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研究課題名（英文）Heterogeneity and Competitiveness of the Japanese Automotive Industry: a Socioeconomic Perspective

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研究成果の概要（和文）：The controversial issue addressed by this research is the reason why the Japanese car industry maintains a high level of competitiveness in a period of globalization. The Three main findings are: stability of market institutions; carmakers' reorganizations; polarisation of the overall industry.

研究成果の学術的意義や社会的意義
This research agenda focuses on the overall industrial organization (market architecture) of the Japanese automotive industry, rather than solely the manufacturing capabilities of the carmakers, to explain its competitiveness in a period of globalization.

研究成果の概要（英文）：In the current era of productive and economic globalization, the international trajectories of the seven main Japanese carmakers (Toyota, Nissan, Honda, Suzuki, Mazda, Daihatsu, and Subaru), and their impacts on domestic labour relations, supply chains, and innovative trajectories are critical issues. The controversial issue addressed by this research is the reason why the Japanese car industry was able to maintain a high level of competitiveness while at the same time being affected by the internationalization of its main carmakers and big suppliers. How has the Japanese automotive industry kept a high level of competitiveness? What are the effects of this trend on the overall domestic industry? Three main findings explain the competitiveness of the Japanese automotive industry: first, the stability of the core market institutions; second, the reorganization processes engaged by the carmakers; third, the polarisation of the overall industry and employment relationships.

研究分野：Economic Sociology

キーワード：Japanese Auto Industry　Heterogeneity　Competitiveness

様　式　Ｃ－１９、Ｆ－１９－１、Ｚ－１９、ＣＫ－１９（共通）

１．研究開始当初の背景

At the outset of the 21st century, the global automotive industry and market shifted from developed countries (EU, US, Japan, Korea) to emerging ones (China, ASEAN, BRICs). Japan was affected by the globalization of the automotive industry, but maintained its competitiveness as an industrialized country, along with Germany and Korea. After a period of export-led growth throughout the 1970s and 1980s (vehicle exports from Japan reached a peak in 1985, roughly 7 million cars), the shrinking of the domestic market between the 1990s and the 2010s was outweighed by a twofold rise in foreign sales, most of them triggered by foreign production (fourfold increase). However, the Japanese domestic car industry and market maintained its position as a core global industry.

２．研究の目的

The controversial issue addressed by this research is the reason why the Japanese car industry maintained a high level of competitiveness in a context of productive globalization and economic recession. What are the effects of this trend on the overall domestic industry? Most of previous researches emphasized the manufacturing capabilities of the Japanese firms to explain this industrial resilience. In our view, this explanation alone is not satisfactory. **The overall industrial organization of the Japanese automobile industry is also at stake. It takes into account two other core pillars of the Japanese car market architecture: the specificity of the Japanese transport system, and the commitments of workers and suppliers.**

３．研究の方法

From an economic sociological perspective, the research adopted both quantitative and qualitative approaches. The quantitative approach gave the primacy to the evolutions and comparisons of product policies, organizations and employment relations of the seven Japanese carmakers, and the evolution of the Japanese car market segmentation over the past three decades. Besides, several fieldworks (qualitative approach) both in Japan and foreign countries (Argentina, Brazil, China, and Mexico) were conducted. More than 65 interviews and plant visits in these five countries between May 2016 and September 2018 allowed us to inquire more deeply the international trajectories and changes in organizational structures of several Japanese carmakers and suppliers.

４．研究成果

After three decades of productive globalization and economic recession, the Japanese automotive industry adapted its core institutions to maintain its domestic competitiveness. Industrial policies gave a competitive edge to Japanese carmakers in their domestic market. However, the common patterns of transactions with suppliers and dealers, as well as the wage-labour nexus, were revisited, so that their strengths (low costs and high quality standards) could be restored after the losses of the 1990s. These structural changes, which had never been seen before, were rather incremental at the top of the supply chain but deeply affected its bottom, and triggered an on-going polarisation of the industry.

