# The impact of GVC on Local and Regional Development

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# Agenda

- The purpose of the paper
- The GVC approach and the three dimensions
- The missing links of GVC: the geographic and spatial dimension
- The links between globalization dynamics and regional development
- Location theory and the case of the automotive industry in Curitiba and Brazil
- Conclusions

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# The purpose of the paper

- To conceive **regional development** of the automotive industry in the Metropolitan Region of Curitiba, in a globalizing context
- To delimit the **'strategic coupling**' of the GPN/GVC and regional economies, which ultimately drives regional development through the processes of value creation, upgrading and capture
- To underscore the **multi-scalarity** of the forces and processes underlying regional development

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# The GVC approach and the three dimensions

- The **input-output structure** and refers to all products and services in a sequence of interrelated economic activities of value added
- **Territoriality** refers to the spatial dispersion or concentration of production and distribution networks, comprised by companies of different sizes and types
- The **governance structure** refers to relationships of power and hierarchy between the different actors in the chains or networks and the mechanisms that regulate them

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# The second dimension of GVC

- The second dimension recognizes the **territorial dimension** of the processes of globalization and allows to consider **uneven territorial development** and the implications for policy-oriented planning.
- There is continued **geographical fragmentation** and dispersion of manufacturing processes as well as **concentration** and **integration** of industrial activities of various regional scales

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# But the early GVC and GPN literature has not paid enough attention to

- **Economic geography** at different spatial scales
- **Multi-scalarity** of regional development
- **Territoriality**
- **Spatial disparities**
- **Proximity**

# The links between globalization dynamics and regional development

- Two recent bodies of work have tried to tackle the links between globalisation dynamics and notions of 'regional development'.
- The so-called **'new regionalism'** literature has placed significant emphasis on endogenous institutional structures and their capacity to 'hold down' global networks (e.g. Storper, 1997)
- The **inter-firm networks** – such as the GCC/GVC approach – has been concerned with the organizational structures of global firms production systems and consideration of how particular regions 'fit into' these networks with varying impacts on industrial upgrading (e.g. Gereffi, 1996)

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# Location theory and the case of the automotive industry

- The automotive industry presents some relevant characteristics, such as **economies of scale** and **agglomeration** (Fujita and Thisse, 2002)
- The automotive industry is **technology** and **capital intensive**
- These characteristics provide a significant **barrier to entry** in this market

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# Location theory and the case of the automotive industry

- The strong presence of economies of scale and agglomeration in the production of cars also has consequences for decision making on the **company's location**
- These two factors together tend to stimulate a sector characterized by a **concentration** of large companies, clustered in few geographic regions.
- The industrial concentration and the agglomeration of production is a characteristic of this market structure. Thus, the automotive industry is a **global market**, characterized by a small number of large transnational companies, based on differentiated products

