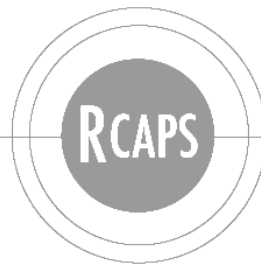


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*Dawn of Industrialisation?  
the Indonesian Automotive Industry*

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# **Dawn of Industrialisation? the Indonesian Automotive Industry**

## **ABSTRACT**

*This paper traces the development of industrial policy towards the Indonesian motor industry within the automotive global value chain. Showing the current dominance of Japanese motor assemblers, it notes the rather undeveloped nature of the locally-owned supporting industry, particularly compared to neighbouring Thailand and Malaysia. Most investment in auto-parts production has been by foreigners. Nevertheless, Indonesia's rapid domestic market growth has allowed it to attract foreign automotive investment without having to offer excessively generous incentives. While the entry of international mega-suppliers of automotive parts into Indonesia offers opportunities for local suppliers to upgrade their productive capabilities, it also limits their chances to become first-tier suppliers themselves.*

## **Key Words**

Indonesia, Automotive, Motor Industry, Global Value Chains, Industrialisation

**JEL Classification: F5, F13, L62, O25**

## 1. Introduction

Having started vehicle assembly as long ago as the 1920s, in 2012 Indonesia's vehicle production reached over 1 million units for the first time, becoming the 17<sup>th</sup> largest vehicle producer in the world. Over this period the global environment of the automotive industry has changed greatly: there has been a massive process of consolidation towards a small number of major multinationals, such as Toyota or General Motors (GM), driven in large measure by the need to make very heavy investments in R&D in order to stay competitive and produce new models. Whilst the minimum efficient size (MES) of an individual automotive assembly *plant* may have fallen to as low as 150,000 units per year,<sup>1</sup> the minimum size of *firm* has greatly increased. It has been argued that as many as five million vehicles a year may be necessary for a mass market auto assembler to stay globally competitive; even luxury car makers Mercedes and BMW make well over a million vehicles annually (Nolan 2012, 25). Increasingly, national markets, particularly in developing countries, are dominated by foreign-owned assemblers. Also, both the growth in demand for vehicles and the location of production of them has been shifting from away from Europe and North America towards Latin America and particularly Asia.

Important too are global moves towards trade liberalisation, both internationally and regionally, which work against the protection of national motor industries from imports, and encourage and facilitate assemblers and their global mega-suppliers (about which more later) to integrate their production across borders. In addition, starting mainly in

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<sup>1</sup> See Auty (1994, 610-614) for discussion of the minimum efficient size of automotive plant. Note that the MES for some key components such as engines, transmissions and axles are several times larger than for assembly.

the 2000s, the kinds of policies that are internationally acceptable have changed. Restrictions imposed by the World Trade Organization (WTO) on trade-related industrial policies have restricted the ‘policy space’ available to promote the development of automotive industrialisation, especially of the import-substituting kind that characterized most developing countries’ initial attempts to establish the industry (Gallagher 2005; Wade 2003; Natsuda and Thoburn 2014 forthcoming). In this context, Indonesia has some interesting features in contrast to its ASEAN (Association of South East Asian Nations) neighbours. Like Malaysia, it tried to develop a national car but without Malaysia’s ‘success’ in keeping the main national car in production at least. While Malaysia sailed close to the wind of flouting WTO rules, and got away with it, Indonesia’s attempt to establish a national car were so blatantly anti-competitive that it suffered effective protests under WTO disputes procedures from the home countries of rival vehicle producers (Hale 2001, 634). Similarly, Thailand has continued effectively to promote increased local content, though local content requirements (LCRs) are banned under the WTO’s Trade-Related-Investment-Measures (TRIMs) rules. It has done so by using fiscal measures that were sufficiently WTO-compliant to avoid protests.<sup>2</sup> In contrast, Indonesia’s LCRs were strongly attacked under the conditionality imposed on loans from the International Monetary Fund (IMF) after the 1997 Asian Crisis (Hale 2001: 634).

How then has Indonesia been able to promote its motor industry since the 2000s? What policy space has it been able to carve out to do so? How is Indonesia now regarded in

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<sup>2</sup> See Natsuda and Thobuen (2013) on Thailand, Natsuda *et al.* (2013), Segawa *et al.* (2013) and Otsuka and Natsuda (2014 forthcoming) on Malaysia, and Natsuda and Thoburn (2014 forthcoming) for a comparison of the two countries.

relation to neighbouring countries by the multinational assemblers who now dominate vehicle production in the country? We try to answer these questions here on the basis of information from a set of qualitative interviews with automotive firms, trade associations, ministries and key informants in Indonesia in early 2013, and a range of secondary sources and survey data in English and Japanese. Our next section sets out an account of global value chain (GVC) analysis to provide a setting within which to look at the motor industry. Section 3 provides an overview of the Indonesian automotive industry. Section 4 investigates the development of the Indonesian automotive industry in the period of 1927-2013, with stress on the past 20 years, to provide a background for current policies and future prospects. Section 5 examines future prospects and challenges for the industry within the automotive GVC. Section 6 concludes.

## **2. The Automotive Global Value Chain**

The concept of a global value chain (GVC), though now well-known and widely employed,<sup>3</sup> is still very useful as a setting within which to understand Indonesia's automotive industrialisation, although we do not try to force all our discussion into a GVC framework. GVC analysis in principle traces economic activities from raw material production to the final retail sales through various stages of production.<sup>4</sup> Such activities include design, production, marketing, distribution, and logistics in bringing out the product or service from the producer to the final consumer. The theory focuses on four main dimensions of any GVC, which may cut across industries: (i) *a set of input–output relations* between the different stages of production, (ii) *territoriality* (the geographical dispersion of the chain), (iii) *governance* (power or exercise of control in

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<sup>3</sup> For brief surveys of the GVC literature see Natsuda and Thoburn (2013) and Natsuda *et al.* (2013). UNCTAD (2013, especially ch.4) is useful on the latest thinking in GVC analysis.

<sup>4</sup> In this paper, however, we shall not go back as far as the raw materials stage.

the chain) (Gereffi 1994, 96-97), and (iv) *institutions* (in relation to business relationships and industrial location) (Sturgeon *et al.* 2008, 298-299). A further and particular focus of much GVC analysis is whether domestic firms within a chain can upgrade their products, processes and functions, to achieve higher productivity and (sometimes)<sup>5</sup> a larger share of value-added (Humphrey and Schmitz 2002; Kaplinsky and Morris 2001).

The formation of GVCs has been facilitated by the growing ability of producers to fine-slice (vertically disintegrate) production into different stages, which can be carried out in different locations. A result of this, and the subject of new work on GVCs, is that where a country exports a good within a GVC, the good's production may be highly import-intensive and so the gross export value overstates the country's value-added contribution. Of some 42 industries identified as heavily involved in GVC activity, the automotive industry was second only to electronics in the high share of non-domestic value-added<sup>6</sup> in total exports – around 35%, compared to electronics' 45% (UNCTAD 2013, 129). This high trade-intensity of production implies there is a lot of choice as to what is produced locally, and also indicates considerable scope for global and regional specialisation in the production of the thousands of components needed for a vehicle.

The automotive industry is normally seen as a *producer-driven* GVC, where major international vehicle assemblers exercise control (governance) over other stages of production, including the location of the industry, procurement, and retail distribution.

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<sup>5</sup> See UNCTAD (2013, 172) for a discussion of some trade-offs between increasing value-added, on the one hand, and upgrading on the other.

<sup>6</sup> Non-domestic here refers to value-added originating overseas. Value-added originating in foreign-owned firms operating in the domestic economy is treated as domestic.

This type of chain is found in technology and capital intensive industries, and is in contrast to *buyer-driven* chains in such labour-intensive industries as garments or footwear, where control is located at the retail end.

