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Viet Nam's Automotive Supplier Industry: Development Prospects under Conditions of Free Trade and Global Production Networks

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Abstract: *Despite foreign direct investment occurring in the 1990s, automobile production in Viet Nam has not progressed beyond assembly. Due to forthcoming trade liberalisation in ASEAN, these assembly operations are endangered from closure as car-makers consider shifting to imports from more developed automobile manufacturing countries in the region. This paper analyses the current state of the automotive industry in Viet Nam and seeks to formulate policy recommendations based on the findings.*

Keywords: automotive industry, industrial development, Vietnamese industry
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The views expressed in this paper are those of the author and do not necessarily represent those of ERIA, IPSI, or JICA.

1. Introduction

This paper will investigate the present condition of the automotive supplier industry in Viet Nam. Under the framework conditions of the forthcoming ASEAN Economic Community (AEC), Viet Nam as well Cambodia, the Lao People's Democratic Republic (Lao PDR), and Myanmar will be required to eliminate tariffs on most products made in the Association of Southeast Asian Nations (ASEAN), including automobiles. Moreover, the country has negotiated various other bi- or multilateral trade agreements that lower tariff barriers. Thus, the currently protected Vietnamese automotive industry will face heightened competition from other vehicle manufacturing countries. As the AEC allows the export of ASEAN-made vehicles duty-free within the region, currently protected markets with automobile production may face plant closures.

Aside from the trade policy impact, automobile producers require suppliers to produce at high technical standards and under conditions of just-in-time production. Viet Nam must have a sufficiently developed supplier industry to compete successfully. For this reason, it is necessary to gain a better understanding of this industrial subsector.

This paper is structured as follows: First, it briefly discusses the AEC against the background of the automotive industry. Second, a theoretical review of industrial development under conditions of liberalised trade and fragmented, cross-border production networks is conducted. Third, it reviews Vietnamese trade policy with special attention to possible impacts on the country's automotive industry. To this end, it briefly reviews four free trade agreements (FTAs) and analyses possible impacts. Fourth, Viet Nam's recent automotive trade is reviewed. This will further illustrate the positioning of the country's automotive industry within the global market. Fifth, the paper explores Viet Nam's automotive supplier industry based on a data set constructed for this study. Findings suggest that the industry is dominated by foreign, mostly Japanese, enterprises and mostly focussed on motorcycle production. Local companies mainly suffer from comparatively limited technological capability and low capital. As a whole, the industry suffers from a limited number of enterprises, especially in the lower, but nevertheless important, tiers of the supplier hierarchy. The paper investigates how many companies constitute the automotive industry of Viet

Nam, what kind of technological know-how firms possess, and what kind of issues they are facing. Finally, based on findings, recommendations for formulating policy measures are presented.

2. Background: ASEAN Economic Community and Its Impact on the Automotive Industry of Viet Nam

Presently, the Vietnamese automotive industry is protected by import tariffs (5–40% from ASEAN, 15–70% from World Trade Organization (WTO) members) on completely built-up units (CBUs). To mitigate such tariff barriers, many original equipment manufacturers (OEMs) set up production sites in Viet Nam during the 1990s. While the country had only started in 1986 to liberalise its planned economy under the so-called *Doi Moi* (meaning renovation) policy, the market was – and still is – regarded as having significant growth potential due to Viet Nam's large population yet low vehicle stock. Thus, today there are 14 OEM brands with local passenger car production in Viet Nam, despite the fact that only 244,914 units were sold in 2015.[1] It must therefore be concluded that until now, the market has not fulfilled carmakers' expectations and that the sales volume of individual brands is fairly limited by international comparison.

Against this background, it is not surprising that OEMs such as Ford and Mitsubishi have considered closing down their Vietnamese plants and shifting to imports from regional production hubs, especially Thailand. Without tariff protection, production in Viet Nam is more expensive than imports of finished vehicles so that manufacturers with multiple production sites in ASEAN have strong financial incentives to restructure production capacities within the region. Besides import tariffs on parts and components, one reason for the high production cost is that the scale of

[1] According to data of the Vietnam Automobile Manufacturers' Association (VAMA). From this total, VAMA classifies 173,040 units as completely knocked-down (CKD) and 71,874 as CBU imports. Sales of locally assembled vehicles by VAMA members were 208,624 units. The gap between the figure for CKD sales and locally assembled vehicles suggests that around 35,000 models are produced based on semi-knock down (SKD) kits and classified as local assembly. This in turn indicates that only a few local production operations are conducted on these vehicles.