Three main findings explain the competitiveness of the Japanese automotive industry in a period of productive globalization and economic recession: first, the stability of the core industrial institutions; second, the globalization of the industry; third, the polarisation of the overall industry and employment relationships.

1. The stability of the core industrial institutions

The stability of the core institutions is explained by specific industrial policies that give a competitive advantage to the Japanese carmakers (Heim, 2019). Since the beginning of the 1990s (period of market contraction), the Japanese carmakers have been specializing in the production and sales of mini cars (*kei jidosha*) and small cars (Figure 1), which helped strengthen Toyota, Honda and Daihatsu's positions. These segments benefit from strong incentives (lower road, annual use, and sales taxes, lower insurance costs, and no need for a parking space for mini-cars). **As a matter of fact, foreign firms can hardly compete in the Japanese market, which is even more oligopolistic than throughout the 1960s-1980s.**

However, as other mature markets, consumption patterns evolved towards longer periods of car ownership (13 years on average service nowadays, twice as long as in the mid-1970s), and the development of used cars market (but still underdeveloped car sharing

with roughly 450,000 users and 12,000 cars in 2014), which lowers the profits of the carmakers. This led to worsening working conditions at the dealers with lower profitability. **Overall, this research shows that the government intervention helped some carmakers strengthen their positions in an artificially stabilized market, while it badly affected some weaker actors such as the dealers.**

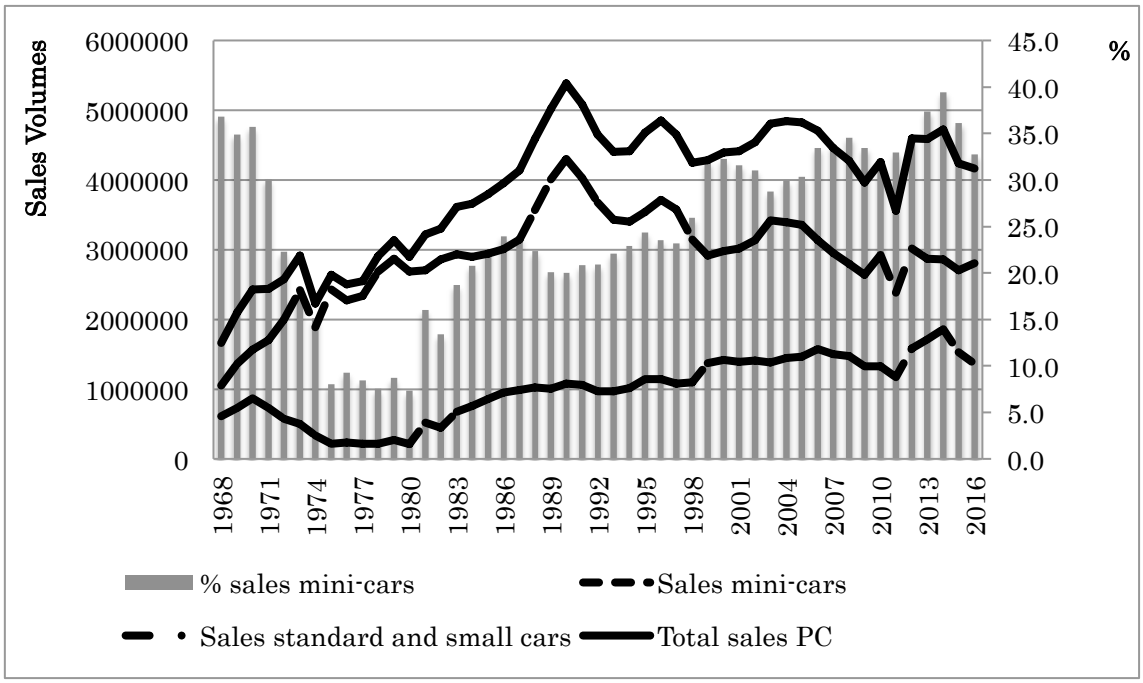

Figure 1 The Japanese Automotive Market and mini-cars (1968-2016)
Source: Heim, 2019

