

GLOBAL PRODUCTION NETWORKS AND SOCIAL WELL-BEING: EVIDENCE FROM THE INDONESIAN AUTOMOBILE INDUSTRY

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ABSTRACT

This paper investigates the economic improvements in the Indonesian automotive industry, as measured by its integration into global production networks (GPNs) and global value chains (GVCs). These gains have been followed by improvements in workers' social well-being. Using the economic-social upgrading framework derived from the International Labor Organization's (ILO) Decent Work (DW) concept, the results show that the auto industry is in a "high-road" growth trajectory. The industry has succeeded in managing its GPN position with progress in workers' employment conditions. The study found that sustaining worker well-being may prove difficult due to high volatility related to the aggregate social upgrading index.

Keywords: Automotive industry; Global production network; Global value chain; Economic and social Upgrading / Downgrading.

1. INTRODUCTION

After the 1998 economic crisis, the Indonesian automotive industry transformed itself from a tightly protected domestic-oriented industry into an international-oriented industry. This transformation was marked by the government's "1999 Automotive Policy Package," which encouraged exports in automotive products. Since then, this industry has experienced rapid growth not only in export performance (see Figure 1) but also in foreign direct investment/FDI (see Table 1). This progress has been followed by growing imports in auto parts and components (see Figure 2). Taken together, the activity suggests an improvement in the industry's global production network (GPN) position.

Past studies have found strong positive correlation with a sector's integration with GPNs or trade performance and industrial development in the form of economic upgrading (Milberg and Winkler, 2011). However, the improvement in the auto sector's GPN position coupled with social well-

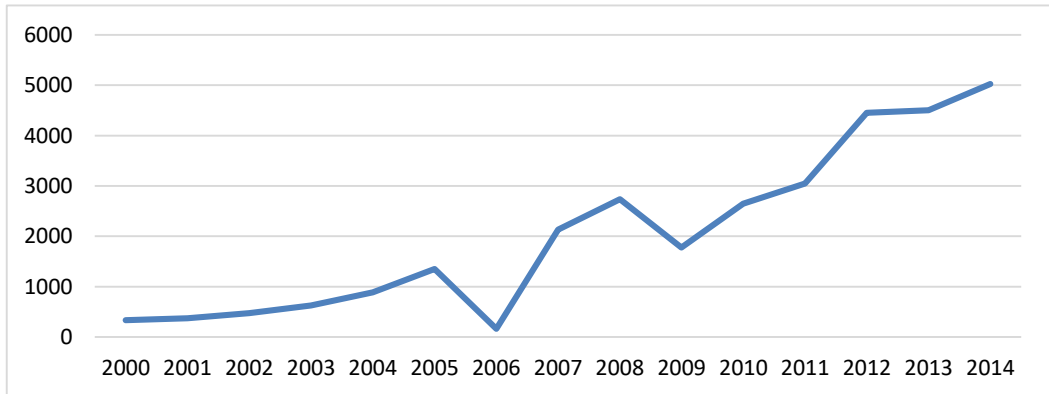
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being or social upgrading (especially in employment issues) are less certain (Milberg and Winkler, 2011). Workers' social well-being remains in doubt. Wicaksono and Priyadi (2016) provide empirical evidence for such a possibility. Using Indonesia's Central Agency on Statistics' (BPS) National Labor Survey (Sakernas), they found that the improvement in the industry's GPN position occurred with a rising share of informal employment, specifically an increasing share of "own-account" workers. However, that benefit was limited to educated workers.

This paper complements previous findings by using additional variables and adopting a new framework named the economic-social upgrading analysis. This framework is an extension of the International Labor Organization's (ILO) "Decent Work" (DW) concept, developed by Barrientos et al., (2011) and Milberg and Winkler (2011), in order to analyze the linkage between the economic upgrading of firms and the social upgrading of workers in GPN and global value chain (GVC) contexts. In analyzing such linkage, this framework divides economic and social upgrading into four dimensions: (a) high-road growth where economic and social upgrading indicators improved simultaneously; (b) low-road growth in which economic upgrading occurs with social downgrading; (c) high-road decline where social upgrading is followed by economic downgrading; and (d) low-road decline in which economic and social downgrading occurs concurrently.

In Section 2, we summarize the major works in the economic-social upgrading framework. Section 3 explains the statistical methodology used in this paper. Section 4 discusses the statistical results from the Indonesian auto industry. Finally, Section 5 offers conclusions and recommendations.

Figure 1: Total Export of the Indonesian Automotive Industry, 2000–2014 (in Millions USD)

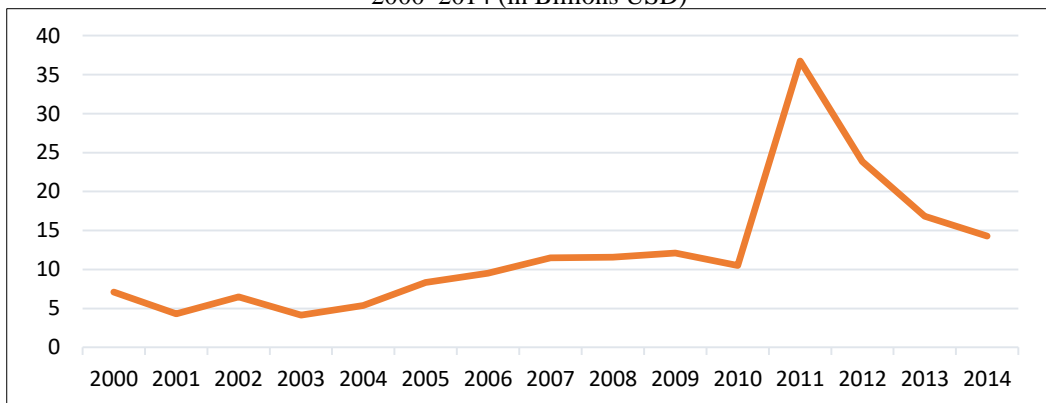


Source: United Nations International Trade Statistics (UN Comtrade)

Table 1: Number of Establishments by Investment Facility Status

Investment Facility Status	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Foreign Investment	50	52	34	60	59	63	62	81	72	81	70	75	80	75	115	125
Domestic Investment	33	24	77	99	29	75	71	83	79	68	59	52	53	61	54	64
Others	161	170	105	111	168	123	129	172	152	156	154	153	170	171	197	191

Source: Medium and Large Enterprises Industrial Statistics, BPS.