Vietnamese plants is limited in comparison to those in other ASEAN Member States (Table 1).

Table 1. OEMs' ASEAN Automobile Production Capacity

	Production capacity					
	Indonesia	Malaysia	Myanmar	Philippines	Thailand	Viet Nam
Daihatsu	530,000	330,000	–	–	–	–
Ford	–	n.a.	–	–	*325,000	14,000
General Motors	†40,000	–	–	–	180,000	30,000
Honda	200,000	100,000	–	15,000	300,000	10,000
Isuzu	52,000	12,000	–	15,000	346,000	5,000
Mazda	–	**30,000	–	–	*120,000	10,000
Mitsubishi	140,000	***5,000	–	50,000	460,000	5,000
Nissan	250,000	54,400	–	50,000	370,000	12,500
Suzuki	200,000	30,000	1,200	–	100,000	5,000
Toyota	256,000	80,000	–	40,000	770,000	35,000

n.a. = not available, ASEAN = Association of Southeast Asian Nations, OEM = original equipment manufacturer.

* Ford and Mazda share a production plant known as Auto Alliance, which has an annual production capacity of 295,000 units. Regarding shared capacity, Ford's share is 175,000 units, leaving 120,000 units for Mazda. Concerning Ford's production capacity in Thailand, it operates another plant (Ford Thailand Manufacturing) with an annual production capacity of 150,000 units. The plant's current capacity has been expanded to 180,000 per year.

** This figure must be regarded as inflated. According to information from the assembler Inokom, its annual production in financial year 2014 was 28,000 units and it is currently expanding capacity to 34,000 units per year (The Star, 2014). As Inokom assembles vehicles for various OEMs (BMW and Mini, Ford, Foton, Hyundai, Jinbei, Land Rover, and Mazda) it appears highly unlikely that Mazda's share is 30,000 units.

*** Based on an interview with Tan Chong, a Malaysian assembler. The official figure of the JAMA publication is 65,000 units. However, this equals the total maximum production capacity of Tan Chong, which besides Mitsubishi manufactures vehicles for a number of OEM customers such as Nissan, Renault, and Subaru. Total production capacity is divided between two plants, of which one solely produces Nissan models. Hence, the actual production capacity for Mitsubishi vehicles is significantly lower than the Japan Automobile Manufacturers Association (JAMA) data.

† General Motors (GM) has recently suspended production at this plant. However, it will construct a new plant in Indonesia in a joint venture with the Shanghai Automotive Industry Corporation (SAIC).

Source: JAMA (2015) and author's investigation.

The above table clearly illustrates that production capacities of almost every carmaker in the region are concentrated in Indonesia and Thailand.[2] While Malaysia occupies a mid-level position, the Philippines and Viet Nam have low capacities and generally only conduct completely knocked-down (CKD) assembly. Remaining ASEAN members have either none or insignificant production capacities that can only be explained as part of market-searching activities of certain OEMs.

It follows that Philippine and Vietnamese operations are in a comparably weak position in an industry where economies of scale are an important factor. While both markets have rather large sales potential, it is questionable if carmakers will maintain uncompetitive production sites and thereby accept lower profitability. Interviews conducted and media reports have found that the production cost per unit is significantly higher in Viet Nam than in other ASEAN Member States: In case of an interviewed company which assembles CKD kits of one B segment[3] passenger car model in both Malaysia and Viet Nam, the cost per unit was US$5,000–6,000 higher in Viet Nam.[4] Ford has publicly stated that the cost of local production was 20% higher than CBU imports (Nikkei Asian Review, 2014).

Despite this rather problematic position vis-à-vis competing manufacturing countries in the region, plant closure is not the only option. During field research, one OEM stated that it was considering to expand its Vietnamese production capacity to 100,000 units per year. While the carmaker pointed out that it was currently unclear if this plan could be implemented, this case illustrates that there is another option to deal with low production capacities. This case is closely related to the main topic of this paper: Interviewees stressed that implementation was dependent on local sourcing, because this is the main way to become cost-competitive vis-à-vis other ASEAN

[2] Daihatsu's deviation from this pattern is due to the fact that Malaysia's second national carmaker Perodua is using Daihatsu technology for its products. While the above Malaysian production capacity is strictly speaking that of Perodua, the author has nevertheless attributed it to Daihatsu for the following reasons: First, without Daihatsu technology, Perodua would have no product to sell. Second, while Perodua is controlling brand and distribution, actual manufacturing operations are controlled by Daihatsu.