2. The globalization of the industry

In a period of productive globalization and economic integration, Japanese carmakers have undergone very heterogeneous reorganization processes for more than 30 years. While Toyota and Honda went through this rough period without ties with foreign capital, Nissan, Mazda, Suzuki, and Mitsubishi merged with foreign firms. As a consequence, they followed three distinct international trajectories identified in this research (Table 1).

- **Export-led globalization & strongly centralized organizations**: Mazda and Subaru.
- **Low-pace globalization & centralized organizations**: Toyota, Suzuki and Daihatsu.
- **Productive globalization & decentralized organizations**: Nissan and Honda.

	Domestic Production/Total production (2013)	Overseas Production /Total production (2013)	Export/ Domestic production (2013)
Nissan	20%	80%	55%
Honda	21%	79%	10%
Mitsubishi	50%	50%	54%
Mazda	77%	23%	81%
Subaru	80%	20%	77%
Toyota	38%	62%	55%
Suzuki	35%	65%	15%
Daihatsu	73%	27%	1%
Average	36%	64%	46%

Table 1 International Trajectories of the Japanese Carmakers
Source: author's calculations, Nikkei Newspaper (2014/04/24)

One peculiarity of the Japanese automotive industry lies in its complex internalization/externalization structure, resulting from the extremely rapid

growth in domestic production and sales coupled with a lack of financial and manufacturing resources between the 1950s and 1970s. The Japanese big three (Toyota, Nissan, Honda) followed very different developmental paths. Toyota has developed a competitive regime in which a restricted number of suppliers are not only in competition with one another for the production of similar parts, but also in competition with Toyota's own internal departments (Heim, 2017a). On the other hand, Nissan and Honda rely more heavily on their supply chains, displaying greater externalization capabilities with weaker control over several production processes. In sharp contrast, the other three "volume automakers" (Mitsubishi, Mazda, and Subaru) show very different policies. Mitsubishi and Mazda make use of a high number of suppliers, especially in the Chugoku region (around Hiroshima), and have relatively high levels of internalization of parts production, while Subaru has a smaller panel of suppliers and lower levels of internalization, especially for engine parts. **Our comparison indicates that Toyota maintained a greater control over its supply chain than the other Japanese carmakers.**

The legacy of the 1960s (large number of car and parts manufacturers, specific labour and inter-firm relations, and strong political intervention and regulation) was an advantage for some carmakers such as Toyota who used its highly centralized delegation system to adapt itself to the economic recession after the burst of the economic bubble. On the contrary, firms like Nissan and Mazda faced several problems due to their historical developments and had to adapt their organizations and saw their market shares declining (Table 2). **The Japanese automotive industry started then to display a trend of diversification in the carmakers' organizations, which implied a greater oligopoly, with Toyota replicating its historical centralized delegation model.**

	Average Japan market share per segment (1993-2017)			
	Standard	Small	Mini	Total
Nissan	13.6%	20.0%	5.8%	14.2%
Honda	9.6%	16.6%	15.3%	14.5%
Mitsubishi	3.3%	3.7%	8.4%	5.0%
Mazda	5.9%	5.8%	3.0%	5.0%
Subaru	5.7%	2.5%	4.8%	4.0%
Toyota	40.6%	45.2%	0.5%	30.9%
Suzuki	0.4%	2.9%	31.4%	10.6%
Daihatsu	0.0%	0.6%	30.9%	9.4%
Average	25.4%	45.3%	29.3%	100.0%

Table 2 Evolution of the Japanese car market
Source: author's calculations, JADA, JMVA