GVC analysis highlights four channels in the governance of value chains: (i) *market linkages*, characterised by simple customer-supplier relationship based on price information and specification; (ii) *captive linkages*, formed when a complex of product specifications are high, and detailed instructions are provided by customers; (iii) *modular linkages*, characterised by extensive codification of transfer of standards and specifications from customers to suppliers; (iv) *relational linkages*, formed when both complex of product specifications and suppliers' competence are high, characterised by mutual dependence and complementary competences between customers and suppliers (but only highly competent suppliers can access, because product specifications cannot be codified and transactions are complex); These contrast with *hierarchy* or linkages within the same firms (Gereffi *et al.* 2005,83-84; Sturgeon *et al.* 2008, 307-308; UNCTAD 2013, particularly 159-160).

Assembler-supplier relations have been transformed in the world automotive industry over the past century. Ford in the United States developed mass production system for its Model-T for the first time in 1908 by forming vertically integrated production systems with hierarchical governance. Up to the 1980s, US and European assemblers formed *market linkages* (Humphrey 2003). The second revolution of the automotive manufacturing system was developed by Toyota in Japan, introducing a *lean production system* in the 1960s. The Japanese *keiretsu* (business group) system enabled Japanese



automotive assemblers to establish flexible, long-term, *captive* assembler-supplier relationships (Sturgeon *et al.*, 2008). Under this system, Japanese automotive assemblers typically have established a vertically-oriented three layers subcontracting system under the assembler. Automotive assemblers directly source finished components from only first tier suppliers, which then subcontract lower-valued manufacturing activities to lower tier suppliers (Thoburn and Takashima 1992, ch. 5).<sup>7</sup> Since the 1980s Western manufacturers have been moving away from vertically integrated production towards a more outsourced pattern too.

Another major change in recent years has been the growth and increasing global reach of first-tier automotive suppliers – often known as mega-suppliers – such as Denso from Japan, Bosch from Germany and Delphi from the US. In parallel to the relocations of automotive assembly to overseas locations, automotive assemblers, particularly the Japanese, have required their first-tier suppliers to follow them. Assemblers and global mega-suppliers need to have global reach, and innovation and design capabilities, as well as considerable financial resources (Humphrey and Memedovic 2003, 21-22). In this sense, the drivers of automotive GVCs have come to include mega-suppliers as well as assemblers, and the opportunities for domestic firms to enter and later to upgrade depend more on the first tier suppliers than on the assemblers.

Given the dominant position of Japanese assemblers in the Indonesian automotive industry, with a 90% share of production (refer forward to Figure 3), it is worth noting

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<sup>7</sup> Some component makers in the automotive industry are outside this system, not being OEM (*original equipment manufacture*) producers but makers of *replacement equipment* (like replacement tyres and batteries). Some first-tier suppliers make ODM (*original design manufacture*) products.

that the Japanese literature highlights whether the assembler or the parts supplier does the designing of the parts, and who owns the blueprint. (Asanuma 1997; Fujimoto 1997). According to Clark and Fujimoto (1991, 143-146), US assemblers heavily depended on a detailed-controlled system where parts suppliers produced according to designs supplied to them, while Japanese assemblers relied more heavily on the suppliers producing with the suppliers' own designs following the assembler's basic specifications. In this sense the US system had more potential to become adversarial, and the level of involvement of parts suppliers in R&D activities was much lower than with their Japanese counterparts (Clark and Fujimoto 1991: 136-137). Japanese assemblers thus appear to offer more scope for their suppliers to upgrade their products and functions. The issue here, though, is clouded by the fact that these relations tend to be with first tier suppliers, who are very often also foreign-invested (and usually Japanese) firms.

The emergence of mega-suppliers, noted above, has enabled automotive assemblers to move towards a modular system, which requires the mega-suppliers to deliver complete modules rather than individual components. In this context, some higher value added activities are transferred from assemblers to mega-suppliers (Doran 2004; Takeishi and Fujimoto 2001).

In the process of automotive industrialisation, Natsuda and Thoburn (2013) identify five stages in the development of an automotive industry. The initial development stage commences with imported completely-built-up (CBU) vehicles from abroad, which provide opportunities for importing and repair businesses in the local economy. At the

second stage, assembly operation starts locally with imported completely-knocked-down (CKD) kits from abroad. However, in this stage value-added activity in the local economy is extremely limited due to the lack of a supporting industry. At the third stage, supporting industry gradually develops in order to supply relatively low value-added components. Furthermore, local procurement capacity is still limited at this stage. In the past, many countries facilitated their local parts industry by introducing specific industrial policies such as local content requirements (LCRs)<sup>8</sup> and mandatory deletion programmes (MDPs)<sup>9</sup>, which are outlawed under current WTO rules. At the fourth stage, local supporting industry becomes mature with the capacity to supply higher value-added components and generate a higher rate of local content. At the fifth stage, the automotive industry moves up from the assembly operation to more value-added operations such as design of vehicles by conducting R&D activities. These stages refer to an upgrading of the automotive industrial structure, going beyond the GVC literature's usual emphasis on upgrading as applied mainly to individual firms and their abilities and willingness to shift from lower value-added to higher value-added activities within chain, or move to different chains.

In the issues of industrial upgrading, institutions, including national and international policies shaping the globalisation process, are becoming a critical element in GVCs. Gereffi (1994) views state policy as playing a major role in GVCs. States may assist local firms or industries through institutional support infrastructure and the capacity

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<sup>8</sup> For instance, the Thai government implemented LCRs of 25% in 1975 and continued to control the requirement up to 72% (for pick-up trucks with diesel engines), when the policy was abolished in 2000 (Natsuda and Thoburn 2013).

<sup>9</sup> For instance, the Malaysian government employed MDPs in 1980 by prohibiting 30 automotive parts listed as mandatorily deleted (that is, *deleted* from imported CKD kits) (Segawa *et al.*, 2014 forthcoming).

positively to influence elements of local production to upgrade the positioning of local firms or industries within value chain ladder. Such positive influences may be brought about by specific industrial trade and investment policies, and the targeting of specific roles and activities (Gereffi 1994, 100-101; Van Grunsven and Smakman 2001,175). In terms of firm's strategies, multinational corporations (MNCs) tend to take advantage of national differences in regulatory policies or incentives and decide the location of production (AED-D). In the past, the governments could employ various industrial policy options such as import bans, high tariff protections, LCRs, MDPs, discriminatory allocations of subsidies (particularly, for national car producers) in order to upgrade their local motor industry. However, such policy options have been ruled out in principle by new (effectively post-2000) stipulations under the WTO, although inventive national governments sometimes can circumvent them: the Thai government, for example, has been successfully adjusting to the new environment by shifting its policy orientation towards fiscal policy with selective state intervention in the automotive sector in recent years (Natsuda and Thoburn 2013). With regards to institutions in Indonesia, state capacity generally has been viewed as low, with extensive cronyism and poor governance, often characterised by the acronym of KKN (the Indonesian words for corruption, collusion and nepotism); this is thought to have weakened Indonesia's ability to implement effective economic policies for the automotive industry (MacIntye 1994; Hill 1996).

### **3. Overview of the Indonesian Automotive Industry**

#### ***Indonesia in the global automotive economy***

In the last decade, global automotive production has expanded by 44% from 58.4

million units in 2000 to 85.1 million in 2012. During this period, significant global shifts occurred in the automotive industry in the world. On the one hand, developed countries have lost their global production share in the automotive industry. Although the US, Japan and Germany maintain certain volumes of production, western European countries such as France, Spain, UK and Italy have significantly decreased their volumes and lost global production share. On the other hand, emerging countries such as China, India, Brazil, and Thailand have rapidly expanded their share (see Table 1). There are two types of global shifts towards developing countries: the first type is based on the advantage of lower production cost and geographical proximity of the core automotive nations, which include Mexico in the case of US, or Central Europe in the case of the Western Europe, and the second is based on potentially large domestic markets in the rapidly growing emerging economies such as China, India, and Brazil (Pavlinek and Zenka 2011).