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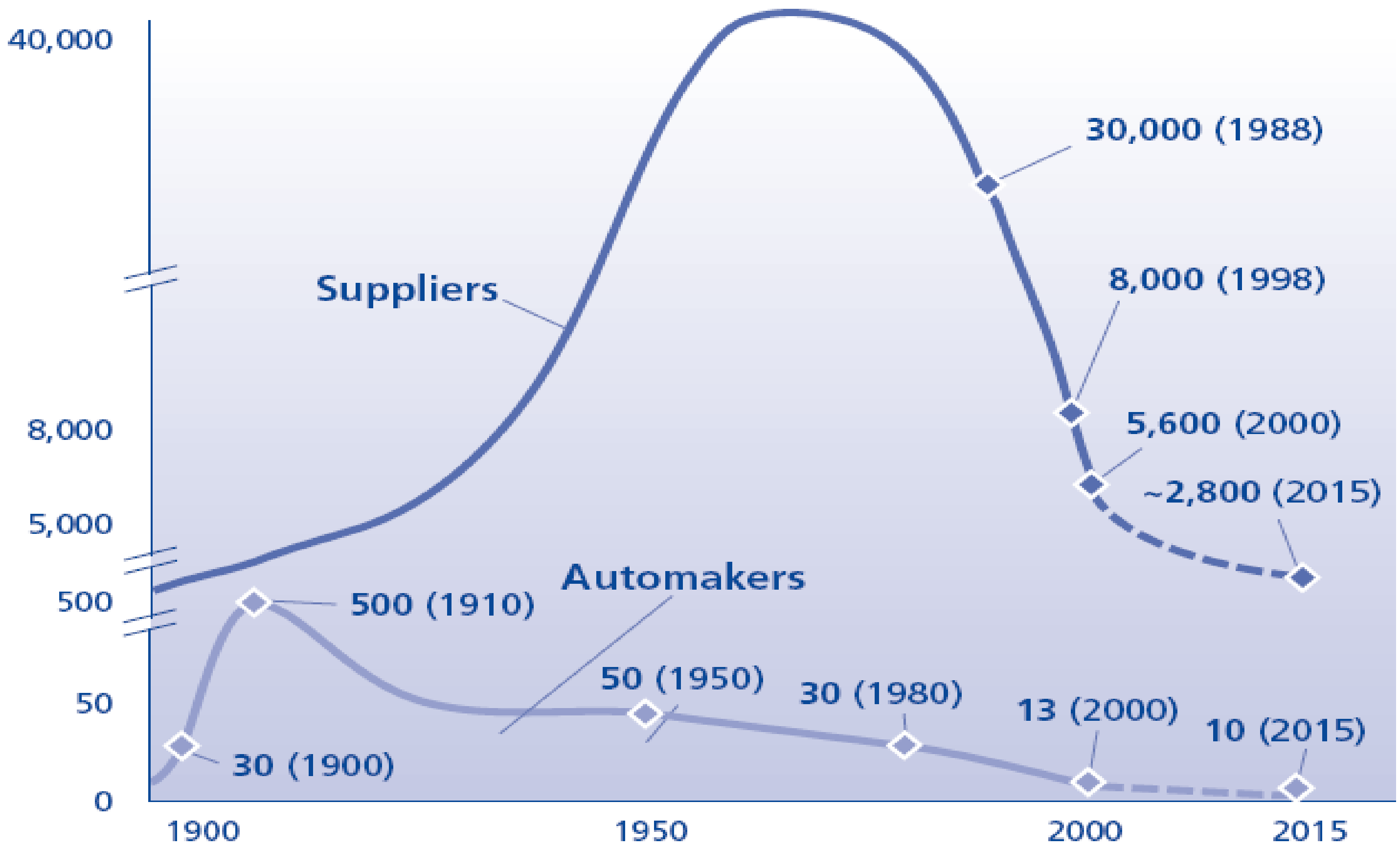
# Number of automotive companies: automakers and suppliers, 1900-2015