3. The polarisation of the industry

Our third main finding lies in the evolution of the overall industrial structure towards higher concentration at the top of the supply chain and worsening working conditions at its bottom (Table 3). The polarization of the Japanese automotive supply chain since the 2000s is a tool to maintain its competitiveness. While Japanese automobile industry is still central in the Asian production networks (Heim Eds., 2017b, 2018), the growth disparities triggered by the economic recession of the 1990s and 2000s have resulted in a less balanced redistribution of the sources of profit. This caused the population of the smallest firms to decline, and, in turn, the industrial compromise that fostered specific work incentives, strong ties and a well-balanced division of labour in the supply chain to be reshaped. Between 2004 and 2014, the number of SMEs constantly decreased (from 6,111 firms with less than 50 employees down to 4,419 firms), and their yearly wages dropped to 55%. During the same period, the share of large firms (more than 1,000 employees) and the wages of their employees increased. **Within ten years, the Japanese automotive supply chain evolved in an unprecedented way. The top of the supply chain underwent a process of concentration, while at its bottom the scale of production shrank, with the same constraints for the remaining firms.** Large firms were able to reduce their domestic investments, focusing especially on foreign direct investments, whereas the smallest firms, hindered by limited FDIs, had to maintain high investment levels to both meet the cost and quality targets of their OEMs and cope with international competition. Regional competition (China, India, and Southeast Asia) involved harsher pressure on firms at the bottom of the value chain. In addition, productivity gains could not be redistributed to their employees. **With carmakers and first-tier suppliers**

maintaining their policies of cost reductions, the burden at the bottom of the supply chain became even heavier at the start of the 21st century, which greatly explains the competitiveness of the overall industry.

Firm size	Number of firms	Number of Employees	% of Total Workforce	Average Wage*	Added Value per Employee*	Inv. per Employee*
4～9	1852	11,582	1.34	2.8	5.43	n.a.
10～19	1244	17,063	1.98	3.2	6.14	n.a.
20～29	754	18,556	2.15	3.3	6.42	n.a.
30～49	569	22,269	2.58	3.6	7.28	0.54
50～99	625	43,869	5.08	3.7	7.89	0.80
100～199	431	60,032	6.95	4.1	9.58	1.13
200～299	156	38,072	4.41	4.6	9.75	1.25
300～499	134	51,794	6.00	5.1	11.77	1.40
500～999	103	73,940	8.56	5.2	10.92	1.52
1000～4999	80	149,405	17.30	6.0	14.63	1.66
>5000	23	377,027	43.66	7.2	29.01	2.27
Total	5971	863,609	100.00	5.8	18.86	1.68

Table 3 The wage-labor nexus in the Japanese Automotive Industry (2014)

Source: Author's calcultations based on METI, Census of Enterprises, 2014 (* million yen)

Besides, the specific employment and labour relations, which are less bounded to the seniority system than the firm-level collective bargaining system, underwent some minor changes to keep high levels of productivity at the top of the supply chain. For instance, the practice of ranking the performance of working units and suppliers, as a necessary condition to reduce materials and labour costs and to provide high quality standards, was affected by the economic downturn at the beginning of the 1990s, most Japanese carmakers and mega-suppliers introducing new managerial practices to assess individual performance. **However, to ensure profitability and keep control over their suppliers, the major Japanese auto and parts makers maintained the practices of "labour outsourcing".** The internal labour markets (ILM) extended to a wide range of corporations (and not only to one firm) are still a central flexible tool to adapt the labour level and composition to the production output (Heim 2017a). The transfer of workers (blue and white collars) to tier-1/2 suppliers is still a common practice that enables Japanese carmakers to keep a relatively young workforce and to stimulate competition among employees for higher positions. This employment relationship is still much developed in the Toyota Group.

These empirical findings not only explain the strong competitiveness of the Japanese automotive industry, but they also entail some theoretical and analytical discussions in the field of the theory of the firm (Heim, 2016).

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６．研究組織

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