[3] Definition taken from the assembler. The model in question would be classified as a C segment model in Europe and as a subcompact in the United States.

[4] Production cost variation is due to differing vehicle configurations. In particular, the question of the kind of transmission used is causing variation. While the production cost in Viet Nam is US$5,000 higher than in Malaysia for a manual transmission model, the gap is US$6,000 for a model with automatic transmission.

manufacturing sites operated by the carmaker. Regarding its plans to increase production capacity, the company currently monitors 100 firms as possible future suppliers. Among these, around 20% are Vietnamese enterprises. However, interviewees pointed out that there were several conditions that have to be met to enable localised production: First, the OEM needs to identify parts suppliers which can locally produce components at a price that is globally competitive. Second, the carmaker pointed out that it further considers which technological level it should require from suppliers. This mainly revolves around the question whether the OEM wants suppliers that can produce components without detailed drawings, i.e. have design-in capability, or if suppliers capable of producing parts according to drawings supplied by the carmaker are sufficient.[5] Interviewees made clear that they strongly prefer the former and would only consider the latter due the relatively undeveloped nature of the Vietnamese automotive supplier industry. Last but not least, increasing the production capacity would have to be achieved by 2018 in order to be competitive against imports from ASEAN, including those from the OEM's other plants in the region. Thus, while the carmaker is interested in developing and using local suppliers, suppliers' technical and process management development would have to reach sufficient levels in a limited time frame.

Issues identified by this particular carmaker can be generalised for the whole Vietnamese automotive supplier industry. It appears necessary especially for local enterprises to improve their technological and managerial capabilities in order to join supply chains of global OEMs. If these conditions cannot be met by the time the AEC becomes fully implemented in 2018, carmakers may close down their Vietnamese plants and concentrate production in existing manufacturing hubs in the ASEAN region.

[5] Design-in should be understood as suppliers' involvement in OEMs' new product development activities at an early stage. Originally modelled on Japanese practices (Womack, Jones, and Roos, 1990; Nishiguchi, 1994), most carmakers have adopted similar practices in relation to their Tier 1 suppliers. Note that Japanese-style practices were and, to a lesser extent, still are underpinned by *keiretsu* relationships between OEMs and their suppliers (Dyer and Ouchi, 1993).

3. Theoretical Background: Industrial Development in the Age of Global Value Chains

In essence, the AEC promotes economic integration of the ASEAN region by eliminating tariff barriers between Member States. As most Member States are relatively small economies by global standards, the region is already characterised by cross-border production networks. It has been observed that ASEAN's economic integration is mainly occurring through such highly fragmented commodity chains (Kimura and Ando, 2005).

From a theoretical perspective, the relationship between production networks and development, especially of the industrial sector, is debated controversially. One group, mainly consisting of economists, argues that joining production networks or global value chains (GVCs) is an important mechanism to promote industrial development. Especially international economic institutions tend to identify joining GVCs as the high road to industrial development. This enthusiasm is, however, all too often accompanied by policy recommendations that focus on the classic Washington Consensus prescription: liberalisation of trade and investment regimes, guaranteed intellectual property rights, and little to none industrial policy. Thus, it may be criticised that despite changed emphasis, advocated policies have remained essentially unchanged.

Some proponents of this view occasionally take a more nuanced view. According to Baldwin (2011: 9f.), GVCs make it easier for developing countries to industrialise, but at the same time less meaningful. He argues that GVCs allow industrialisation by attracting investment from transnational enterprises (TNEs). In this way, developing countries become parts of TNE production networks. Simultaneously, TNE control over technology and the fragmentation of production networks effectively prevent developing countries from creating integrated industries. Therefore, it can be concluded that TNE production networks are a double-edged sword for developing countries. On the one hand, becoming industrialised in a narrow sense is becoming easier as countries only need to attract industrial investors. On the other, this approach makes it more challenging for host countries to develop an integrated industrial base.