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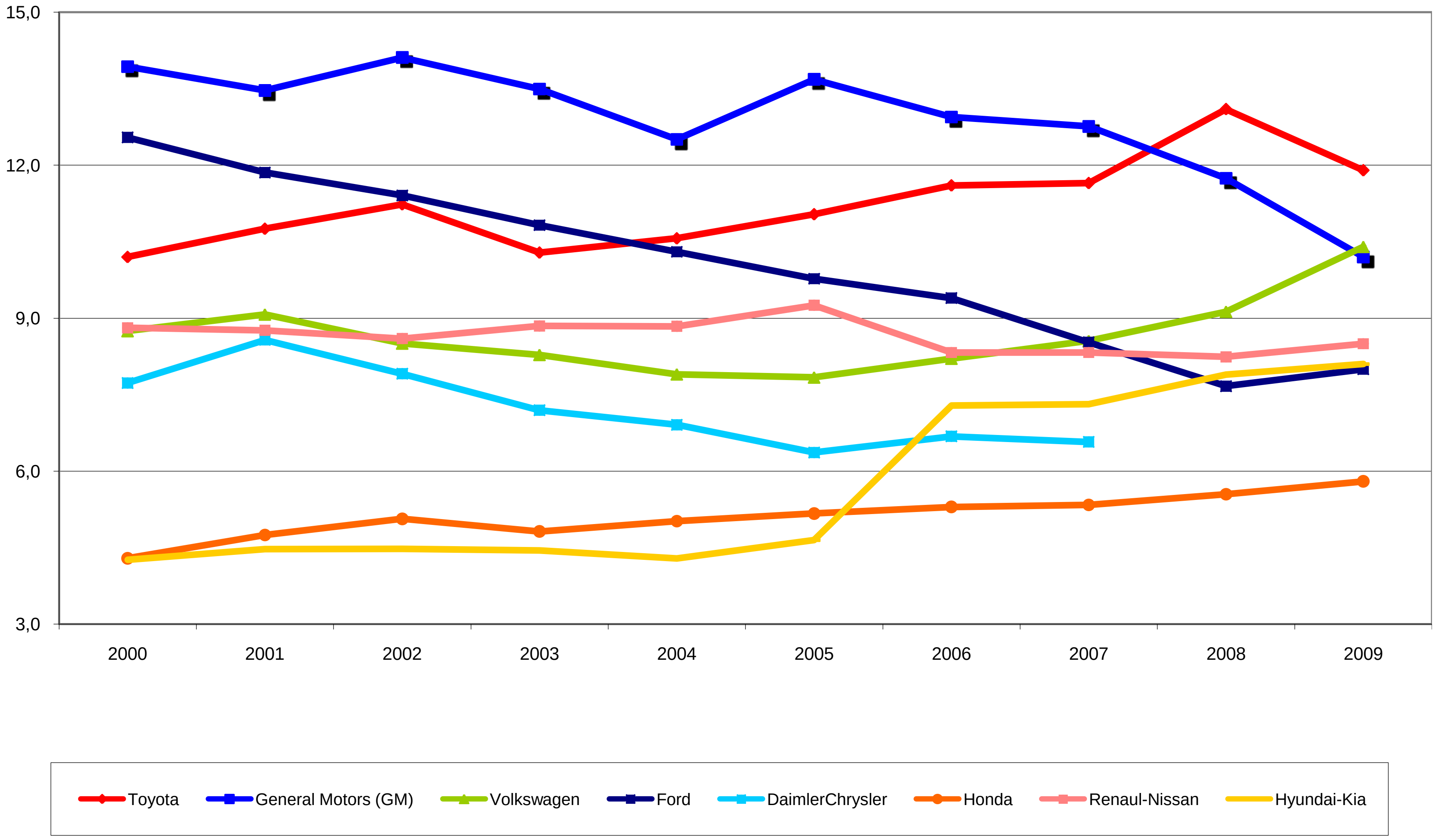
# Top automakers