Figure 2: Total Imported Inputs of the Indonesian Automotive Industry, 2000–2014 (in Billions USD)

Source: UN Comtrade

2. LITERATURE REVIEW

2.1. Global Production Network, Global Value Chain, and Economic Upgrading

A global production network¹ occurs when industries in one country relocate their production components or assemblies to several other countries to create a vertically integrated production process (Soejachmoen, 2016). According to Gereffi (1999), Gereffi and Memedovic (2004), and Gereffi (2006) global production networks (GPNs) are comprised of flagship firms and local suppliers, where the flagship firm defines the strategy and organizational policy of the network. Global production networks are closely related to the global value chain, which refers to the range of activities of a specific product from its conception to end use and performed by firms and workers (Sturgeon,

¹ The authors include Global Value Chain (GVC) within the GPN concept. Both terms will be used interchangeably in this article

2001; Gereffi and Fernandez-Stark, 2016). Generally, this includes research and development, design, production, sales and marketing, consumption, and recycling. In the global value chain (GVC) approach, the global economy is viewed as a complex network that links buyers and suppliers that are integrated and driven by MNEs as lead firms. According to Poapongsakorn and Techakanont (2008), GPN and GVC are two complementary concepts. A firm-led GPN can participate in various value chains while a GVC can consist of two or more production networks (Gereffi and Memedovic, 2004).

There are two types of value chains: producer driven and buyer driven. The distinctions between them drive supply chains differently and pose unique challenges for chain entry and upgrading (Gereffi, 1994; Gereffi and Lee, 2012). Economic upgrading, also called “industrial upgrading” or “upgrading,” is the ability of a manufacturer to make a product better, more efficient, or move to activities that require more skills (Pietrobelli and Rabellotti, 2006, p. 1; Hess and Yeung, 2006). Upgrading has also been identified as a move to incorporate higher value-added activities in production that result in improvements in technology, knowledge, and skills. Upgrading increases the benefits (or profits) that result from participation in the GPN (Gereffi et al., 2005, pp. 78–104).

Producer-driven value chains may provide more opportunities in leveraging new knowledge and capabilities. This type of value chain is associated with difficult technologies and is typical for capital- and technology-intensive industries. Buyer-driven value chains are associated with easier, lower-level technologies and are typical for labor-intensive industries (Gereffi and Memedovic, 2004).

There are various ways by which industries or firms can achieve economic upgrading within a GVC/GPN. Actors at various positions within the production network can increase gains by increasing efficiency or increase total sales through improvements in product quality or production methods. Differentiating between the various types of economic upgrading can also help company decision makers’ increase their competitiveness and productivity by matching their circumstances to an appropriate path (Salido and Joaquín-Bellhouse, 2016). According to Humphrey and Schmitz (2002), there are four types of upgrading:

1. *Process upgrading*: an improvement in production process efficiency that can be achieved by technological advancement and reorganization of the production system. The need to improve the effectiveness and reduce cost per unit is the driver of this type of upgrading (Salido and Joaquín-Bellhouse, 2016).
2. *Product upgrading*: an advancement in product types, which often requires more skilled jobs to make an item with enhanced features.
3. *Functional upgrading*: moving into higher-value-added tasks by changing the mix of activities performed. An example of functional upgrading is a firm that moves its operations from assembly to original equipment manufacturer (OEM) to original design manufacture and then to original brand manufacture (OBM) (Humphrey, 2004).
4. *Chain upgrading*: this shifts firms to a more technologically advanced production chain by moving into new product markets or industries that often require different marketing channels and manufacturing technologies.

According to Salido and Bellhouse (2016), there are various factors that influence the type of upgrading experienced by industries. Among those factors is the governance of the value chain, the relationship with lead firms, particularities of the sector, the technological intensity of products,

proximity to end markets, and position in the value chain influencing the type of upgrading. However, the leading factor that determines upgrading seems to be the relationship between suppliers and lead buyers. Lead firms often supply technological know-how and other forms of support, and also demand greater efficiency and lower costs, which facilitate product and process upgrading. However, lead firms do not necessarily support functional upgrading as it may create greater competition (Bazan and Navas-Alemán, 2004). For example, in Torreon, Mexico, American buyers facilitated the product and process of upgrading local blue jeans producers; however, the functional upgrading did not occur due to the risk that it would pose greater competition for the MNE lead firms (Bair and Gereffi, 2001; Bair, 2009).

Economic downgrading also can occur under GVC/GPN. The existence of a GVC exposes all firms and suppliers to global or regional pressures, such as tight pricing, rising input costs, and the challenges of meeting global standards (Knorrington and Pegler, 2016). Funcke et al. (2014) studied Brazil's horticulture market and found that most small producers (smallholders) were unable to participate in GVCs directly due to quality standards and certification requirements. Some of these smallholders ended up supplying GVC markets by selling to large commercial farms that acquire most of the profit. This can be interpreted as a form of economic downgrading for smallholders.

2.2. Global Production Networks, Global Value Chains, and Social Upgrading

Social upgrading takes place when there is an increase in the capabilities and rights of workers as social actors and an improvement in their workplace quality. Social upgrading consists of two aspects: quantitative/measurable aspects (such as employment numbers, wages, share of female employment, working hours, health, and social protection) and qualitative aspects. These include labor conditions and enabling rights, such as the freedom of the right to collective bargaining and non-discrimination (International Labor Organization, 2015). However, measurable aspects are often the outcome of a complex bargaining process framed as enabling the rights of workers (Barrientos et al., 2011; Gereffi and Guler, 2010). Social upgrading related to the International Labor Organization's (ILO) centers around issues of "decent work." This consists of four main pillars: employment, labor standards and rights, social protection, and social dialogue. Decent work helps frame social upgrading because it includes both measurable aspects and enabling rights (Barrientos et al., 2008).

The improvement of GPN position may lead to better social conditions. In GPN, social upgrading addresses concerns about access to better jobs. For instance a worker who has acquired skills in one job is able to move to a better job elsewhere in the GPN. This form of social upgrading not only concerns access to better jobs but also includes the improvement of working conditions through better wages, benefits, standards, social protection, social dialogue, and better labor rights (Gereffi and Guler, 2010, p. 4). Improvement in workers' rights and entitlements can be measured in numerous ways, which presents a problem for academics seeking to explain the process of social upgrading (Salido and Joaquín-Bellhouse, 2016).