Due to this Janus-face nature of production networks for developing countries, Gereffi and Sturgeon (2013: 338) have argued that governments must strategically incorporate GVCs into their industrial policy. As production networks are highly fragmented across national borders, it is argued that, instead of aiming to create vertically integrated national industries, developing countries should seek to position themselves in higher value-added niches of GVCs. Against the background of fragmentation theory, Kimura (2008: 48–50) argues that developing countries should reduce service link cost and enhance specific, rather than general, location advantages to attract specific production blocks. Despite rather traditional policy recommendations, his point is that policy should be strategically employed to attract desired investment and production to develop the economy. In a nutshell, these authors argue that developing countries should embrace production networks as an opportunity to accumulate technological know-how through GVC participation and to gradually develop industries. A reoccurring argument of these authors is that after attracting foreign direct investment, policies should be utilised to link local companies as suppliers to TNEs, so that the local economy becomes gradually integrated into GVCs. While it is acknowledged that developing countries thereby partially depend on TNEs, it is emphasised that there is no realistic alternative and therefore, it is better to strategically take advantage of TNEs' GVCs than trying to limit the influence of these corporations.

Conversely, political scientists, sociologists, and economic geographers tend to focus on the thorny issues concerning the relationship between GVCs and economic development. Ravenhill (2014) highlighted two aspects. The first issue is related to GVC control and power asymmetry. Lead firms' – in case of the automotive industry, carmakers – control over technology allows them to by and large dictate conditions of participation. This not only covers technological aspects, but also involves rent distribution. In short, lead firms conduct those operations which are most profitable and outsource less profitable ones to suppliers. Thus, OEM – and to a lesser extent Tier 1 supplier – price setting power leaves local firms in a precarious position. The second problematic issue is directly related to this point. Technological upgrading requires considerable investment, so controlled margins effectively limit local

companies' upgrading potential.[6] While this is certainly correct, this perspective somewhat understates development potential through learning by doing.

Despite this critique, Ravenhill nevertheless agrees that GVCs could be utilised for economic development. To this end, he argues that it is necessary to implement complementary policies that go beyond mere trade liberalisation. In particular, the fields of education, infrastructure, and industry-specific institutes are highlighted as requiring political action. It should be pointed out that at least the first two issues are also widely advocated by authors such as Gereffi, Kimura, and Sturgeon, and there is no significant disagreement. Regarding the development of the automotive industry in particular, it might be added that the acquisition and diffusion of technology, attaining economies of scale, and support for incremental innovation may also be questions government policy could address to support industrial development (Doner, Noble, and Ravenhill, 2006). This rather more interventionists approach may be attributed to the fact that it is directed at a particular industry, rather than being a generalised development model. Further, the integrated design approach of the automotive industry – as opposed to the modular design of the electronics industry – may be regarded as a reason that supporting this industry requires different policies. While it is acknowledged that firm strategy is the key factor for these issues, the authors maintain that firm strategy implementation (and the degree of success) can be greatly enhanced by public policies. In this regard, the aforementioned critique from this group of scholars is not so much directed at (or even against) GVC utilisation in general, but against international institutions' standard policy prescriptions in particular.

Overall, it may be stated that despite different opinions, the two groups have some common ground: Scholars belonging to the former group acknowledge that asking developing countries to entrust their fate – at least partially – to TNEs may cause resentment. Hence, linking local firms to TNEs through active state management is increasingly being advocated. Moreover, targeting certain industries – at least in the form of certain production stages – now is regarded as a legitimate policy stance, which a significant departure from orthodox neoliberal laissez-faire policy prescriptions. Simultaneously, the latter group acknowledges that developing

[6] Further, his point that developing countries are chasing a moving target is all too often overlooked. This means that even if local enterprises upgrade capabilities, the relative distance to customers' requirements and capabilities might even grow larger.

countries can benefit from liberalising their economies and joining GVCs. While the critique against these corporations remains characteristic, it is now increasingly used as an argument to support local SMEs through policies.

Thus, while GVCs should not be embraced without complementary policies that support technological development, there nevertheless appears to be the consensus that industrial and technological upgrading is possible via GVC participation. Due to the contested question if and how GVCs promote industrial development, this paper attempts to go beyond the prescription to join GVCs and liberalise the Vietnamese national economy. Instead, it appears necessary to first analyse the state and issues of the automotive supplier industry. Based on this analysis, recommendation for supporting comprehensive policies are formulated that address the specific issues identified by the preceding investigation.