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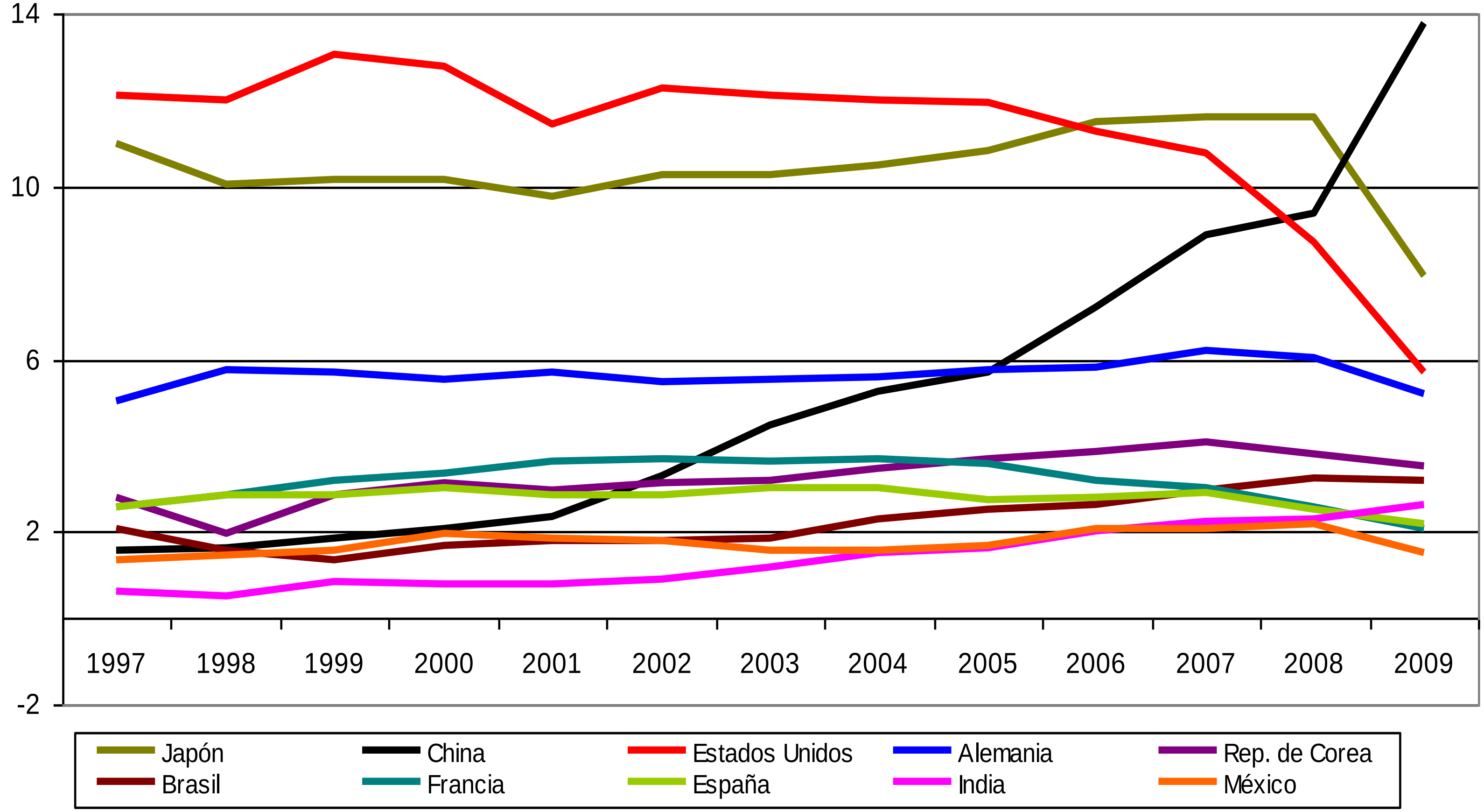
# Main vehicle manufacturers

**(Million of units per year)**

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# Location theory and the case of the automotive industry

- Krugman (1998) suggests some **centripetal** and **centrifugal** forces that may be important in practice
- **Centripetal forces**
  - Market size effects (backward and forward linkages)
  - Thick labour markets
  - Pure external economies (information spillovers)
- **Centrifugal forces**
  - Immobile factors
  - Land rents
  - Pure external diseconomies