Table 1. Global Production Volume and Share of Vehicles by Country in 2012 and 2000

Rank in 2012	Country	No. of Vehicles in 2012	Share in 2012	Rank in 2000	No. of Vehicles in 2000	Share in 2000	2012/2000
1	China	19,271,808	22.9%	8	2,069,069	3.5%	931.4%
2	USA	10,328,884	12.3%	1	12,799,875	21.9%	80.7%
3	Japan	9,942,711	11.8%	2	10,140,796	17.4%	98.0%
4	Germany	5,649,269	6.7%	3	5,526,615	9.5%	102.2%
5	South Korea	4,557,738	5.4%	5	3,114,998	5.3%	146.3%
6	India	4,145,194	4.9%	15	801,360	1.4%	517.3%
7	Brazil	3,342,617	4.0%	12	1,681,517	2.9%	198.8%
8	Mexico	3,001,974	3.6%	9	1,935,527	3.3%	155.1%
9	Thailand	2,483,043	3.0%	19	411,721	0.7%	603.1%
10	Canada	2,463,732	2.9%	7	2,961,636	5.1%	83.2%
11	Russia	2,231,737	2.7%	13	1,205,581	2.1%	185.1%
12	Spain	1,979,179	2.4%	6	3,032,874	5.2%	65.3%
13	France	1,967,765	2.3%	4	3,348,361	5.7%	58.8%
17	Indonesia	1,065,557	1.3%	25	292,710	0.5%	364.0%
19	Slovakia	900,000	1.1%	29	181,783	0.3%	495.1%
23	Malaysia	572,150	0.7%	26	282,830	0.5%	202.3%
	Others	10,237,851	12.2%		8,586,909	14.7%	119.2%
	Total	84,141,209	100.0%	Total	58,374,162	100.0%	144.1%

Source: Data Compiled from the website of OICA (International Organisation of Motor Vehicle Manufacturers: <http://oica.net/category/production-statistics/> (accessed on 19 March 2013).

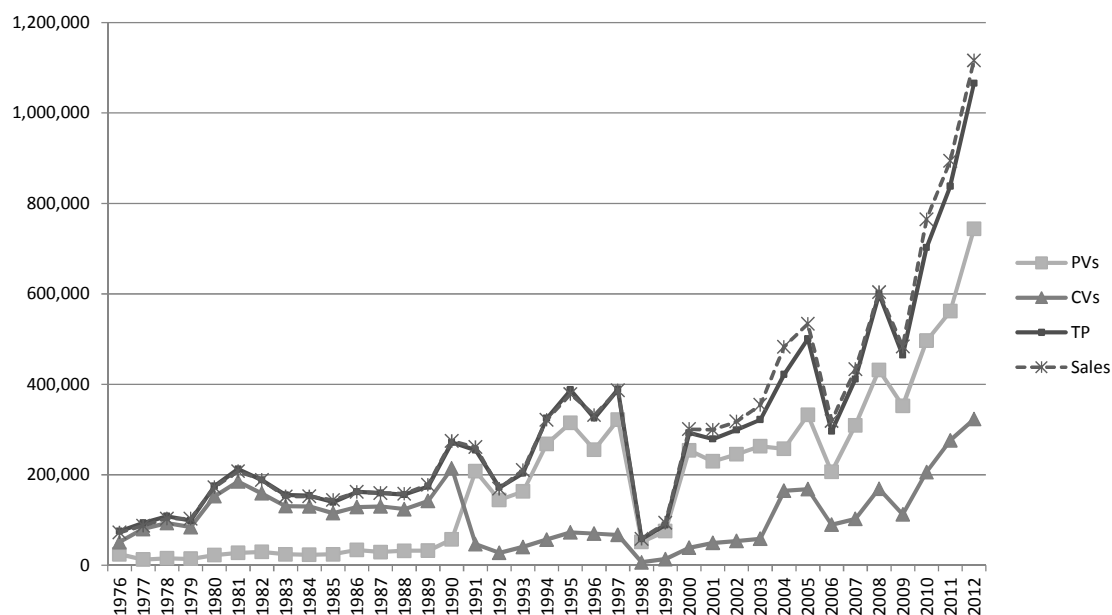
In Southeast Asia, Thailand, Indonesia and Malaysia expanded their global share and the volume of production between 2000 and 2012. Thailand in particular has grown rapidly to nearly 2.5 million units and 3.0% of world production, joining the top ten producing countries in the world. During this period, Thailand also has emerged as an export platform for Japanese automotive producers.<sup>10</sup> In the case of Indonesia, vehicle production rose 3.6 fold (with the fifth highest growth rate among the major countries), ranked 17<sup>th</sup> in the world in 2012. Indonesian automotive production has grown much faster over this period than neighbouring Malaysia's, which had a similar production volume in 2000.

Figure 1 indicates the total number of vehicles produced and sold in Indonesia in the period of 1976-2012. Production expanded to over 325,000 units in 1994, and reached its first peak of 389,279 units in 1997. However, the Asian Crisis caused a serious market slump, and subsequently the production dropped to only 58,000 units in 1998. Although Indonesia's vehicle production has expanded steadily in the first half of 2000s, reaching over 500,000 units in 2005, vehicle demand decreased sharply by 40% in 2006 in comparison with the previous year, due to increases in fuel prices (doubled) and interest rates (Fourin 2008, 208). Since this event, the market demand has expanded rapidly (except for 2009 due to the Lehman shock).

Figure 1. Total Number of Vehicles Produced and Sold in Indonesia, 1976-2012

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<sup>10</sup> Exports to both global and the Japanese domestic markets accounts for approximately 50% of the vehicle production in Thailand in 2010 (Natsuda and Thoburn 2013).



Note: TP (Total Production), Indonesian government changed categories of PVs and CVs in 2004, 1991-2010 based on new criteria, and 1976-1990 based on old criteria.

Source: Data Compiled from Fourin (1994, 1999, 2011) and Document supplied by GAIKINDO (2013)

### *The Structure of the Indonesian automotive industry*

Among the three major automotive producing nations in Southeast Asia, the Indonesian automotive industry has a larger number of assembly plants, parts suppliers and employment than those of Malaysia, but much lower than those of Thailand (see Table 2).

Table 2. Number of Assemblers, Part Suppliers and Employment in Indonesia, Thailand, and Malaysia

	Number of Assembly plants	Number of Parts Suppliers	Employments in Assembly and Parts industries
Indonesia	20	850	115,000
Thailand	16*	2,390	400,000
Malaysia	15	690	47,947

Note: \* the number of assemblers,

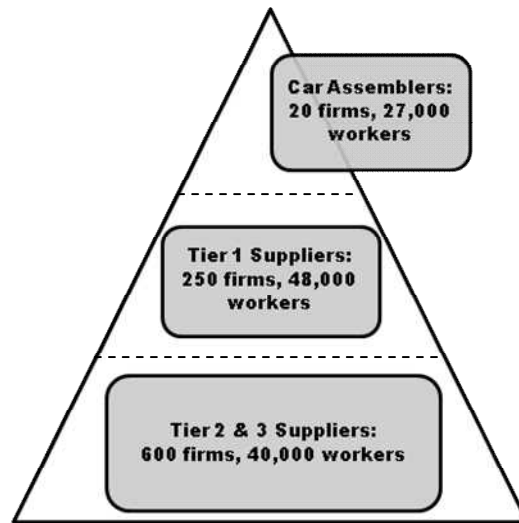
Thailand in 2010, Malaysia in 2011, Indonesia in 2012

Sources: Natsuda and Thoburn (2013), Natsuda *et al.* (2013), and data supplied by GAIKINDO (2013)

According to the Association of Indonesia Automotive Industries (GAIKINDO), the Indonesian automotive industry accounted for 1,065,557 units of vehicle production, 1,116,230 units of domestic sales, and 173,386 units of export in 2012. There are 20 assembly plants, approximately 250 Tier-1 parts suppliers and 600 Tier- 2&3 suppliers in Indonesia in 2012 (see Figure 2). GAIKINDO estimated that the automotive industry generates a total employment of 715,000 in Indonesia – 115,000 in the automobile industry, of which assemblers (27,000 workers) and auto part producers (88,000 workers). The additional 600,000 employment consists of workers in authorised outlets including sales service and workshops (240,000 workers) and non-authorised outlets (360,000 workers). In comparison, Thailand generates approximately 50,000 jobs in the assembly industry and 350,000 in the parts industry in 2010. Thus the number of workers in the assembly industry in Indonesia accounts for 54% of that of Thailand, while the parts industry accounts for only 25% of that of Thailand.