In the case of downgrading, pressure to provide products that are internationally competitive can result in a lower social condition. In raising international competitiveness, industry can take two routes: lower the input costs (labor and capital) or raise productivity. Downgrading is a possibility when an industry chooses to lower the wages of its labor. For instance, when a lead firm decides to lower its cost of production, it will cut the wages of its labor.

2.3. *Linking Economic and Social Upgrading in GPNs*

Economic upgrading in GPNs/GVCs is often assumed to cause social upgrading through better wages and working conditions (Knorrinda and Pegler, 2006). However, economic upgrading and social upgrading often do not go together, and it is not unusual for them to go in different ways. In their studies, Barrientos et al. (2011) discuss a number of factors that can affect economic and social upgrading or downgrading. These include firms' and workers' positions within the value chain, the type of work performed, and the status of workers within a given category of work. Rossi (2011) in her case study on the Moroccan garment industry shows that the status of workers has important implications for workers in order to gain benefits from economic and social upgrading. In response to the lead firm's requirements for low cost, high flexibility, and high quality, which characterize the fast-fashion buyers sourcing from Morocco, suppliers employ two types of workers: regular and irregular.

Regular workers are usually employed on permanent contracts, are experienced, and guarantee high skills and quality; they are also paid a premium over the minimum wage. Irregular workers are those who are employed in the unskilled segments of the production chain. Any formal contract does not cover irregular workers as those workers are paid below the minimum wage and are not covered by any social protection. Regular workers have strong employer attachment, which offers them employment protection and benefits according to measurable labor standards. On the other hand, irregular workers with weak employer attachment are less secure in their employment and less able to gain benefits from measurable labor standards. The rise of irregular/informal workers in an industry may indicate a downgrading in social dimensions.

Gender bias may also play an important role. Even though female workers are preferred by many employers for their perceived dexterity and "nimble fingers" (Elson and Pearson, 1981), they tend to have unsecured and low-paid work, whereas men typically have better-paid and higher-skilled jobs (Barrientos and Kritzing, 2004). The different types of upgrading have various implications on social conditions. Rossi (2011) in her case study of Morocco's garment industry shows that functional upgrading can bring social upgrading and downgrading simultaneously. From one viewpoint, factories that provide a finished product and oversee packaging, storage, and logistics for their purchasers offer stable contracts and better social insurance to their high-skilled laborers. This guarantees a continuous relationship as well as complete consistency with buyers' codes of conduct. However, for factories to have the capacity to react rapidly to purchasers' frequently changing orders and operate on short lead times, they must simultaneously employ informal/irregular workers. Those irregular workers work particularly in the last pieces of the production chain (e.g., packaging and loading). It's common to see discrimination against these workers through lower wages and mistreatment.

In response to competing pressures within GPNs, supplier labor strategies can take a "high-road" approach when both economic and social realms are upgrading; a "low-road" approach when economic upgrading combines with social downgrading; or a mixed approach (Barrientos et al., 2011). Milberg and Winkler (2011) found four combinations of economic and social development, as illustrated in Figure 3: high-road growth, low-road decline, high-road decline, and low-road decline. In the first two, social and economic realms move in the same direction, whereas in the last two, economic and social realms move in different directions. To deliver high quality and competitiveness to its buyers, suppliers can take different strategies for their economic and social benefits.

Figure 3: Economic and Social Realms

Economic Realm	Social Realm		
		Upgrading	Downgrading
	Upgrading	High-Road Growth	Low-Road Growth
	Downgrading	High-Road Decline	Low-Road Decline

Sources: Bernhardt and Milberg (2012)

Suppliers may take a low-road approach by lowering labor costs and neglecting labor conditions in order to remain competitive (but risk losing out on quality), or take the high-road approach by improving wages and labor conditions (but risk losing competitiveness) (Barrientos et al., 2011). However, for some actors, economic upgrading is not always the best strategy for long-term sustainability. For example, some firms choose to stay in the lower segments of the GPN, such as original equipment manufacturing (OEM) rather than more advanced segments like original design manufacturing (ODM) and original brand manufacturing (OBM) because risk and competition are much higher in the more advanced segments of GPNs. In general, moving up from OEM to ODM and OBM has been beneficial for some firms in GPNs (Gereffi, 1999).

In summary, the current literature does not provide a consensus on a single model that can explain the relation between economic and social upgrading. While the general assumption is that economic upgrading leads to social upgrading, the exact correlation and form between the two aspects is not yet clear. How factors such as collective bargaining and labor rights, economic sectors, varieties of economic upgrading, and other contextual issues affect social upgrading needs further investigation (Salido and Joaquín-Bellhouse, 2016).

3. RESEARCH METHOD

The variables used in this study refer to those mentioned by Milberg and Winkler (2011), who offered a list of economic measures and social upgrading that have been used in past studies at different levels of analysis. These variables include: the country, the sector of GPN, and the firm. In this study, some variables are chosen to represent the condition of the economic and social realms in the automotive industry as shown in Figure 3. To indicate whether upgrading occurs in the economic realm, indicators such as productivity, export, value-added, export market share, and skill intensity of employment are used to represent upgrading when the trend of the average index of those five variables is positive.

Export values and export market shares are the most important aspects in evaluating a nation's export performance (Bakken, 2014), where export market shares reflect the international competitiveness of its exports (Amighini, 2006). "Export values" is the total export of industry while "export market share" is calculated by dividing the exports of the industry by the total exports of

the world in that particular industry. Productivity and value-added are taken into account because economic upgrading is associated with higher productivity and higher value-added niches of activity (Milberg and Winkler, 2010). “Productivity” and “value-added” are defined by the Indonesia Statistics Bureau (BPS), where productivity is the ability of workers to create production goods and value-added is the total amount of output reduced by the total amount of input (intermediate cost). An increase in skilled workers is used as a proxy for increased skill intensity of employment (Anderson, 2001).

