in Brazil, we do not have quantitative data, but our qualitative field work revealed this. 80 European Journal of Economics and Economic Policies: Intervention, Vol. 22 No. 1

Lastly, it is important to analyse the capital composition of the autoparts companies operating in Brazil. In fact, around 60 per cent are foreign capital companies, implying their strategic decisions are subordinate to the company headquarters. As a consequence, most of the external trade of this sector is intra-firm (Barros et al. 2015) and the replacement of imports by local production in Brazil will only occur if firms foresee enduring cost advantages.

In a nutshell, it seems that the Brazilian autoparts subsector has benefited from the depreciation of the Brazilian currency – especially after 2015 – but it is still not possible to assert that it will gain much ground with the ongoing shortage of inputs. After all, after decades of commercial opening with currency appreciation and very high interest rates, reconversion of the national production structure is not an easy task – notably in a context in which there is no specific stimulus from the government.<sup>7</sup> Moreover, the exchange rate in Brazil is very volatile, making it difficult for companies to initiate long-term investments which depend on the exchange rate level.

#### 3.3 Impacts on employment

In terms of employment, the impacts of the pandemic on the automotive sector were also significant, although not so serious as the ones in the production and revenue discussed above. From 2019 to 2020, 15,665 jobs were lost (-5.4 per cent): 5,482 jobs in the vehicle subsector (-5.1 per cent) and 10,607 in the autoparts (-6.3 per cent), with an increase in the agricultural and highway construction machinery subsector (+424 jobs, meaning 2.2 per cent). However, the whole sector had already eliminated a very high volume of jobs in the pre-pandemic period: between 2013 and 2019, 84,333 jobs were lost in the whole sector (22.3 per cent of the posts). In fact, there was an asymmetry in the upward and downward phases of the cycle, since the crisis of 2013–2016 provoked a steep drop in the number of employees, but the recovery of 2016–2019 did not result in corresponding hires. In 2017, an important labour market reform was approved in Brazil, so one hypothesis for this asymmetry is the intensification of outsourcing.

An analysis of working hours in the automotive sector also clearly shows the impact of the pandemic. The lowest level was reached in April 2020, when the hours worked in production of this sector were less than 40 per cent of the previous year's average. In this respect, however, the pre-pandemic level was quickly recovered.

This resilience in terms of the number of jobs comes partly from the inconvenience for the companies to dismiss and re-hire workers according to the cycles (given the financial costs, but also the benefits of the expertise of the workers), but it also shows that the abovementioned *Program for the Maintenance of Employment and Income* was somewhat effective in avoiding the destruction of formal jobs. Also, the unions representing the car assemblers' workers stood up for the maintenance of jobs during the pandemic. In many of these companies, collective agreements were signed between the company and the workers interdicting the dismissals, but with important concessions from the workers in terms of salaries and benefits. Needless to say, for small and medium autoparts companies, this relative stability in the number of jobs was lower, since the workers do not have strong representatives, the companies had less access to the government support, and many companies went bankrupt or had to drastically reduce their contingent of workers.

<sup>7.</sup> Lula's government, inaugurated in January 2023, is raising the discussion of reindustrialisation, but it remains too early to evaluate this.

# 4 AUTOMOTIVE SECTOR IN INDIA AT THE CURRENT JUNCTURE: A BRIEF OVERVIEW

In India, the automotive industry is one of the largest manufacturing sectors, contributing significantly to the country's GDP, exports, and employment (Jha/Kumar 2022). The industry comprises highly segmented enterprises and workforce, with a very large share of precarious employment.

# 4.1 Impact of COVID-19

Even prior to the COVID-19 pandemic, the Indian economy was undergoing a slowdown; the GDP growth rate hovered just around 3 per cent in the last quarter of 2019–2020, compared to around 7 per cent two years prior.