Figure 2. Structure of the Indonesian Automotive Industry in 2012





Source: Document supplied by GAIKINDO (2013)

A unique feature of the Indonesian automotive industry is the division of labour between MNCs and local firms. According to an Indonesian government decree, enforced in 1969 (see later section) and still operative, assembly operations on the one hand, and distribution operations on the other, must be organised by different entities. Foreign automotive assemblers have been in charge of product development, production management, and business administration and local firms have been in charge of distribution and sales operations (Nomura 2003, 25). Furthermore, large Indonesian business groups such as Astra International and Indomobil have formed to control sales and distribution operations with various foreign assembly firms. For example, for Toyota, PT. Toyota Motor Manufacturing Indonesia<sup>11</sup> was established in order to assemble vehicles in 1970. In parallel with this, PT. Toyota Astra Motor was established (with 51 % of capital from Astra International and 49 % from Toyota Motor) in 1971 in order to conduct distribution and sales operations in Indonesia. In addition, Toyota's partner, Astra International also conducts sales and distribution operations for Daihatsu,

<sup>11</sup> With 95 % of capital from Toyota Motor and 5 % from Astra International in 2013, interview on 25 February 2013.

Isuzu, Nissan Diesel, BMW, and Honda (2-wheels only). By the same token, Indomobil group has operations with Suzuki, Mazda, Nissan, Hino and Volvo.

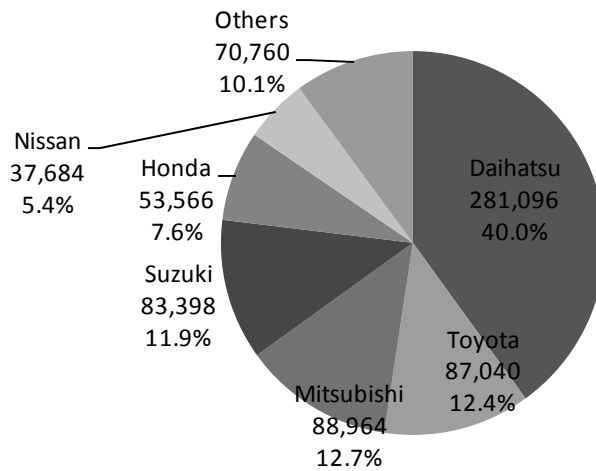
With regards to types of vehicle sold in the domestic market, multi-purpose vehicles (MPVs), typically 7-seater cars, accounted for 66.2 % (739,168 units), followed by pick-up trucks (27.9 % and 311,609 units). By contrast, sedans accounted for merely 3.1 % and in 2012. The Indonesian market differs from Thailand (which has a large demand for pick-up trucks) and Malaysia (where sedans predominate). In particular, 7-seater MPVs are very popular in Indonesia due to (i) the large family size structure and (ii) a height of vehicle body (much higher than sedans), which is more convenient during the floods season in Indonesia.

In Indonesia, a handful of motor producers, predominantly Japanese, dominate the market. Indeed, the top two vehicle producers accounted for the bulk of output, and the top six producers accounted for approximately 90% in both production and domestic sales (see Figure 3 and 4). Daihatsu is the leading producer in the country, accounting for 40% (281,096 units) in production in 2010.<sup>12</sup> With regards to sales, Toyota is the leading company, followed by Daihatsu, Mitsubishi, Suzuki, and Nissan. Toyota group (Toyota, Daihatsu, and Hino) alone accounted for 57.7% of production and 55% of domestic sales in Indonesia in 2010.

Figure 3. Production Share of Automotive Producers in Indonesia in 2010

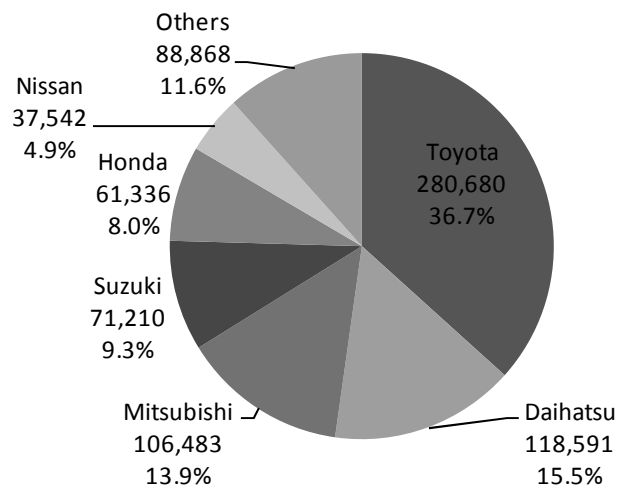
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<sup>12</sup> This figure includes OEM production of Toyota's Avanza model (142,612 units) and Rush model (20,515 units).



Source: Data Compiled from Fourin (2011)

Figure 4. Market Share of Automotive Producers in Indonesia in 2010



Source: Data Compiled from Fourin (2011)

According to the Indonesian Automotive Parts & Components Industries Association, (GIAMM), there are 161 member firms: 95 joint venture (JV) firms and 66 local firms in the association in 2012. Of 95 JV firms, 69 firms are Japanese JV firms. According to executives in GIAMM, Indonesia's auto parts industry is under Japanese *keiretsu* control, which has advantages in terms of long-term business relationships based on

trust, guarantees of technical support, and flexibility of production and quantity, but cost reduction pressure is high.<sup>13</sup> Furthermore, our interviews with several automotive assemblers in Indonesia revealed that parts sourcing practice in Indonesia is somewhat different from the traditional *keiretsu* system in Japan, employing a more open system of procuring cutting across *keiretsu* networks.

#### **4. The Development of the Indonesian Automotive Industry**

##### ***Background: Early Stages (1927-1968)***

Indonesia has the longest history of automotive production in Southeast Asia. The first automotive assembly plant was established by GM with a production capacity of 6,000 units a year in 1927. In GM's overseas operations, its Indonesian assembly plant was established as the third plant in Asia after Japan and India, and earlier than Mexico and Brazil (Sato 1992). After independence in 1949, Indonesia's development policies emphasised two features: (i) development of a strong indigenous (*pribumi*) business class and (ii) economic development through industrialisation, which strongly influenced the automotive industry (Chalmers 1994, 18). The above-mentioned GM plant was nationalised and merged into the state-owned Gaya Motors under the Sukarno administration's *Benteng* programme, which aimed to create a national automotive industry (Hale 2001). GM withdrew from Indonesia in 1954 (Sato 1992). Although automotive industrialisation commenced early in Indonesia, the Indonesian automotive industry failed to develop throughout the 1960s with an average rate of vehicle production of only about 2,000 units per year from 1963 to 1968, while imports of vehicles accounted for an average of over 10,000 units per year in the same period

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<sup>13</sup> Interview, 29 February 2013.

(Hansen 1971, 38). Indeed, only six assembly plants were in operation in comparison with 21 licensed assembly plants in 1968. (Aswicahyono *et al.* 2000; Sato 1992).

### ***Localisation through Import-Substituting Industrialisation (1969-1992)***

During this time, capital accumulation in the Indonesian automotive industry was undertaken by Indonesian Chinese linking with foreign automotive assemblers, particularly from Japan. It is also worth noting that the success of automotive assembly businesses was strongly influenced by their political-bureaucratic connections. Furthermore, the Indonesian government imposed an array of localisation policies in the automotive sector under import-substituting industrialisation (ISI) in order to upgrade the local industrial structure.