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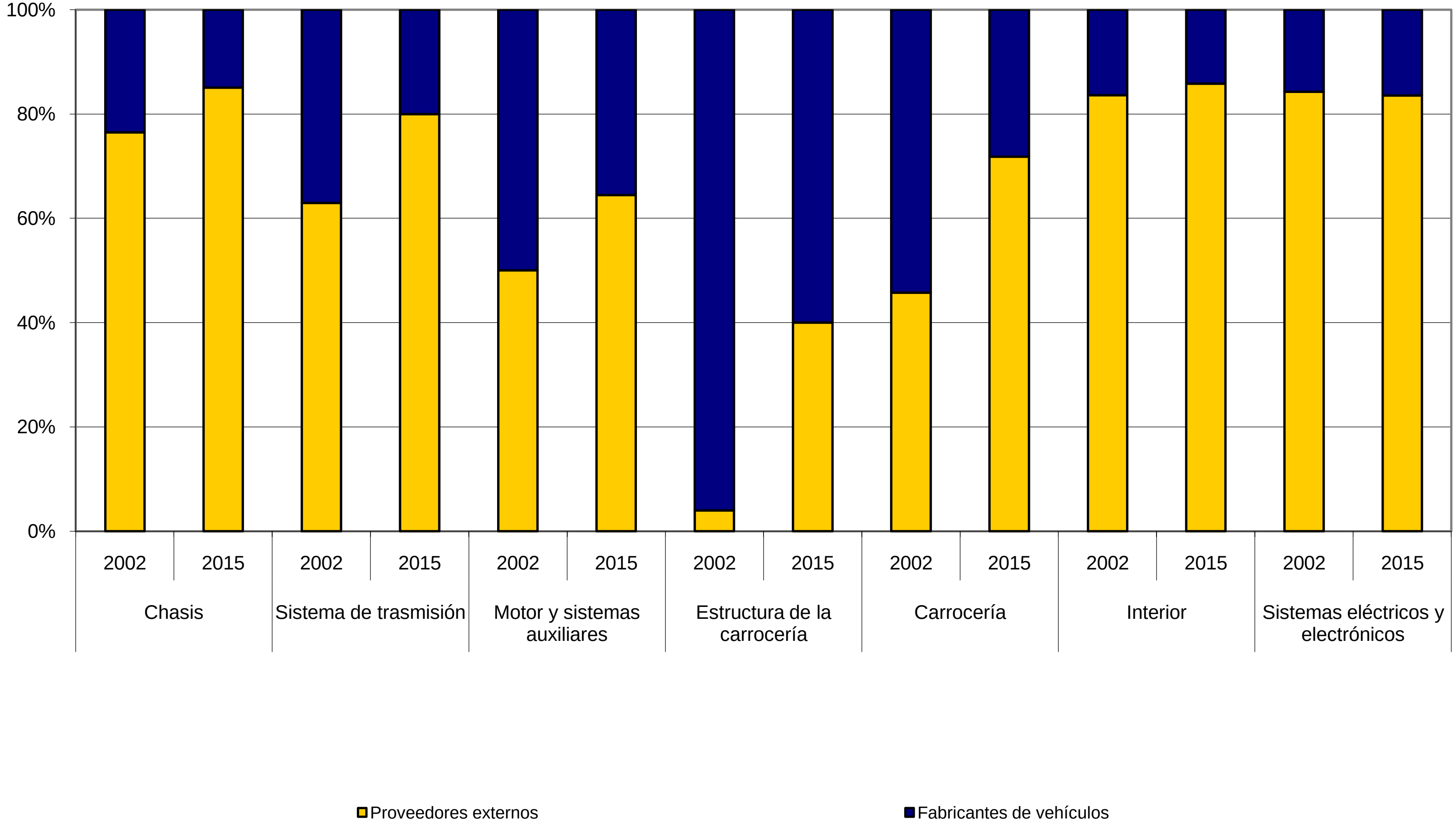
# The GCV of the automotive industry

**STRUCTURE OF THE VALUE CHAIN, 2002-2015**
**(Percentages)**



# The automotive industry in Brazil

- Over the last two years, the Brazilian automotive industry has come very close to **the limits of its production capacity**, turning out more than 3 million units a year
- For this reason, automakers **announced new investment projects totaling nearly US$ 25 billion**, reflecting the good performance of the Brazilian domestic market
- These new investments come on top of the large amounts the automotive industry invested in 1995-2009, which totaled approximately US$ 40 billion (US$ 23.4 billion by automakers and US$ 16.2 billion by auto parts suppliers)
- Brazil has accordingly consolidated itself as **one of the largest producers** and most important consumer markets in the world: in 2008 it ranked sixth as a producer and fifth as a consumer market (Sarti and Hiratuka, 2009).

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# Main selected clusters in BRIC

| Country | Clusters | Assemblers |
|---|---|---|
| Brazil | São Paulo | CNH (case IH), Caterpillar, Ford, GM, Honda, Mercedes-Bens, Scania, Toyota, Valtra, Volkswagen, Volvo |
| | Minas Gerais | Daimler, Fiat, Iveco |
| | Paraná** | CNH (case IH), Nissan, Renault, Volkswagen/Audi, Volvo |
| | Rio Grande do Sul | Agrale, General Motors, Marcopolo, International, John Deere |
| | Rio de Janeiro | Pegeout Citroen, Volkswagen |
| | Goiás | Hyundai, John Deere, Mitsubishi |
| | Bahia | Ford |
| | Ceará | Ford |
| Russia | Kaliningrad | Avtotor, BMW, Chery, GM, Kia |
| | Saint Petesburg | Ford, GM, Hyundai, Nissa, Opel, Toyota |
| | Nizhny Novgorod | GAZ |
| | Greater Moscow and Kaluga | Mitsubishi, PSA Pegeout Citroen, Renault Skoda, Volkswagen |
| | Togliatti and Samara | AvtoVAZ, G |
| India | Delhi and Gurgaon | Honda, Hyundai, Maruti |
| | Pune and Mumbai | Mahindra, Skoda, Tata, Volkswagen |
| | Bangalore and Chennai | BMW, Daimler, Ford, GM, Mahindra, Toyota |
| China | Beijing and Tianjin | Daimler, Hyundai, Toyota |
| | Changchun and Shenyang | Audi, BMW, GM, Toyota, Volkswagen |
| | Guangzhou | Honda, Nissan, Toyota |
| | Shanghai | Fiat, Ford, GM, Hyundai, Iveco, Kia, Skoda, Volkswagen |