The automotive industry was no exception. Whilst production, sales, and exports in the *automobile sector* were rising in absolute terms between Financial Year<sup>8</sup> (FY) 2003–2004 to 2018–2019, the quinquennial average annual rate of growth of all three parameters shrunk to nearly half from 2009–2010 to 2013–2014, to 2014–2015 to 2018–2019. In the *auto components sector* as well, the turnover (in INR<sup>9</sup> billions), exports as well as imports (in USD billions) increased in absolute terms since 2009–2010, but their rates of growth reduced post 2010–2011, even turning negative in some years.

As is widely acknowledged, several acts of commission and omission since 2014, when the government led by the current Prime Minister assumed office, including 'demonetisation' of 2016 and the launch of the poorly-structured Goods and Services Tax (GST) in 2017, etc. adversely impacted the automotive sector and the economy as a whole, through multiple channels (Rawal et al. 2022; Ghosh et al. 2017; Jha/Kumar 2022).

The initial COVID-19 led crisis was further exacerbated as the state's response to the pandemic largely constituted of putting in place a series of stringent lockdowns as 'containment measures' from March 2020 (Jha/Mishra 2022).

Automobile production declined by 14.8 per cent between 2018–2019 and 2019–2020, led by a decline in commercial vehicles, and further by 14 per cent in 2020–2021 due to three-wheelers. The turnover (in INR billions) in the auto components sector reduced by 11.7 per cent in 2019–2020, and further by 2.5 per cent in 2020–2021. Due to the restrictions and uncertainties in international markets, particularly in Europe and the US, exports also suffered, rising between 2018–2019 and 2019–2020, but nearly at one-fifth of the previous year's rate, and declining further by 13 per cent in 2020–2021, driven by a fall in exports of passenger vehicles and three-wheelers in the latter. Similarly, in the auto components sector, the rate of growth of imports (USD billions) and exports turned negative, at –10.4 per cent and –8.3 per cent, respectively, in 2020–2021.

Furthermore, the pandemic induced massive employment and earnings losses accompanied by a discouraged worker effect (Mishra/Das 2022), resulting in a severe private demand crisis. However, it was not met with a commensurate increase in government expenditure – public expenditure was 90 billion rupees lower in the March–July 2020 quarter than the same period in 2019 (Ghosh 2020, 2022). In fact, the actual stimulus expenditure was

<sup>8.</sup> In India fiscal/financial year is from 1 April in the calendar year to 31 March in the subsequent calendar year.

<sup>9.</sup> Exchange rate at the time of writing is 1 USD = INR 82.50.

estimated to be 1 per cent of GDP by various think tanks and scholars<sup>10</sup> — despite official announcements of 10 per cent of the GDP under the *Atmanirbhar Abhiyan*<sup>11</sup> (Jha/Kumar 2020; Ghosh 2022), as much of it came in the form of credit guarantees to the MSMEs and loan moratoriums. Coupled with an unprecedented rise in petrol, diesel, and gas prices, these led to a reduction in domestic sales for automobiles, which declined by 18 per cent between 2018–2019 and 2019–2020, and further by 13 per cent in 2020–2021.

It is of note that efforts were undertaken to increase demand, such as increasing the depreciation rate for pre-owned vehicles to reduce resale rates, and increasing finance to consumers and dealerships for boosting demand; however, these were largely cosmetic.

## 4.2 Evidence from the field

Under the current project, two primary surveys were conducted. The first survey was conducted in early 2022, followed by a second in late 2022 to early 2023. For the latest survey, tripartite responses were recorded for the agreed upon questions – company managers, policymakers, and employers' associations and trade unions. More than 10 respondents were targeted for each group. However, barring trade unions, the responses received were lesser than expected. This section presents a short summary of the responses, based on the findings from both surveys.

In terms of the industry-level impact, during April–August 2020, the automobile sector was adversely affected by various logistics-related issues, such as unavailability of vehicles/ vessels to move their goods, rising rental prices of containers, delay at ports, etc. Further, the effective labour cost increased as companies had to install protection and safeguard measures against COVID-19 and to pay salaries, at least to some employees, despite the shutting down of production. Moreover, the shortages and subsequent rise in prices of raw materials and semi-finished products led to significant disruptions in the production cycle. With a decline in consumer demand, the firms underwent a severe liquidity crisis.