The presence of skilled workers is an important indicator of whether or not an industry experiences upgrading (Kailan and Dietzenbacher, 2016). Workers with higher skills are thought to have more opportunities than lower-skilled workers because they specialize in activities that create better and higher-value-added products more efficiently. Thus, an increase in the share of high-skilled workers also indicates whether an industry experiences upgrading or not. Educational attainment is used as a proxy for the skill intensity of employment, where an educated worker is a worker who has completed high school or higher education (Wicaksono and Priyadi, 2016). Education should be preferred instead of simple production and non-production worker experience because some industries, especially medium- and high-technology industries, employ more educated production workers than other industries (Anderson, 2001). Table 2 summarizes the economic upgrading variables that were used.

Table 2: Variables of Economic and Social Upgrading

Economic Upgrading Variables	Data Sources
Export	UN Comtrade
Productivity	IBS, BPS
Value Added	IBS, BPS
Export Market Share	Calculated from UN Comtrade
Skill Intensity of Employment	Calculated from Sakernas (National Survey of Labor Force)
Social Upgrading Variables	Data Sources
Real Wage	IBS, BPS
Employment	IBS and Sakernas, BPS
Allowances	IBS, BPS
Improvement in Work Hours	Calculated from Sakernas, BPS
Share of Female in Formal Employment	Calculated from Sakernas, BPS
Share of Formal Workers	Calculated from Sakernas, BPS

According to Milberg and Winkler (2011), social upgrading may occur when there is an increase in real wages, employment, and improved labor standards. In this study, allowances, improvement in work hours (decent work hours), and the share of female and formal workers are taken into account as proxies for improved labor standards. “Real wage” is inflation-adjusted wages, “employment” is the total employment in the industry, and “allowances” are inflation-adjusted where

the allowance is total allowances divided by the number of workers in the industry. “Total allowances” consist of pension contributions, social and accident allowances, insurance, and so forth. Total allowances are taken into account due to their function as security, which enhances social well-being.

The definition of “formal worker” is based on BPS, which describes a formal worker as an employee/laborer and a self-employed worker as one who is assisted by permanent paid workers, or self-employed workers who work at their own risk and employ at least one laborer/permanent paid worker. “Share of formal worker” is calculated by dividing “total formal workers” by “total employment in industry” while “share of females in formal employment” worker is the ratio of “total females in formal employment” to “total formal employment in industry.” Formal workers are said to have more opportunities to enhance their social well-being because they have a permanent income; thus, they are less vulnerable to economic shocks (Barrientos, 2008). “Share of females in formal employment” is important in order to understand the gender dimension in social upgrading, as women’s participation in formal employment changes the gender balance (Corner, 2011). “Improvement in work hours” is calculated by dividing the “number of workers who have decent work hours” by “total workers in industry.” The definition of “decent work hours” follows the International Labor Organization (ILO), which describes decent work hours as a maximum of 48 hours/week.

The data are taken from UN Comtrade and BPS on the Survey of Large and Medium Manufacturing Industry (IBS) and the National Survey of Labor Force (SAKERNAS) for 2000–2014. 2000 is the base year for calculating the index. The year 2000 is taken as starting point because the year 1999 marked the enactment of the “Automotive Policy Package,” which was assumed to take effect in 2000. The year 2014 is taken as an end point because of limitations in data availability. This study uses two digits of the international standard of industrial classification (ISIC); the updated Indonesian industrial classification of 2015 (KBLI 2015) is used, where the automotive industry is classified as code 29.

This study applies a parsimonious measurement approach to define and measure economic and social upgrading or downgrading within the Indonesian automotive sector. This method is chosen given its ability to extract information while using a simple model. Using a parsimonious approach, this study applied a simple linear regression trend line to depict economic and social upgrading/downgrading. Linear trend line analysis is used because it is simple, efficient, and is adequate in answering the main problems in this study. The linear trend line also gives the best results when using small data sets. The linear trend line equation used in this method is:

$$Y = aX + b \tag{1}$$

Where Y is the variable whose trend is sought and X is the time variable (year). The average index of economic and social realms is composed in each aspect, and then the average index is used to show the trends in each realm. The slope of each trend line (a) will be used to identify whether the economic or social aspects experience upgrading or downgrading, where a positive slope represents upgrading and vice versa.

This method is considered new compared with previous studies that used a parsimonious measurement approach. In his studies, Bernhardt (2013) applies a parsimonious measurement approach by

constructing composite indices using four variables: the growth of export value and export market share to describe economic upgrading, and employment and real wage growth to depict social upgrading. Composite indices are used to show the sign of economic and social realms, where positive is considered upgrading and vice versa. However, his study only uses two points in time and due to limited variables, his result might not give the best precision to the measurement of economic and social upgrading. In this study, a wider range of indicators/variables and points in time are expected to give a more detailed explanation. Besides trend line analysis, this study will analyze the possible reasons for the particular position of the Indonesian automotive industry in the four combinations of economic and social development that can occur within GPNs. We use descriptive and qualitative analysis through various reliable articles, journals, and books. Descriptive and qualitative analysis is conducted to derive more understanding and a better picture of the economic and social upgrading or downgrading phenomena in that sector.

4. RESULTS AND DISCUSSION

Using trend line analysis, the results show that the Indonesian auto industry underwent economic and social upgrading from 2000 to 2014. This is demonstrated by the positive slopes of the trend lines in Figures 4 and 5. The results indicate “high-road” growth (upgrading) for both the economic and social realms (see Figure 6). Looking at both trend lines, the economic and social aspects appear to move in the same direction. This result is supported by Bernhardt and Pollak (2016), who finds that economic upgrading is more likely to occur simultaneously with social upgrading.

Within the global value chain, the automotive industry is categorized as producer-driven. This category with the value chain tends to be more favored compared with buyer-driven industries because producer-driven industries require medium- to high-technology, thus allowing more opportunities to leverage new knowledge and capabilities. In his study, Bernhardt and Pollak (2016) addresses economic and social upgrading in four industries—apparel, wood furniture, automotive, and mobile phones—across developed and developing countries and finds that economic upgrading is more common in complex industries with a higher degree of technological sophistication (i.e., producer-driven), than in industries with a lower degree of technological sophistication (i.e., buyer-driven).