4. Vietnamese Trade Policy: Challenge and Development Opportunity

Regarding the preceding theoretical discussion, it appears rather unnecessary to advocate trade liberalisation towards Viet Nam. Apart from the AEC, the Government of Viet Nam has completed several FTAs in recent years. In general, it can be stated that the country pursues an active trade policy to promote economic development. In total, Viet Nam has eight active FTAs, three which are signed, but not yet in effect, and four which are currently under negotiation or in the process of ratification at the time of writing (Table 2).

Table 2. Viet Nam's Free Trade Agreements

In effect	Signed, but not yet effective	Under negotiation
ASEAN FTA (AFTA)	EAEU–Viet Nam FTA (EAEU members: Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia)	ASEAN–Hong Kong FTA
ASEAN–Australia and New Zealand FTA		EFTA–Viet Nam FTA (EFTA members: Iceland, Lichtenstein, Norway, and Switzerland)
ASEAN–India CEP	EU–Viet Nam FTA	Regional Comprehensive Economic Partnership (RCEP) (ASEAN, Australia, China, India, Japan, New Zealand, and Republic of Korea)
ASEAN–China CECA		Trans-Pacific Partnership (TPP) (Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, USA, and Viet Nam)
ASEAN–Republic of Korea CECA		
ASEAN–Japan CEP		
Viet Nam–Japan EPA		
Chile–Viet Nam FTA		
Republic of Korea–Viet Nam FTA		

ASEAN = Association of Southeast Asian Nations, CECA = Comprehensive Economic Cooperation Agreement, CEP = closer economic partnership, EAEU = Eurasian Economic Union, EFTA = European Free Trade Association, EPA = economic partnership agreement, EU = European Union, FTA = free trade agreement.
Source: Adapted from ADB, https://aric.adb.org/fta-country

While most of Viet Nam's FTAs are under the umbrella of ASEAN, the government has started to pursue its national trade strategy in parallel to existing ASEAN-based formats. The country has also gone beyond the ASEAN framework by negotiating separate FTAs with Japan and the Republic of Korea (henceforth, Korea) that are more comprehensive than those existing between ASEAN and these two Northeast Asian economies. Current agreements and negotiations indicate that the Vietnamese government seeks to strengthen trade links beyond Asia towards Europe and North America. As the European Union (EU) and the United States (USA) are already the most important export destinations for Vietnamese goods – mostly

garments and footwear, as well as agricultural and fishery products – pursuing trade liberalisation with these markets could further enhance Vietnamese competitiveness and promote economic growth.

Outside the already discussed AEC, which is basically a step to deepen ASEAN economic integration beyond the ASEAN Free Trade Agreement (AFTA), Viet Nam participated in the negotiations on the Trans-Pacific Partnership (TPP) between 12 Pacific Rim countries. Negotiations concluded in 2015, but the final agreement is currently undergoing ratification. It should be highlighted that ratification is uncertain as TPP has become a subject of political controversy in several would-be member states.[7] Thus, while TPP has the largest potential impact of all FTAs discussed in this paper, its realisation is uncertain.

Even more uncertain is the status of the Regional Comprehensive Economic Partnership (RCEP) between ASEAN, Australia, China, India, Japan, New Zealand, and Korea. As all these countries already have FTAs with ASEAN, the goal is to replace the multitude of agreements and their differing regulations through a more streamlined, simplified agreement. The main issue for the realisation of RCEP is the tension between various parties, notably China and India. This is embodied by an Indian proposal to reduce tariff barriers on 80% of tariff lines for ASEAN and 65% of tariff lines towards Japan and Korea as well as to only grant improved access to 42.5% of tariff lines for Australia, China, and New Zealand. Thus, it appears entirely possible that RCEP will result either in a compromise on the lowest common denominator, or in negotiations continuing beyond the scheduled deadline, or even in failure. While it may be assumed that RCEP would allow Viet Nam to benefit from improved market access, especially to India, due to the uncertain nature of the agreement, it will not be discussed further.

Further, Viet Nam completed FTA negotiations with Korea, the EU, and the Eurasian Economic Union (EAEU).[8] Amongst these three FTAs, only the first is already effective, the latter two have not yet entered into force. Nevertheless, a closer

[7] Prominent examples are US Democrat Bernie Sanders and Republican Donald Trump, who in their respective campaigns to run for US President declared that they reject TPP, as well as protests by agricultural lobby groups in Japan.
[8] EAEU consists of Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia.

look at these FTAs helps to understand the possible impact in the automotive industry in Viet Nam.