In one of the major automobile manufactures, Maruti Suzuki India Limited, production resumed slowly in the Gurgaon plant in July 2020. The workers were compensated during the two months of the first lockdown. There was a significant drop in production between April and May of 2021, not only due to the second wave of COVID-19 but also due to an acute semiconductor shortage. The *global semi conductor shortage*, the effects of which were felt mildly in December 2020, but acutely in June 2021, led to a huge decline in auto production despite reviving (especially external) demand. As a result, net sales for Maruti Suzuki Limited declined from Rs 830,265 million in 2018–2019 to 665,621 million in 2020–2021.

For the auto components manufacturers surveyed in the Kadipur Industrial Area, during the first lockdown, no compensation was provided to workers in majority of the workshops.<sup>12</sup> Production resumed slowly in June 2020, amidst reduced demand from OEMs and Tier 1 & 2 component manufacturers, and higher input costs, particularly for iron. This led to a reduced workload, from 12–14 hours/day to 8–10 hours/day. Correspondingly, wages dropped by Rs. 2,000–5,000 across categories. Discussions with trade unions and NGOs revealed that workers, particularly contractual and of small units, were left for many days without work or suffered severe salary cuts (for permanent employees) during

11. Atmanirbhar Abhiyan was geared toward promoting 'self-reliance'.

12. Though a few respondents reported receiving half their monthly salary as compensation.

<sup>82</sup> European Journal of Economics and Economic Policies: Intervention, Vol. 22 No. 1

<sup>10.</sup> Such as Fitch solutions, Nomura, and Barclays, Centre for Budget and Governance accountability (CBGA), among others.

the first lockdown. Organizations such as trade unions and NGOs supported the workers (largely restricted to permanent workers) through their own contributions, while the companies remained indifferent and the government offered little to no assistance. In fact, COVID-19 was used as an opportunity to dilute union density, as the share of temporary employees increased.<sup>13</sup>

As work resumed, there were limited improvements in employment. The permanent workers were retained to some extent, but their workload increased (8 hrs + 4 hrs overtime) and the newly staff recruited was largely contractual.

## 4.3 Recent shifts in policy and technological architecture

The Indian auto industry since FY 2021–2022 seems to be on the path of recovery. As the global economy improved, the rate of growth of exports increased from -3.1 per cent to 36.1 per cent in 2021–2022. While domestic sales continued to decrease in 2021–2022, total production in the sector recorded a low but positive rate of growth (1.2 per cent), for the first time since FY 2018–2019. However, in absolute terms, all factors except exports remained below the 2018–2019 levels. In the auto components sector, all axes crossed the pre-pandemic marks in 2021–2022 in absolute terms. In the first half of FY 2022–2023, imports grew by 17 per cent (ACMA 2023).

Several recent initiatives of the State could be contributory factors for this recovery. For instance, in September 2021, the government issued a USD 3.49 billion *Production-linked Incentive* (PLI) scheme for both sectors. The scheme is expected to bring in investments to the tune of USD 5.74 billion by 2026. The *Automotive Mission Plan* of 2016–2026, which seeks to increase the growth by fourfold in the automobile sector by 2026, also received renewed attention. New financing options have also been introduced.

Even before the COVID-19 pandemic, there have been notable technological and policy changes. With the ongoing Industry III and Industry IV revolutions, there has been an increased push towards automation, digitalisation, use of robotics, etc. Furthermore, for reasons of better environmental compliance, there was a direct shift from BS-IV to BS-VI<sup>14</sup> emission norms; this caused supply chain disruptions and immediate cost increases.