In a producer-driven value chain, the market structure is typically an oligopoly, with only a few lead firms having control over the market. This describes the conditions in the Indonesian automotive industry, where the automotive market is dominated by Japanese firms with a high share (up to 90%) of automotive production. The Indonesian automotive industry has a hierarchical type of governance structure as described by Evers and Purwaningrum (2013); in particular, the linkages between automakers and their suppliers is an asymmetrical hierarchy, where Japanese lead firms have strong ties with their suppliers. This kind of network, called *keiretsu* in Japanese, explains the existence of strong ties between automakers and suppliers (Karan, 2005) as a vertical asymmetrical relation between the automaker/assembler and the supplier (Scher, 1999). This vertical hierarchical *keiretsu* network fosters learning and knowledge flow from lead firms to their suppliers (Irawati, 2012).

Figure 4: Economic Upgrading in Indonesian Automotive Industry, 2000–2014

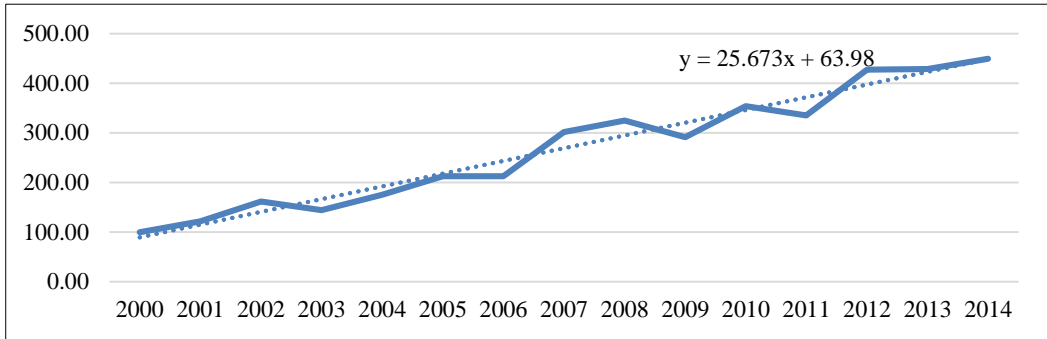


Figure 5: Social Upgrading in the Indonesian Automotive Industry, 2000–2014

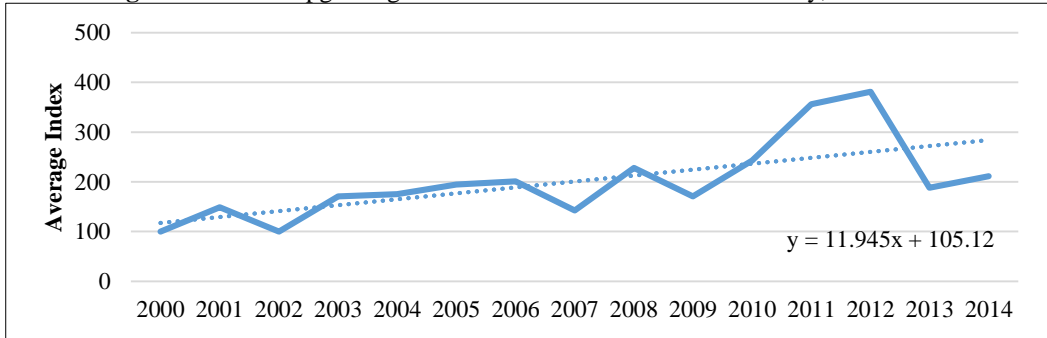
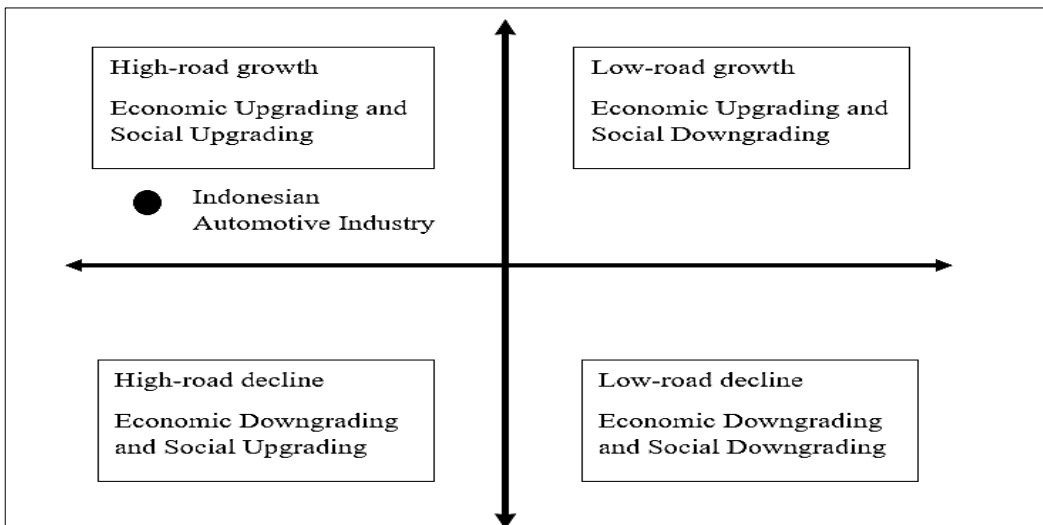


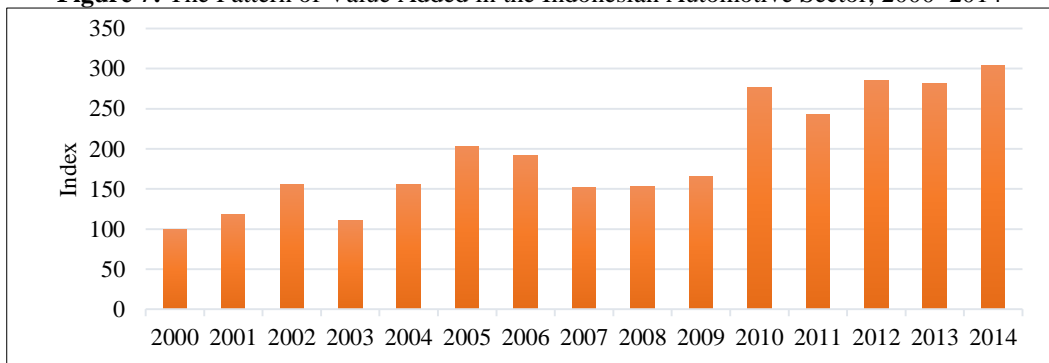
Figure 6: The Position of the Indonesian Automotive Industry in the Four Combinations of Economic and Social Realms



The Indonesian auto industry has a lower position on the global value chain; assembly is still the main activity of Indonesian companies (Ridhwan et al., 2015). According to Irawati (2012), the technology for assembly is obtained mostly from Japan. Local companies use shared ownership with technologically advanced Japanese companies, engaging as suppliers of large and technology-intensive firms and purchasing licenses and machinery from foreign companies. The major inputs of the Indonesian firms are CKD² parts. In short, those operations merely assemble CKD parts into final goods using technology purchased and provided by customers (lead firms) for the products that will be supplied to those customers.