When Major-General Suharto seized power in 1966, he introduced his New Order and shifted Indonesia's development policy from Sukarno's vision of Indonesian socialism to liberalisation of trade and investment, linking with foreign capital (Chalmers 1994). Suharto's administration was heavily dependent on ethnic Chinese business. For instance, the Indonesian Chinese Liem group, built on clove and flour milling supply to the military, linking to Suharto, diversified their business to the assemble of Japanese vehicles (the current Indomobil group). Similarly, the Astra group entered the automotive assembly business in 1968 under the New Order, taking over Gaya Motors (the former GM plant), which had become a financial burden for the government at that time, and later linked up with Japanese automotive producers including Toyota (Doner 1991, 128).

When the first Five Year Development Plan (Repelita I) was being drafted in 1968-1969, an inter-ministry conflict occurred in the automotive industry development policy. The Ministry of Trade stressed the importance of the protection of *pribumi* business, while the Ministry of Industry emphasised the importance of ISI policy (Chalmers 1994). Eventually, the government introduced a decree to separate importation from assembly, so that import sales and assembly had to be organised by separate corporate entities. As a result, assembly operations were under the Ministry of Industry, while vehicle import, distribution, sales and service operations came under the Ministry of Trade in 1969 (Hansen 1971, 47-49).

In order to promote local automotive development, the Indonesian government conducted ISI in two stages. The first stage aimed to shift from the importation of CBU vehicles to local assembly production, gradually banning the import of CBUs progressively, over different regions of Indonesia, from the period starting 1969 until a complete all-country ban was achieved by 1974 (Sato 1992, 340-341). The importation of all CBU vehicles was prohibited in Indonesia in 1974.

In the second stage, the Indonesian government aimed to achieve higher local content ratios (localisation of components production) in the assembly of vehicles by introducing a mandatory deletion programme (MDP) for CVs, replacing imported components with locally produced ones in 1976 (Degree No. 307). Initially paint, tyres, batteries were targeted in 1977, and later diversified into higher value-added components including engines, transmissions, brakes, and axles, covering a wider range of components by 1984 (Aswicahyono *et al.* 2000, 215). However, the plan was

temporary frozen due to low market demand caused by the second oil shock in 1978 and it was revised somewhat in 1979 (Doner 1991, 152).

The localisation policy for components production resulted in a split in the automotive industry in the 1980s. Local business groups linked with Japanese automotive producers came gradually to support the policy, because these groups had invested heavily components production to meet LC requirements. By contrast, local business groups linked to US and European producers faced difficulty in meeting the requirements (Chalmers 1994). Of eight automotive producers establishing plant for engine production by 1990, seven of them were Japanese assemblers (Toyota, Mitsubishi, Daihatsu, Suzuki, Isuzu, Hino and Honda), while only one firm, Mercedes-Benz, was from Europe (Inoue 1990, 72-73).

#### ***New Protectionist Policy, the National Car and the WTO Dispute (1993-1998)***

Indonesia's automotive policies in the 1990s became controversial, containing various elements contrary to the rules of the WTO, newly established in 1995. These included (i) a new incentive system providing incentives according to the degree of localisation, and (ii) a national car plan supported by highly discriminatory measures.

In June 1993, the Indonesian government introduced a new automotive policy deregulation package consisting of (i) abolishing the ban of import of CBU vehicles and (ii) reducing tariffs and luxury tax on imported components based on types of vehicle and local content level. The policy aimed to encourage localisation of the automotive production by allowing assemblers to access to more favourable tax rates according to

their localisation efforts in Indonesia. Although the old MDP system forced assemblers to localise their production without their strategic choice, the new incentive system enabled assemblers to select parts to be localised according to their firm strategy. In this regards, it was a more market-oriented system, though still in fact heavily regulated (Aswicahyono *et al.* 2000).

While the measures outlined above only contradicted the spirit rather than the letter of WTO rules, in 1996 the Indonesian government announced a very ambitious, and more contentious, automotive development plan. This was the *Program Mobil Nasional*, aiming to establish the production of a national car (like Malaysia's national car, *Proton* – see Natsuda *et al.* 2013, Segawa *et al.* 2013). The scheme allowed the national producer access to a three-year exemption of import duty and luxury taxes, which were estimated at 40% of vehicle costs, if they would meet the following three criteria: (i) be 100% national capital, (ii) use an original brand, and (iii) and have a local content ratio of 60% by the end of a three year the period.<sup>14</sup> (Nomura 1996, 81). In February 1996, President Suharto designated the *Timor Putra Nasional* company (TPN), owned by his son, Hutomo Mandala Putra (widely known as Tommy), as the sole producer of the national car, *Timor* (Hale 2001). Subsequently, in order to access international technology and marketing skills, and despite the 100% national capital stipulation, a joint company, PT. Kia-Timor Motors (KTM) was established jointly by Kia Motors from Korea, TPN, and Indauda (which was also local capital), holding 30%, 35%, and 35% of the equity, respectively (Fourin 1996, 80). Kia used the name *Timor* for the

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<sup>14</sup> To achieve LC of 20% in the end of first year, 40% in the end of the second year and 60 % in the end of the third year.



brand of cars and did not participate in the equity in TPN. Timor was treated as the Indonesian national car by the Indonesian government (Nomura 1996).

Although KTM targeted 50,000 units of production in 1997 and 100,000 units in 1998, the Indonesian government allowed KTM to import Kia's CBU vehicles under Timor's brand name for one year, exporting Indonesian workers and Indonesian components to Kia in Korea (Fourin 1999, 94-95). Indeed, 39,715 units of vehicles were imported from Kia in Korea in the period of June 1996 to July 1997 and sold under special provisions of import duty and luxury taxes exemption (Hale 2001, 632). As a result of these exemptions, the price of the Timor S515 model (which was the same as Kia's Sephia model, a 4 door sedan with a 1,500 cc engine) was almost half the price of Toyota's similar model, the Corolla (Nomura 2003, 47).<sup>15</sup>

In response to this, the EU, Japan and the US brought a case to the Dispute Settlement Panel in the WTO. In July 1998, the panel judged that the incentive system, introduced in 1993, violated the TRIMs rule. The national car project also contravened SCM (The Agreement on Subsidies and Countervailing Measures) rules (Nomura 2003, 54-55). The panel ordered the Indonesian government to abolish the incentive system by July 1999. Furthermore, the Indonesian government requested TPN to repay the import tariff and luxury tax exemptions of US\$ 326 million (Fourin 1999, 92). TPN did not have sufficient resources to repay, and declared bankruptcy in March 2001.

### ***After Liberalisation, and the Low Cost Green Car (1999-present)***

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<sup>15</sup> The sales price of S515 was 37.75 million Indonesian rupiah (IDR) in comparison with the Corolla, priced at IDR 76.35 million (Nomura 2003, 43).

The Asian Crisis in 1997, which hit Indonesia very hard (Hale 2001, 634), resulted in some reform of the automotive industry. The industry became a target of the structural adjustment programmes required by the IMF and the World Bank<sup>16</sup> and was forced to introduce liberalisation policies, including a reduction of import tariffs, elimination of the incentive system and an assurance of Indonesia's commitment to the WTO's ruling (Hale 2001; Nomura 2003). As a result, Indonesia liberalised the industry in accordance with WTO rules for the first time: issuing the *1999 Automotive Policy Package*, which abolished the incentive system and introduced a new import duty system based on types, engine sizes, and weight of vehicles in July 1999 (see Table 3).