There has been an increased push towards electric vehicles (EVs) through government scheme titled *Faster Adoption and Manufacturing of Hybrid and Electric Vehicles I (FAME I)*, launched in 2015. This was later replaced by *FAME II* in 2020; the latter had allocated funds of USD 1.39 billion for FY 2020–2022. The industry experts seem upbeat about EVs and the impetus to the segment began even prior to the pandemic. Currently, it has been estimated that the EV market in India is likely to increase at a compound annual growth rate (CAGR) of 36 per cent until 2026 while the EV battery market may expand at a CAGR of 30 per cent (IESA, 2019). Consequently, the EV industry is likely to create 10 million direct jobs and 50 million indirect jobs (*Business Standard* 2022a).

As per the field study, policymakers expect the auto industry to develop in the context of rising pressure to frame national-oriented economic policies to promote self-reliance. This will result in a reduction in outsourcing, and greater focus will be placed on developing new infrastructure or upgrading the existing infrastructure locally around

13. Temporary staff is often not unionised.

14. Emission norms in India are termed BS or Bharat Stage emission norms. They are derived from EURO Emission norms. The transition from BS-II to BS-IV took 17 years, while the movement from BS-IV to BS-VI, skipping BS-V altogether, was ordered within three years. The urgency arose as India acceded to the Paris Agreement in October 2016 while EURO-VI emission norms were already implemented by late 2014.

automobile clusters. The company managers asserted that their thrust would now be on improving the ease of doing business digitally.

Based on our surveys, it could be asserted that the future prospects for the industry seem positive, as recovery has been recorded in both the sectors since FY 2021–2022. In 2021, the government has set the goal to increase the automobile sector's share in GDP to 12 per cent and employment to 50 million (*Business Standard* 2022b). Government initiatives, particularly pivoting to EVs, are likely to play a crucial role. However, the restructuring of the industry in response to the pandemic, particularly companies' increasing emphasis on automation and rising contractualisation, may pose a serious issue with respect to the world of work. For instance, the paint shop has been converted from manual to 100 per cent automatic carbon coating mode so that now only one operator is required to use the equipment, resulting in direct job losses. Further, with technological changes, re-skilling will be an issue that could result in immediate job losses and difficulty in re-entry.

# 5 COMPARATIVE CONSIDERATIONS AND CONCLUSIONS: WIDENING THE GAP BETWEEN GLOBAL NORTH AND SOUTH UPGRADING CAPACITIES WITH COVID-19?

What comparative conclusions can now be drawn from this condensed reflection of the modes of response to the COVID-19 pandemic in these three countries? Even at first glance, it is clear that the economic and labour constellations between Germany as a country in the Global North and Brazil and India as large countries in the Global South have become even more divergent in the wake of the pandemic. In particular, this divergence was widened regarding the position of these countries within the GVCs (and the corresponding level of technological upgrading), and the socioeconomic conditions of the workforce. What seems even more relevant to us here, however, is not only identifying this widened gap, but the question of how it has been produced and within which theoretical categories it is to be understood (Table 1).

If we look at the different starting situations in terms of value chain governance, there is of course no question that Germany not only had the stronger competitive position, but also, as the home country of lead firms, was able to take advantage of opportunities to control resources and profits vis-à-vis subsidiaries and suppliers. Although this power advantage had long been oriented toward the development, production, and sale of cars with gasoline engines, within the crisis period it was able to take action, to a greater extent than in the two more peripheral national sectors in India and Brazil, to reorient production toward EVs in Europe. In India, on the other hand, and even more so in Brazil, the dependency on decisions made in these headquarters of lead companies around the world was considerable.

In the comparison of the three countries, financial room to manoeuvre in economic policy emerged as an additional and decisive explanatory dimension (see also De Conti et al. 2023). Germany was able to make much greater use of financial resources in mone-tary, fiscal, and industrial policy countermeasures not only to ward off but also to productively use the successive crises for technological upgrading to electromobility. The capacities of the EU in particular were utilised here, so that one can already speak of a state-interventionist turn in industrial policy (cf. Gräf/Topuria 2023). Meanwhile, comparable economic policies were not possible for India and Brazil, due to a higher degree of foreign constraints related to currency hierarchies, short-term foreign financial investment, austerity, and other constraints that emerging economies face in the international financial system.