Other advanced activities, such as innovation, R&D, design, global strategic marketing, and logistics are done by parent companies as lead firms from Japan. The position of the Indonesian auto industry in the value chain reflects low-value-added activities, which indicates difficulty in achieving functional upgrading. However, on the whole, the value-added is increasing. Figure 7 shows that in 2003, the value-added decreased as a result of the large decline in the value of raw materials. This decline was caused by a slowdown in the component industry's growth, which reached only 8–10% in 2002 and 2003. Indonesian economic growth, which totaled only 4% at that time, may have caused the fall in output value, as the economic growth rate was not able to boost the growth of the Indonesian automotive industry's output³. In 2007 and 2008, value-added also declined, which was caused by the global financial crisis. After that, the pattern of value-added has increased despite a few slowdowns.

Figure 7: The Pattern of Value Added in the Indonesian Automotive Sector, 2000–2014



In 1999, the Indonesian government enacted an automotive policy package to boost exports and enhance international competitiveness. It abolished the “incentive program,” which set a strict minimum on local content and reduced other trade barriers⁴. Since that time, exports have increased. Figure 8 shows that in 2009, there was a drop in export value due to the global financial crisis⁵;

² “CKD parts” refers to a fully disassembled item, such as a piece of furniture, bicycle, or an automobile that is required to be assembled by the reseller or the end user. Goods are shipped in CKD form to reduce freight charged for the space occupied (volume) of the item.

³ www.bisnis.com. *Nasib Industri Komponen Tergantung Pasar Mobil 2003*. [Jun 16, 2017]

⁴ www.gaikindo.or.id. *Perkembangan Industri Otomotif*. [Jun 16, 2017]

⁵ Winkler, Deborah, and Thomas Farole. “Export Competitiveness in Indonesia’s Manufacturing Sector.” (2012) 28.

however, since then, Indonesian auto exports have increased. The improvement in exports may be caused by knowledge transfer from Japanese lead firms. This theory is supported by Irawati (2010), who believes that the capital, technological, managerial, and organizational knowledge of Japanese MNEs helped to upgrade their Indonesian subsidiaries' and suppliers' capabilities. They became exporters to other countries as opposed to the status quo of so-called work-bench companies.

However, even though export market share has increased along with exports, during 2013 and 2014, as shown in Figure 8, export market share gradually declined. Export values and export market shares are the most important aspects in evaluating a country's export performance (Bakken, 2014). This is true when export market shares reflect the international competitiveness of its exports (Amighini, 2006). On the other hand, as seen in Figure 10, real wages have increased, most dramatically in 2014. Despite the sharp increase in real wages, employment also grew. The fall in export market share, when it is not followed by the reduction in employment, might indicate that there is a loss in cost competitiveness (Bernhardt, 2016).

Figure 8: Export Performance of the Indonesian Automotive Sector, 2000–2014

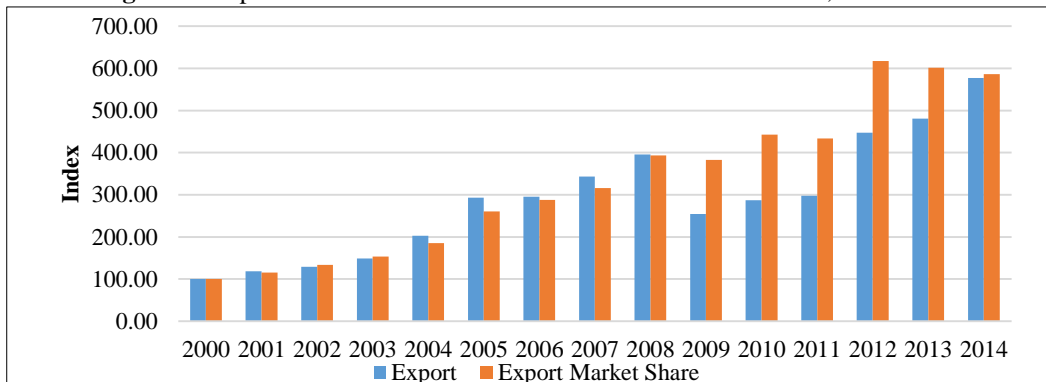


Figure 9 shows that labor productivity trends have large fluctuations. However, compared with that in 2000, labor productivity has been on an upward trend; in 2014, productivity was around 30% higher. This increase in labor productivity indicates that the industry underwent process upgrading. Gereffi (2014) found that productivity is an empirical indicator for process upgrading. This research is supported by Aswicahyono and Kartika (2010), who note that knowledge transfers and innovation in Indonesia caused by the global linkage of the country's automotive industry is mostly related and carried out in the production process for the purposes of cost efficiency.

The proportion of skilled workers also indicates whether or not an industry experiences upgrades (Kailan, 2016). By specializing in activities that create better and more value-added products in more efficient ways, workers with higher skills are thought to have more possibilities than lower-skilled workers. Thus, an increase in the share of highly skilled workers indicates that an industry has experienced upgrading. In the Indonesian automotive industry, the trend of skilled labor is generally increasing; however, this increase in skilled labor has not been followed by an increase in productivity as shown by Figure 10. This indicates a lack of education quality in supporting the industry. In Indonesia, there is a mismatch between the skills learned in educational institutions

and the skills needed by industry, especially the automotive industry which has high growth⁶. According to the Ministry of Industry, the automotive sector lacks skilled labor due to the quality of education in vocational training, which does not match the needs of industry⁷.