*Source:* Authors' compilation drawing on ANFAVEA (2009), Lang and Mauerer (2010), Liu and Dicken (2006).

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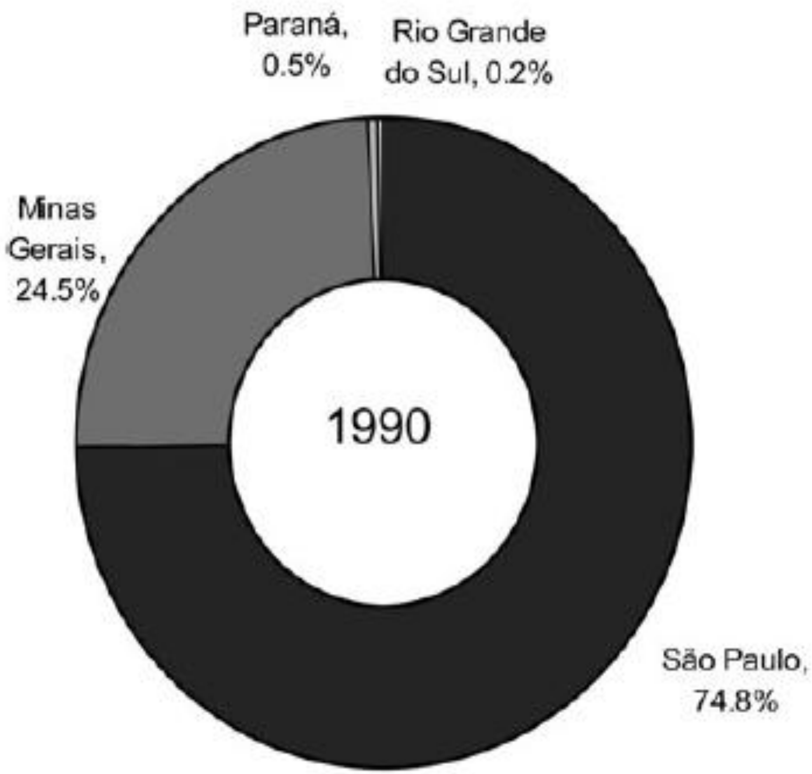
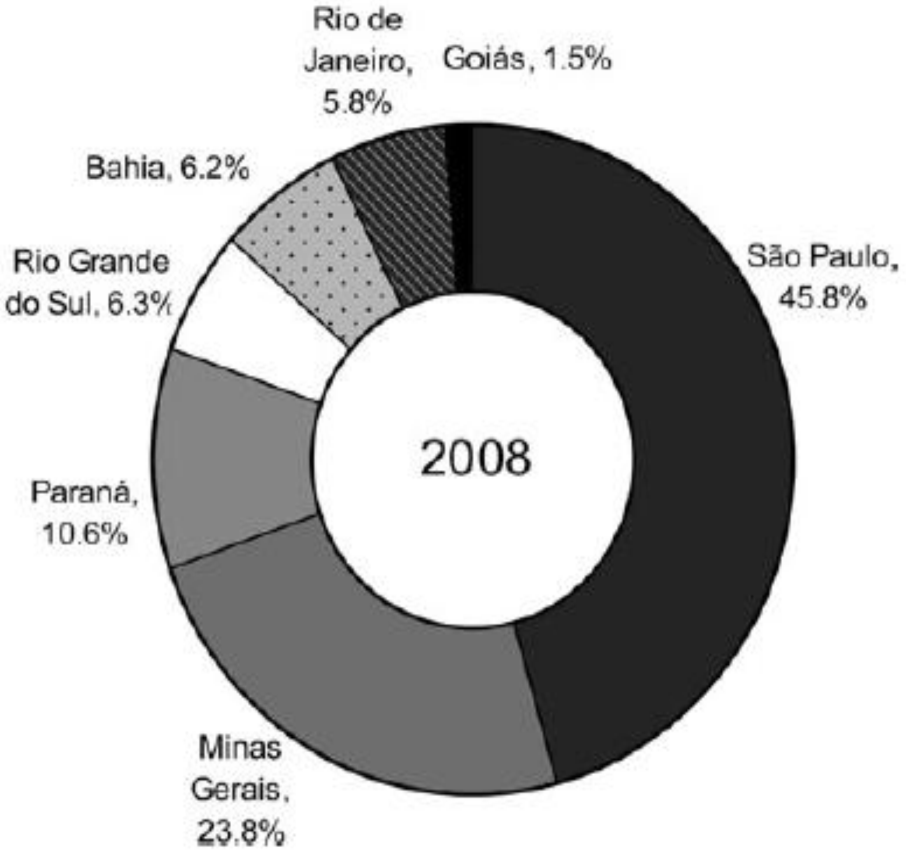
# Brazilian vehicles assembled by region 1990 and 2008