4.1 Republic of Korea–Viet Nam FTA (KVFTA)

As for the agreement with Korea, tariffs on automobiles and auto parts were comparatively low. Korea had already applied no tariffs on automotive components from Viet Nam and thus no substantial improvement was achieved.[9] Viet Nam currently imposes tariffs between 5% and 10% on certain automotive components and 10–20% on commercial vehicles (5- and 20-tonne trucks). Regarding components that benefit from Vietnamese liberalisation are seats (currently 10% tariff), flywheels and pulleys, oil filters, several kinds of starter motors, speed meters, and wipers (all currently at 5%). These tariff lines will be eliminated by 2018. Also, Viet Nam will no longer apply tariffs on passenger cars with an engine capacity above 3.0 litres. Tariffs on other automotive components will be phased out over a 5–15-year time frame. Thus, the country has opened its market to a greater extent to Korean automobiles and automotive components.

As Korea is already open to Vietnamese automobile exports, Viet Nam has not taken significant steps towards liberalising this sector. Rather, Korea will open its market to certain Vietnamese agricultural products, with the notable exception of rice. It can be claimed that the Vietnamese side mainly sought to gain improved access for agricultural products and that the Korean side in exchange demanded tariff reductions for its manufactured goods. This suggests that the automotive sector had a relatively high priority for the Korean side but was rather unimportant to the Vietnamese side because they already enjoyed preferential access. While this agreement provides no improved conditions for automotive exports from Viet Nam, it is only due to the fact that exports are already free of duty.

[9] Note that exports to Korea are nevertheless not unrestricted. KVFTA contains a section on rules of origin which define under which conditions items are regarded as originating from either party: Passenger cars and commercial vehicles must have at least 45% local content (officially: regional value content or RVC). Regarding automotive parts, components must generally have 40–45% RVC or undergo a change in tariff heading (at the four-digit level) to be considered as originating from either party. As is discussed below, this may limit Vietnamese exports, e.g. not a single passenger car producer in Viet Nam currently reaches the 45% threshold. Hence, despite the official zero tariff stance, Korea's automotive market is effectively still inaccessible for many manufacturers in Viet Nam.

4.2 Eurasian Economic Union–Viet Nam FTA (EAEUVFTA)

Concerning the FTA with EAEU, this coalition of former Soviet states faces tariffs of 50–70% on passenger car exports to Viet Nam. The Vietnamese government has agreed to eliminate these tariffs by 2026. It is noteworthy that EAEU does not eliminate tariffs, but instead excludes passenger cars, trucks, and buses through a negative list. EAEU will only reduce tariff lines on scooters and motorcycle parts up to 2025.

Thus, while Viet Nam has fully opened its market to vehicles from EAEU countries, EAEU limits access to certain types of motorcycles and motorcycle parts and even maintains some tariff protection towards these products. Basically, the agreement on automotive products almost exclusively promotes Russia-led EAEU interests. It is unlikely that the Vietnamese automobile industry and the more competitive motorcycle industry are going to substantially benefit from the agreement.

Explaining why Viet Nam has accepted this one-sided deal in the automotive sector appears necessary. The country seemingly did so in order to gain preferential access for its garments, agricultural products, and seafood sectors that are highly protected by EAEU members against almost all nations (Vietnam Investment Review, 2015). Thus, Viet Nam is the first country to gain preferential access to these particular EAEU markets. As all the subsectors are fairly strongly developed fields of the Vietnamese economy, the agreement creates potential for export growth. Hence, the automotive industry had no priority for the Vietnamese side in the FTA negotiations with EAEU. Instead, Viet Nam accepted one-sided restrictions towards the automotive sector to achieve its goal to gain preferential access to certain heavily protected EAEU markets that correspond to strongly developed subsectors of its national economy.