Figure 9: Productivity and the Pattern of Labor Productivity in the Indonesian Automotive Sector, 2000–2014

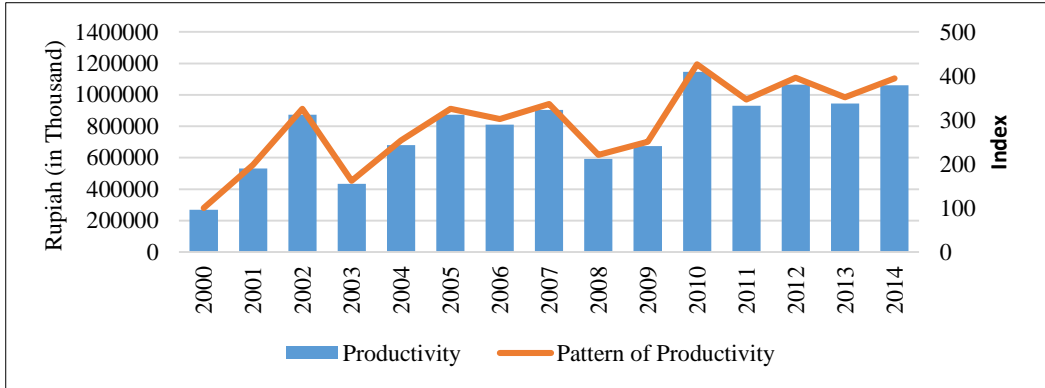
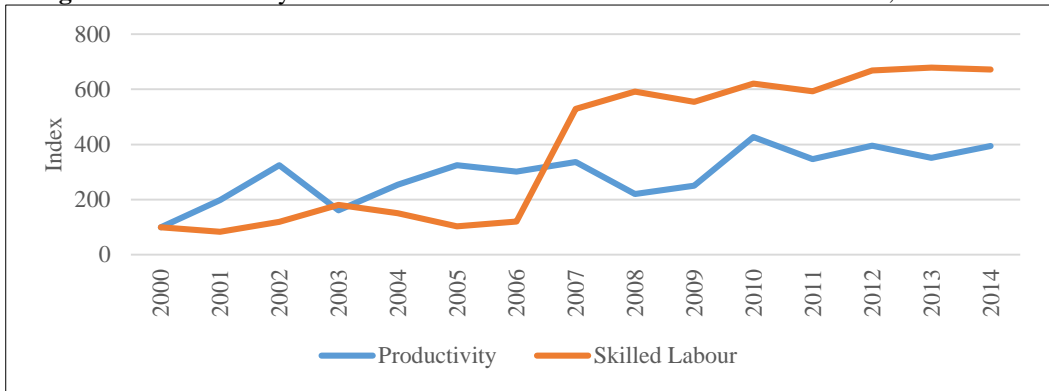


Figure 10: Productivity and Skilled Labor in the Indonesian Automotive Sector, 2000–2014



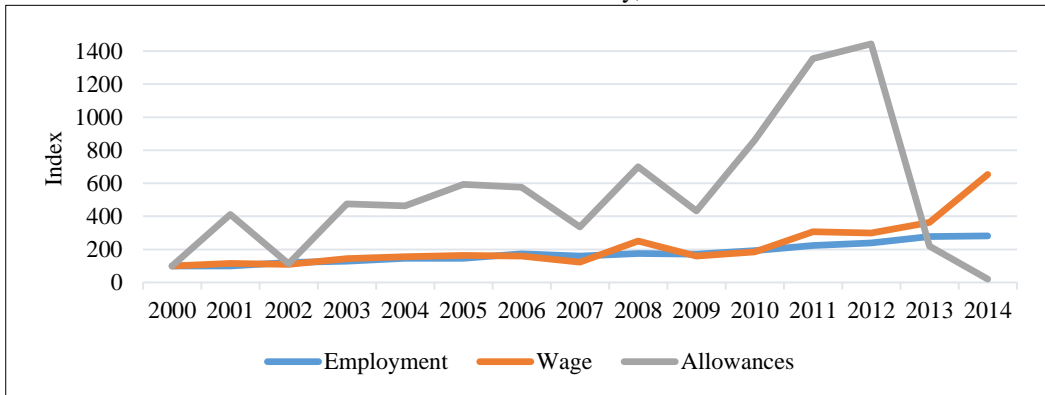
Employment and real wages are used because job creation helps to elevate worker living standards in a country or sector, thereby contributing to social well-being. On the other hand, real wages are an indicator of how much workers benefit from the value created in their sector, and it shows labor’s bargaining power (Berndhardt, 2013). Employment, allowances, and real wages all increase in the same direction even though the fluctuations in allowances are higher than the other two indicators. However, in 2013 and 2014, real wages increased dramatically, which was followed by a fall in allowances as shown in Figure 11. The sharp increase in real wages in 2014 might be the result of the new minimum wage policy in Jakarta and West Java, especially Karawang and

⁶ www.beritasatu.com. *Kurikulum Pendidikan Dinilai Belum Sejalan Kebutuhan Industri*. [Jun 15, 2017]

⁷ www.redaksi.co.id. *Industri Otomotif Kekurangan Tenaga Kerja Ahli*. [Jun 15, 2017]

Bekasi, which are the main areas for the auto industry in Indonesia. This view is supported by the Economic Research Institute for ASEAN and East Asia (ERIA) in its research project report concerning the current state and issues of the auto industries in ASEAN. In that report, after 2014 there was a dramatic increase in real wages in Jakarta and West Java. Even though this may increase the potential number of people who can purchase a car, that sudden increase created huge problems for auto companies. The increase in real wages means higher costs. The reduction in allowances paid might be done to keep the firms' costs at the same level and, therefore, keep total employment at a steady rate.

Figure 11: The Pattern of Employment, Real Wage, and Allowances in the Indonesian Automotive Industry, 2000–2014



The share of females in formal employment has stagnated over time. Figure 12 shows that even when compared with 2000, the share of females in formal employment in 2014 increased only around 1%. This indicates that in gender terms, there has been almost no significant improvement in full-time employment of female workers in the auto industry. In addition, when compared with total workers, the share of females in formal employment per year is small (9–19%). This small number might be due to the automotive industry's status as a male-dominated industry⁸. However, this cannot explain fully gender inequality in the industry; the small share of female employment might be caused by women's stereotypical perception of the automotive industry as a man's world. Therefore, this element needs to be investigated further.