Table 3. Import Duty and Luxury Tax Rates, 1999-2011

Category	Remarks	Import Duty											Luxury Tax			
		CBU					CKD				IKD		1999	2004		
		1999	2006	2007	2010	2011	1999	2006	2008	2011	2007	2010	2011	1999	2004	
PVs	Sedan	CC≤1.5 (G/D)	65	60	55	50	40	35	25	15	10	15	10	7.5	30	30
		1.5<CC≤3.0 (G)/2.5(D)	70	60	55	50	40	45	30	15	10	0	0	0	40	40
		CC>3.0(G) / 2.5 (D)	80	60	55	50	40	50	40	15	10	0	0	0	50	75
	4x2	CC≤1.5 (G/D)	45	45	45	45	40	25	20	15	10	15	10	7.5	10	10
		1.5<CC≤2.5(G/D)	45	45	45	45	40	25	20	15	10	15	10	7.5	20	20
		2.5<CC≤3.0(G)	45	45	45	45	40	25	20	15	10	15	10	7.5	20	40
		CC>3.0(G) / 2.5 (D)	45	45	45	45	40	25	20	15	10	15	10	7.5	30	75
	4x4	CC≤1.5 (G/D)	45	45	45	45	40	25	20	15	10	0	0	0	30	30
		1.5<CC≤3.0 (G)/2.5(D)	45	45	45	45	40	25	20	15	10	0	0	0	40	40
CC>3.0(G) / 2.5 (D)		45	45	45	45	40	25	20	15	10	0	0	0	50	75	
CVs	Bus	GVW5-24t	40	40	40	40	40	25	20	15	10	5	5	0	10	10
		GVW>24t	5	10	10	10	10	0	5	5	5	5	5	0	10	10
	Pick-up /Truck	GVW<5t	40	45	45	45	40	25	20	15	10	15	10	7.5	10	0
		GVW5-24t	40	40	40	40	40	25	20	15	10	5	5	0	10	0
		GVW>24t	5	10	10	10	10	0	5	5	5	5	5	0	10	0
		Double Cabin	GVW<5t	40	45	45	45	40	25	20	15	10	15	10	7.5	10

Note: Unit: %; G: gasoline engine; D: Diesel engine,  
 GVW: Gross Vehicle Weight; KD: Incompletely Knock Down,  
 Source: Fourin (2002, 2004, 2008) and GAIKINDO document

Although vehicle production increased steadily in the post-liberalisation period, the

<sup>16</sup> Interview with GIAMM, 29<sup>th</sup> February 2013.

Indonesian government could not implement strategic automotive development policies due to the political instability prior to the fall of Suharto in 1998. The first policy in the post-liberalisation period related to the LC issue in the industry. The automotive industry was facing a low level of LC ratio in domestically produced vehicles in Indonesia.<sup>17</sup> In order to achieve higher LC ratios, the Indonesian government introduced the innovative IKD (incompletely knocked down) system in 2006.<sup>18</sup> The government targeted subcomponents which were not produced locally in Indonesia as IKD parts by providing lower tariff rates than CKD parts. The IKD system aims to encourage imports of subcomponents rather than CKD parts as a whole, thus encouraging the assembly of CKD parts locally (e.g. importing engine parts and assembling engines locally, rather than importing engines). In this regard, by effectively setting tax duty rates, the IKD system encourages foreign assemblers and parts producers to transfer production knowledge and know-how through foreign investment into assembly technologies including tools and equipment. In short, within the ‘policy space’ still consistent with WTO rules, the Indonesian government has targeted the upgrading of the industry from CBU import to CKD import for vehicle assembly, then onto IKD import for local CKD assembly, which requires more capital in each industrial upgrading.

Most recently, in 2009, the government announced the second auto industrialisation policy, which targets to develop new categories of vehicles - small and environmental friendly vehicles. There are several relevant issues. Firstly, as the size of the middle

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<sup>17</sup> LC ratio in Indonesia is based on the calculation of the total value of four types of CKD parts (engines, transmissions, axles, and chassis & bodies).

<sup>18</sup> Information from interviews with GAIKINDO, 27 February 2013, and Ministry of Industry, Jakarta, 5 March 2013.

class in the country is growing in Indonesia, market demand has started shifting from motorbikes to cars.<sup>19</sup> Secondly, the government's fuel subsidy is becoming a significant problem. Indonesia, which used to be an oil exporter, has become an oil importing country since 2003. A large proportion of the domestic fuel price is subsidised by the government.<sup>20</sup> According to JETRO in Jakarta, the oil price after the subsidy accounted for IDR 4,500 per litre in comparison with a pre-subsidised price of IDR 9,800 in February 2013<sup>21</sup>, a 54% subsidy by the Indonesian government. In order to reduce the subsidy's cost, the improvement in the fuel consumption of vehicles has become very important. Thirdly, despite the incentives of the IKD system, the Indonesian automotive industry has still a weak local supporting industry. In order to strengthen the competitiveness of the industry, the development of supporting industry and the expansion of local sourcing capacity are essential.

In response to these issues, the Indonesian government has targeted the development of small, affordable, economical, ecological PV production, the so-called 'Low Cost Green Car: LCGC' (see Table 4). The project is expected to expand the market demand, create economies of scale, and thus reduce components costs and eventually vehicle costs. The Indonesian government aims to stimulate the market demand by imposing no luxury tax. The price of LCGCs is affordable, estimated at US\$8,000-9,000. In parallel to this, the Indonesian government is also planning to develop a low emission carbon project (LECP) by attracting investment in electric vehicles (EVs), hybrid vehicles (HVs) and

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<sup>19</sup> For instance, 35 million motorbike users are expected to shift to car in the future (Presentation document of BKPM in March 2012).

<sup>20</sup> <http://www.ide.go.jp/Japanese/Research/Region/Asia/Radar/pdf/20080605.pdf> (accessed on 21 March 2013)

<sup>21</sup> Interview on 22 February, 2013.

alternative-fuel cars such as biofuel and CNG. These plans were passed in the Parliament in February 2013 and finally approved by the President in May 2013.

Table 4. Overview of the Green Car Project Plan in 2013

	LCGC	LECP
Purposes	<ul style="list-style-type: none"> <li>➤ Expansion of the middle class market;</li> <li>➤ Industrial development of local contents; and</li> <li>➤ Reduction of fuel subsidy</li> </ul>	<ul style="list-style-type: none"> <li>➤ Mitigation of global warming</li> </ul>
Engine size	<ul style="list-style-type: none"> <li>➤ Gasoline engine: up to 1,200 cc</li> <li>➤ Diesel engine: up to 1,500 cc</li> </ul>	HV, EV, Alternative fuel cars (CNG, Biofuel)
Mileage	20 km / L or more	20 km /L or more
Subsidy	No	No
Preferential tax treatment	Sales tax on luxury goods: 0% (Currently 10%)	<ul style="list-style-type: none"> <li>➤ Small cars: PPnBM 0%</li> <li>➤ Fuel efficiency of 20-28 km/L: 25% PPnBM reduction</li> <li>➤ Fuel efficiency of 28km /L or more: 50% PPnBM reduction</li> </ul>

Source: GIAMM

Indonesia's new policies are similar to Thailand's 'Detroit of Asia' and 'Eco Car' projects, which has enabled Thailand to enjoy rapid auto industrialisation since 2000 (see Natsuda and Thoburn 2013). Both countries use fiscal policy to target particular types of vehicles to be developed, and conform to WTO rules. However, some differences can be identified with Thailand. Firstly, Thai policies aimed to stimulate not only market demand by reducing excise tax of particular types of vehicles, but also foreign investors by providing various special tax exemption incentives for automotive assemblers (and also designed to cover their parts suppliers for the benefits of tax concessions). By contrast, Indonesian does not offer special incentives in the

automotive sector, which is not even included in its five strategic industries.<sup>22</sup> On this point, for instance, the President of PT. Toyota Motor Manufacturing Indonesia, Mr. Nonami, strongly stressed the importance of the introduction of special incentives to encourage Tier 2 and 3 supplier's investments at a public seminar.<sup>23</sup> Secondly, Thai policies also are targeted at localising higher value-added components such as engine parts by imposing local production requirements in exchange for tax incentives. By contrast, Indonesia does not directly target localisation activities, although the IKD system is a move in this direction. Thai policies are more systematically organised to attract FDI and link with upgrading of local production activities. Furthermore, the Board of Investment (BOI) of Thailand established a special unit for industrial linkage, 'Unit for Industrial Linkage Development (BUILD)', coordinating industrial linkage between assemblers and local industry.<sup>24</sup> By contrast, in Indonesia executive officers of the parts industry pointed to the lack of effective government policy in localisation, human resource development and technology transfer within the country.<sup>25</sup>

Although incentives in Indonesia are not so attractive as Thailand, many automotive producers such as Toyota, Daihatsu, Nissan, Suzuki and Honda in Indonesia expressed their interest in the LCGC project. For instance, Toyota in association with Daihatsu announced their first LCGC models in September 2012, even before the official approval of the project. Toyota's Agya (a four-seater with 1,000cc engine) will be produced by Daihatsu under the OEM arrangement. In addition, Daihatsu will also sell

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<sup>22</sup> Five industries are eligible for tax holidays (Interview with BKPM, Investment Coordinating Board, 20<sup>th</sup> February, 2013).