Table 1 Utilization (	of starting positions and intensification	of institutional path dependencies during CO	VID-19 in three national automotive sectors
	Germany	Brazil	India
GVC constellation	Core position, home of lead firms	Peripheral position dominated by foreign companies	Peripheral position with some domestic companies
Economic policy	Huge investment of monetary, fiscal and industrial policy (also by EU)	No industrial policy; as emergency policies: a short-term and limited replacement of wages, and a cash transfer policy for socially vulnerable people	Credit guarantees and loan moratoriums, but no increase in government expenditure
Social bloc and involvement of labour representatives	Involvement of social partners (coordinated market economy), conservative focus on permanent employees	Far-right authoritarian government, minimal support programs for the poor, rudimentary involvement of unions only in decentral workplace negotiations	Market despotic introduction of corona controls without significant financial support for workers, further under- mining their bargaining position
Outcome	Technological upgrading towards electronic vehicles, steady staff reductions concentrated on suppliers	Avoidance of strong industry-specific burdens without upgrading	Massive job and income loss despite strikes and demonstrations without upgrading

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Furthermore, margins of manoeuvre theoretically would have been available but were not used during the pandemic due to the preferences of the prevailing social blocs, indicating the political dimensions of the pandemic response. Both India and Brazil were led by governments intent on minimising industrial policy intervention, with policies focused on the interests of domestic and foreign entrepreneurs and financiers, but with little consideration of the impact on workers, and little involvement of unions in policymaking. Regarding the participation of stakeholders, however, a completely different constellation can be seen in Germany. Our analyses of the automotive sector clearly demonstrate that trade unions were included, and their interests considered, at the national, industrial and company level, and in the negotiations on how EU funds were to be used. In this respect, not only the different starting positions of the three national sectors were important, but also the institutional continuities that have to do with whether and how representatives of different interests are involved in crisis management or not. As a result, the financial, competitive, and political compromises regarding use of resources in Germany have flowed into a technological upgrading strategy while largely avoiding impositions for permanent employees. In Brazil and India, on the other hand, a large part of the risks was shifted onto the workforce, thereby further weakening their negotiating positions, and without making any progress in catching up with the Global North.

If we consider the result of end-stage development in Brazil, plant unions were struggling to maintain employment levels during the COVID-19 pandemic despite the weakening of union rights by former presidents Bolsonaro and Temers. In India, falling real wages received an additional blow during the pandemic. In both national sectors, therefore, an upgrading trajectory is very unlikely in the coming years, notably in regard to the transition to electrified vehicles (and other new powertrain technologies). However, the vulnerability of employees is significantly more precarious in India than in Brazil, due to the high share of informal employment, the lack of employment security and welfare state protection, the weak role of trade unions, and the long-standing market-despotic labour-regulation regime in India. From an overall perspective, neither national sector can be regarded as a winner in the global restructuring wave led by core countries of the automotive industry. This is due to a lack of effective industrial policy in both countries – as indicated above – but also to the strategies of the headquarters and the inability of the national actors to intervene in this global division of technological upgrading.

With regard to the automobile industry in Germany, political agreements over European and German state subsidies have resulted in spurring investments into electric mobility, thereby transforming production models and supply chains. This was performed in cooperation with social partners, following the German model of corporatist arrangements of a coordinated market economy, with a strong role for social partners and corresponding formal co-determination rights, organisational strength, and institutional power resources, whose structures could be drawn on during the pandemic to cushion negative economic effects for the workforce.

Our theoretical contribution therefore is to understand the diverging industry trajectories of Brazil and India as two emerging economies, and of Germany in the current transformation of the global auto sector, considering an array of interrelated factors. These include existing power asymmetries in the value chain, the capacities of national economic and labour policies, and furthermore, how these are shaped by respective national social blocs, given different starting positions in the international economic system.

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