⁸ www.catalyst.org . *Women in Automotive Industry*. [June 14, 2017]

Figure 12: The Share of Female Formal Employment in the Indonesian Automotive Industry, 2000–2014

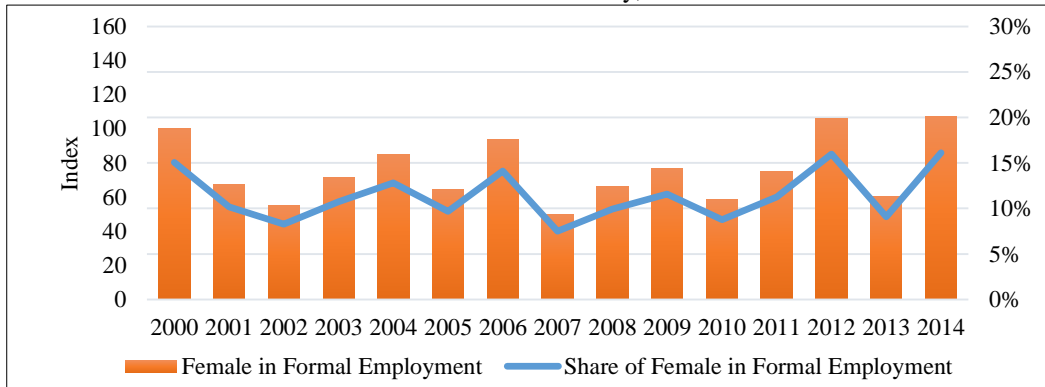


Figure 13: The Improvement in Work Hours in the Indonesian Automotive Industry, 2000–2014

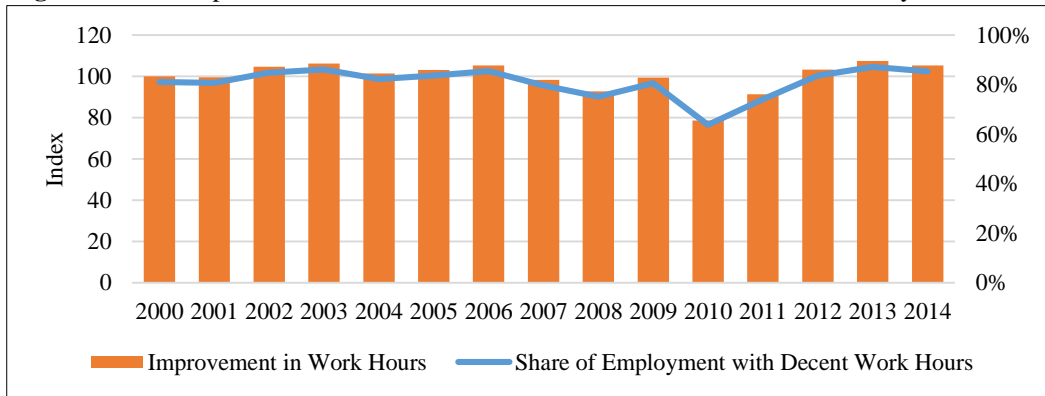


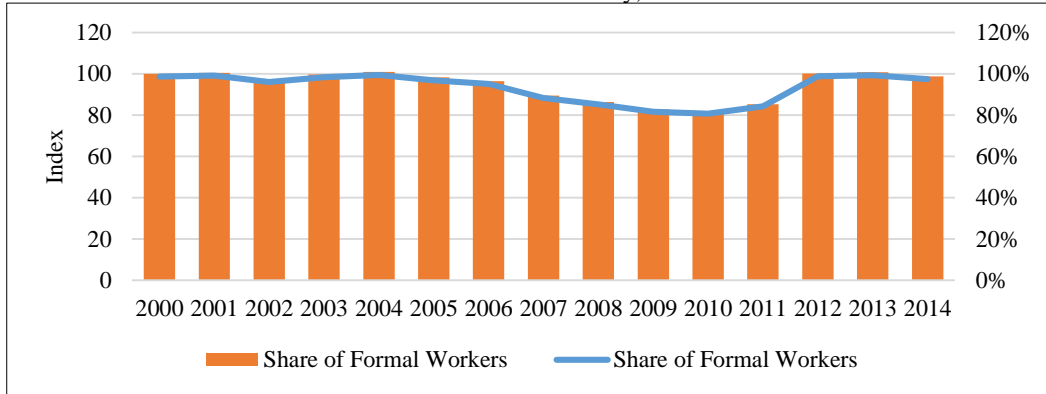
Figure 13 shows that work hours are slightly improved over time but decreased dramatically during the global financial crisis. Compared with 2000, the share of workers with decent work hours increased around 4%, with its share reaching 85% in 2014. This improvement in work hours might be due to process upgrading in the auto industry. According to Rossi (2013), process upgrading improves certain aspects of labor’s working conditions, particularly in working hours.

In general, Figure 14 shows the share of formal workers as stagnant, with the decrease occurring during the global financial crisis. However, in the last two years, the share of formal workers has slightly declined. This might indicate that there is a rise in informal workers⁹. The rise in informal workers can pose a challenge to social upgrading because informal workers have weak employer attachment, are less secure, and are less able to derive benefits from measurable labor standards.

⁹ Using BPS’s definition of “informal worker” that includes sales workers, service workers, agriculture and related workers, production and related workers, and others who are either self-employed or casual employees in the agriculture or non-agriculture sector. Those who are self-employed in the agriculture sector are accounted for in informal employment as well. All unpaid/family workers are considered informal workers.

Also, informal workers often work using excessive overtime and experience discrimination by wages and treatment.

Figure 14: The Pattern of Formal Workers' Share in Indonesian Automotive Industry, 2000–2014



5. CONCLUSIONS

This paper analyzes the economic and social progress in the Indonesian automotive industry using an economic-social upgrading framework. Our results show that this industry is in a high-road growth trajectory, in which rapid improvement in the industry's GPN position occurs simultaneously with improvement in workers' social well-being. Nevertheless, improvement in the GPN position does not necessarily mean improvement in GVC aspects. The GPN element requires only improvement in production efficiency (process upgrading), while GVC progress requires the industry to move up the value chain (functional upgrading). This could occur by acquiring a capability in parts and components design.

At an aggregate level, the Indonesian automotive industry has made progress in workers' social well-being. This progress occurs in the categories of employment opportunities for skilled workers, improvement in real wages, and decent working hours, which suggest a movement toward higher value-added tasks and activities. Nevertheless, questions arise from our findings regarding the sustainability of the current social progress. As indicated by large swings in the social upgrading index, the momentum gained recently by Indonesian auto workers seems fragile and vulnerable to unspecified external influence.

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