<sup>23</sup> JETRO seminar in Jakarta, 4 March 2013

<sup>24</sup> Interview with the Director of BUILD on 4 September 2012.

<sup>25</sup> Interview, 29 February 2013.

the same model as 'Ayla' under Daihatsu brand.<sup>26</sup> The Agya-Ayla model was designed for the local road conditions and new market needs, which are aiming to introduce small city vehicles and shift from motorcycles to PVs.<sup>27</sup> Nissan is also planning to introduce their strategic model/brand in emerging economies, 'Datsun'. Nissan is planning to produce the model in three countries: Russia, India and Indonesia in 2014.<sup>28</sup>

## **5. Prospects and Challenges for Indonesia within the Automotive GVC**

According to GIAMM, Indonesia's vehicle production is expected to reach 1.5 million units in 2015 and 2 million units (70% for the domestic market and 30% for export) by 2020.<sup>29</sup> This rapid development of the Indonesian motor industry derives from its economic growth with the largest population in the region. Indeed, Indonesia has been maintaining a high GDP growth rate in the last decade and its GDP per capita rose 4.5 fold, increasing from US\$ 773.3 in 2000 to US\$ 3,494.6 in 2011 (see Figure 5). As a result, the middle class, which can afford to purchase cars, has been expanding rapidly. There is great scope for market growth: Indonesia's ratio of vehicles per capita stood at only 5 per 100 people in comparison with Thailand (14) and Malaysia (33).<sup>30</sup>

In the view of one key Japanese informant, figures in the optimistic forecasts are perfectly feasible and even could be higher than expected because: (i) the lower vehicle prices brought about by the LCGC project; (ii) Indonesia's high usage of auto loan schemes (approximately 70%), which stimulates vehicle purchases; and (iii) and the

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<sup>26</sup> <http://www.jakartashimbun.com/free/detail/2534.html> (accessed on 23 March 2013).

<sup>27</sup> Interview with the President PT. Toyota Motor Manufacturing Indonesia on 4 March 2013.

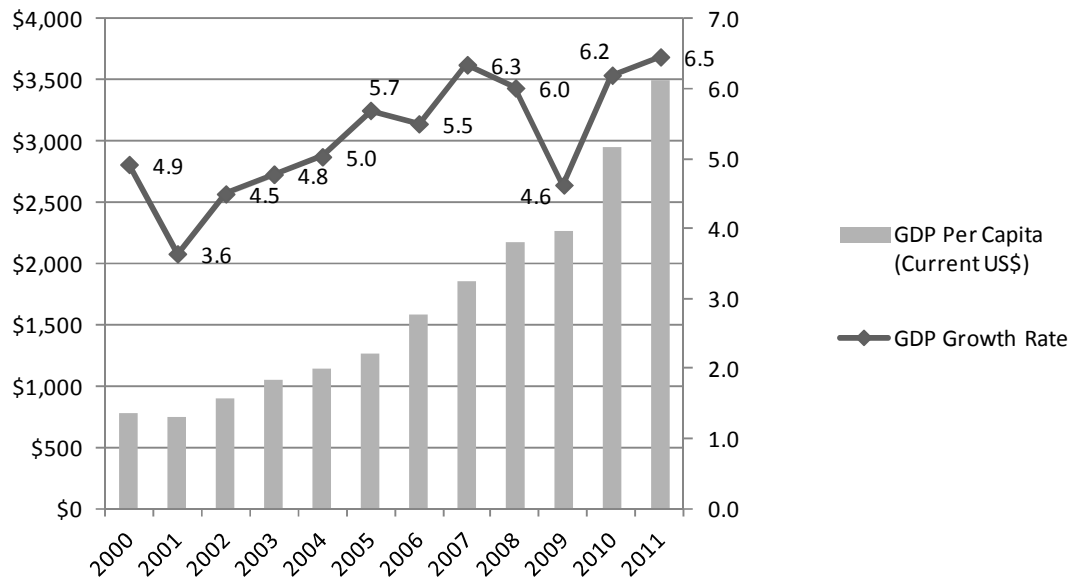
<sup>28</sup> [http://www.nikkei.com/article/DGXNASDD210NW\\_R20C12A3TJ1000/](http://www.nikkei.com/article/DGXNASDD210NW_R20C12A3TJ1000/)

<sup>29</sup> Interview, 29 February, 2013.

<sup>30</sup> This data was supplied by Toyota Motor Asia Pacific Engineering & Manufacturing in March 2010.

creation of a variety of new models in the Indonesian automotive industry. Indeed, various automotive producers are planning to expand existing production capacity or commence production in Indonesia (see Table 5).

Figure 5. GDP per Capita and Growth Rate, 2000-2011



Source: World Development Indicator

Table 5. Expansion Plans of Major Vehicle Producers

Company Name	Plan
Toyota	Establishment of the 2 <sup>nd</sup> factory in Indonesia: expansion of production capacity from 110,000 to 230, 000 units in 2013
Daihatsu	Establishment of the 2 <sup>nd</sup> factory in Indonesia: expansion of production capacity from 330,000 to 430, 000 units in 2013
Nissan	Expansion of production capacity from 100,000 to 350,000 units by 2014
Honda	Expansion of production capacity from 60,000 units to 180,000 units by 2014
Volkswagen	Establishment of new factory with the production capacity of 50,000 units in 2013
GM	Reestablishment of the factory with the production capacity of

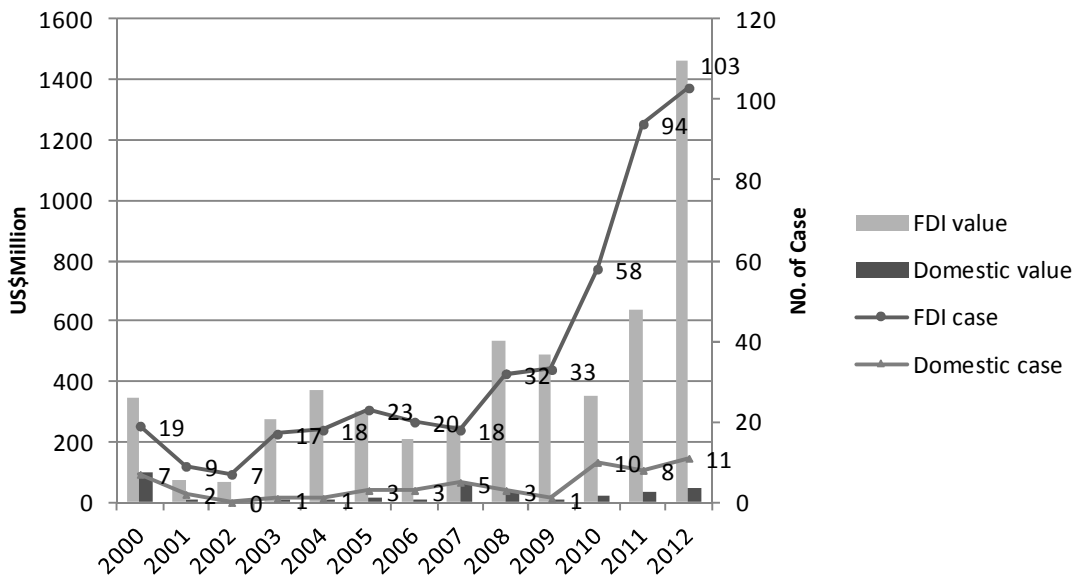


	40,000 units in 2013
TATA	50,000 units production plan in 2013
Gleey	30,000 units production plan in 2013

Source: Information supplied by JETRO (2013)

In response to the production expansion plans, foreign investments in the automotive and parts industries have increased rapidly, accounting for 33 cases and US\$ 486 million in 2009, jumped to 94 cases and US\$ 637 million in 2011 and 103 cases and US\$ 1,465 million in 2012 (see Figure 6). Of these figures, parts and accessories investments accounted for 66.9% and 79.2% in value of the total investments of the automotive sector in 2011 and 2012, respectively. With regards to the origins of FDI, Japan accounted for the bulk, 65.2% in terms of cases (227 cases) and 74.4 % (US\$ 2,901 million) in terms of the total value of FDI over the period of 2000-2011.