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# Reasons of expansion in Paraná

- In the midst of **structural changes** in the automotive industry during the 1990s, Brazil was seen as an important potential market and Curitiba provided favourable conditions to receive new investments, which were reinforced by:
  - Relatively strong **fiscal incentives** from the state of Parana
  - The competitive **cost of labour**
  - A relatively **good educational system**
  - **Geographic proximity** to the main consumer markets in Brazil and Argentina
  - An existing **automotive park** established in the seventies (which had stimulated a local labour market for skilled workers)

# Main reasons for spatial diversification of investment in Brazil

| Main reasons (%) | 1995–1997 | 1998–1999[a] | 2000–2002[a] |
|---|---|---|---|
| Proximity of consumer market | 57.3 | 50.0 | 56.1 |
| Fiscal incentive from state government | 57.3 | 54.5 | 56.1 |
| Fiscal incentive from federal government | | 13.6 | 22.0 |
| Cost of labour force | 41.5 | 40.9 | 39.0 |
| Incentives from local government | 39.0 | 18.2 | 34.1 |
| Proximity of raw materials and natural resources | — | 13.6 | 29.3 |
| Diseconomies of agglomeration | 14.6 | 27.3 | 12.2 |
| Labour force qualification | — | 9.1 | 7.3 |
| Infrastructure | — | 13.6 | 4.9 |
| Active labour unions | 24.4 | — | 2.4 |

*Source:* CNI/CEPAL (2001) for 1998–2002 and CNI/CEPAL (1997) for 1995–1997.
[a]Reasons why companies decided to make investments in other Brazilian states.

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# Conclusions

- Among the most important elements of the automotive GVC is the off-shoring of production in search of lower costs and greater proximity to major consumer markets
- In Latin America, the transnational automotive companies have focused their interest on Mexico, as a platform for exporting to North America, and on Brazil, given the size of its domestic market and expectations of continued sound macroeconomic performance by the region's largest economy

# Conclusions

- In Brazil, the competitiveness of the automotive industry relies on five pillars
  - A model **specialized in compact vehicles** with flex-fuel engines;
  - The **regional integration** process (MERCOSUR);
  - A **buoyant domestic demand**, especially in recent times;
  - **Productive and commercial complementarities** between transnational automakers in Brazil and Argentina
  - The federal government, several state governments and other government institutions such as BNDES have instituted various **mechanisms to support and stimulate** the sector

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# Conclusions

- Given such opportunities, the automotive industry has expanded significantly in Brazil
- This growth has generated important impacts on Brazil's regional economies since the geographic distribution of Brazil's car production has been greatly modified, with regions such as the MRC
- In the last 10 years, the participation of the MRC region in the Brazilian automotive industry has increased dramatically, and this has structurally changed Parana's economy

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