Figure 6 FDI and Domestic Investments in the Automotive Sector, 2000-2012



Note: Realisation Basis

Source: Data Supplied by BKPM (2013)

Although the Indonesian automotive industry is growing rapidly, there are several reasons for concern. Firstly, in comparison with the trend of FDI, domestic investments in the automotive and parts industries have been extremely low (see Figure 6). For example, local investment accounted for merely 11 cases and US\$ 48.6 million (only 3.3% of FDI) in 2012. Capital accumulation in the Indonesian automotive sector is increasingly made by foreign firms, but not by local firms. Within the automotive GVC, despite some possible transfers of technology, the upgrading opportunities of local parts-supplying firms may be hindered by competition from incoming foreign firms, especially in terms of moving to higher tiers in the subcontracting system. This issue is confirmed by our interviews with executive officers of the local parts industry in Indonesia

Our interviews with major Japanese automotive assemblers in Indonesia revealed that each automotive producer has approximately 100 Tier-1 suppliers in Indonesia: Nissan has 100 Tier-1 suppliers (most of them are Japanese JV); Toyota has 80 Tier-1 suppliers (approximately 80% are Japanese JVs and 20% are local firms); and Mitsubishi (P.T. Krama Yudha Tiga Motors) has 125 Tier-1 suppliers (60% are Japanese JVs and 40% are local firms, but pure local firms are estimated at 10-15%). As noted in the GVC literature (Humphrey and Memedovic 2003, UNCTAD 2013), global mega-suppliers have been significantly playing an important role in automotive supply chain networks, and this is also true in Indonesia. In the case of neighbouring Thailand, in contrast, although such a strong tendency exists, some indigenous suppliers have been growing globally (or regionally) at the same time. For instance, the parts-maker Thai Summit started making foreign investments in Malaysia, Vietnam, Indonesia, China and India,

to supply their components to not only Japanese assemblers, but also to non-Japanese such as Proton, Baja auto, and Mercedes-Benz; and more interestingly, it took over one of the largest mold producers in the world, Ogihara Corporation (tool & Die and stamping parts manufacturer) in Japan in 2009 (Fourin 2012, 220-221).

A second challenge to the Indonesian automotive industry is also related to the local supporting industry: the level of real local content (LC) ratio seems to be very low in Indonesia. Table 6 indicates LC ratios in major models in Indonesia in 2010. In general, major automotive producers, which have the larger market share, have higher LC ratios in their models. By contrast, a number of smaller assemblers (most of which are based on assembly of CKD kits) have lower LC ratios. In recent years, the IKD system seems to have provided positive influences on the LC ratios. In the case of Nissan, the LC ratio of its Grand Livina model has improved rapidly from 33% in 2010 to 72.7% in 2013. Similarly, Toyota's Innova model improved from 71% in 2010 to 75% in 2012, and aiming to achieve 85% in the near future. However, these figures conceal a methodological trick in Indonesia. The LC calculation method in Indonesia is based on the value of CKD parts, not based on subcomponents. In the case of the Innova model, for example, primary subcomponents are produced locally and 80% of secondary or tertiary subcomponents are imported.<sup>31</sup> Consequently, the real LC ratio (based on subcomponents) is much lower level than the nominal LC ratio (based on CKD parts). For example, our interviews in 2013 suggested that the real LC ratio is approximately 50% of the nominal LC ratio. So supporting industry in Indonesia is still in the pre-matured stage, and the Indonesian automotive industry can be classified in the

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<sup>31</sup> Presentation by the president of PT. Toyota Motor Manufacturing Indonesia at JETRO seminar in Jakarta, 4 March 2013.

transition from stage 3 to stage 4 in the development path of the industry (see section 2).

Table 6. LC Ratios in Major Models in Indonesia in 2010

Brand	Model	LC Ratio	Brand	Model	LC Ratio
Daihatsu	Gran Max	83%	Suzuki	APV	75%
	Luxio	80%		Futura	58%
	Xenia	77%	Nissan	Livina	33%
Toyota	Avanza	76%		Serena	26%
	Rush	73%	Honda	Jazz	50%
	Innova	71%	Mercedes	Sedan	30%
	Dyna	59%	BMW	3 Series	21%
Mitsubishi	Maven	72%	Hyundai	Sedan, MPV	40%
	L3000	57%	Chery	Sedan	10%

Source: GAIKINDO (2010, 26-27)

In addition, the standard of infrastructure in Indonesia is a third challenge. Indonesia is facing difficulties in the provision of physical infrastructure such as roads, ports, and electric supply. The level of overall infrastructure is of a much lower standard than that of Thailand and Malaysia (World Economic Forum, 2013). In particular, road congestion is a very serious issue. It is likely that demand for vehicles would increase rapidly if road conditions become better.<sup>32</sup>

## 6. Conclusions

The Indonesian automotive industry has been growing rapidly and seems to have taken off in recent years. Until the late 1990s, the development of the industry was slow. At that time, capital accumulation in the industry was inhibited by political-bureaucratic problems. The Indonesian government introduced an array of localisation requirement

<sup>32</sup> Interview with GAIKINDO, 27 February 2013.

policies in order to upgrade the local industrial structure. However, these policies were not effective. After the liberalisation forced by the IMF, the World Bank and WTO, the Indonesian automotive industry has developed steadily, finally reaching over 1 million units of production in 2012. However, issues such as increased political stability may well have been more important drivers of expansion than simple liberalisation, and the attraction of automotive FDI from Japan has been especially important. The growth trend is expected to continue in the future, partly due to Indonesia's new auto industrial policy in the form of the LCGC project. Despite the relatively limited policy implementative capacity of the Indonesian government (for instance in comparison with neighbouring Thailand), the LCGC project provides a clear signal to the market as well as vehicle producers, which boosts the growth of the industry.

Within the automotive GVC, Indonesia remains heavily controlled by Japanese multinational assemblers, who offer world best-practice technology and production methods, along with market access overseas. The coming of the assemblers' mega-suppliers to Indonesia offers scope for local producers to upgrade to some extent, while simultaneously closing the top tier of parts production to them. Indeed, the low level of local automotive supporting industry is one of Indonesia's problems, as is the partly related issue of the low real LC ratio in the industry.

The main driver of the automotive industrialisation in Indonesia derives from its market potential - the largest population in Southeast Asia and its rapid economic growth rate. It successfully enables Indonesia to attract investments in the automotive sector without providing more attractive incentives. In this aspect Indonesia has not had to search for

more ‘policy space’. After having been frustrated in the past by WTO rules from developing its national car, it has been able find enough policy space to foster its green car projects without violating WTO rules; though further help towards local suppliers might require more ingenuity beyond the already useful IKD system. Furthermore, Indonesia’s strategic geographical position, which offers direct export possibilities to Australia and the Middle East, might be one of the drivers in the future.<sup>33</sup> Also, the current (late 2013/early 2014) political turmoil in Thailand, if it continues, may cause automotive investors to favour Indonesia more, at least at the margin. The current export capacity of Indonesia is limited, but it is expected to expand to approximately 0.6 million by 2020. In order to achieve auto industrialisation firmly, however, it will be necessary for the Indonesian government in the future to encourage the development of the local parts industry, including local firms. While not all automotive components are suitable for local production at Indonesia’s present stage of development – there can be ‘bad’ backward linkages as well as ‘good’ ones (Thoburn 1973) – the experience of Thailand shows how much more could be achieved.

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<sup>33</sup> Interview with the President of PT Nissan Motor Indonesia, 7 March 2013.

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