4.3 European Union–Viet Nam FTA (EVFTA)

Regarding the EU–Viet Nam FTA, both sides agreed on eliminating tariffs on motor vehicles at varying speeds. The EU currently applies 10% tariff on passenger cars imported from Viet Nam and will eliminate these within 7 years after the FTA enters into force.[10] The same applies for buses. Regarding motorcycles, the duty

[10] Again however, rules of origin apply. According to the definitions in Chapter 4 of the EVFTA, final goods are only regarded as originating from either party if they contain a specified ratio of

exemption date depends on engine displacement: Motorcycles with engines less than 50 cubic centimetres (cc) can be imported duty-free after 7 years, those with engines between 50 and 250 cc will be exempted immediately after the agreement becomes effective, and those above 250 cc and most motorcycle parts will be exempted after 5 years. Latest available trade data from the UN Comtrade database indicate that Viet Nam's motorcycle exports overwhelmingly fall into the category that will be immediately be exempted. Exported motorcycles with 50–250 cc engines constituted 90.64% of total Vietnamese motorcycle exports in 2014. Tariffs will immediately be abolished on several items under the Harmonised System (HS) code heading 8708 (automobile parts) and on trucks when the trade agreement becomes effective.[11]

In response, Viet Nam pledged to eliminate tariffs on passenger car (with gasoline engines below 3.0 litres (L) and diesel engines below 2.5 L) imports from the EU, which are currently subject to tariffs between 70% and 78% within 10 years after EVFTA becomes effective. Cars with engines above these thresholds will no longer be subject to tariffs after 9 years. The country also maintains some protection on automobile and motorcycle parts for 9 years.

All in all, both parties will gradually reduce tariff barriers over a 10-year time frame. Regarding the items which the EU will immediately make duty-free, the EU appears to regard Vietnamese vehicle components as not as competitive as the country's motorcycle components and will therefore maintain tariffs on the latter for a longer period. However, while not all automotive components are subsumed under HS 8708, automobile parts-makers active in Viet Nam could possibly export duty-free to the EU immediately after the FTA becomes effective. Arguably more important is the immediate removal of tariffs on 50–250 cc motorcycles. As Viet Nam is already competitive in exporting this particular class of motorcycles, the opening of the EU market may enable further export growth. While Viet Nam's motorcycle industry will have to wait longer until free trade with the EU is realised for other motorcycle types,

local content. Regarding four-wheeled motor vehicles, the value of non-local materials must not exceed 45% of the ex-works price, i.e. factory price excluding additional cost such as shipping. The required local content for motorcycles and motorcycle parts, spark-ignition engines, and wire harnesses is 50%; components such as bearings must have 40%. As Vietnamese cars currently do not meet these criteria, utilising the trade agreement is not possible without increasing local content. However, as is discussed below, motorcycles and motorcycle parts already fulfil these criteria.

[11] This issue remains undecided at the time of writing. However, it is expected that EVFTA will become effective in 2018.

this is only a minor drawback, as OEMs seem to have only installed lower production capacities for these classes in Viet Nam.

4.4 Trans-Pacific Partnership (TPP)

In general, the automotive sector was subject to various side agreements that prolonged protection against certain imports from certain TPP parties, especially against Japan.[12] As the automotive industry is a key industry in many countries, it is hardly surprising that governments seek to maximise protection for a sector that generates much employment and is strongly connected to other industries.

Overall, Viet Nam pledged to gradually decrease the level of protection for newly manufactured vehicles. While the current tariff protection measures will be maintained for 3 years after TPP enters into force, tariffs will be completely eliminated after 12 years (Table 3).

Table 3. Viet Nam's Tariff Reduction Schedule for Vehicles

Year(s) after TPP becomes effective	Tariff rate (%)
1	70
2	70
3	70
4	63
5	56
6	49
7	42
8	35
9	28
10	21
11	14
12	7
13	0

TPP = Trans-Pacific Partnership.
Source: TPP.

It must be mentioned that the above schedule applies to most passenger car and commercial vehicle classes, but differing schedules exist for special purpose vehicles that are basically modifications of standard products. Examples for such vehicles are

[12] A characteristic example is the US elimination of tariffs on trucks. While Japan will get duty-free access after 30 years, Brunei Darussalam, Malaysia, New Zealand, and Viet Nam can export to the United States without tariffs after 11 years, and the remaining TPP members (Australia, Canada, Chile, Mexico, Peru, and Singapore) immediately after it enters into force.

ambulances, hearses, and prison vans. These products are already subject to less tariff protection and rates on these vehicles will be eliminated earlier in comparison to standard vehicle types.

Viet Nam negotiated to maintain protection towards used vehicle imports via the use of tariff rate quotas.[13] In essence, a tariff rate quota allows imports under preferential rates until a certain threshold – the quota – is reached. Imports that exceed the threshold are subject to a country's most favoured nation (MFN) tariff rates, which are generally higher than negotiated preferential rates under the quota.

A closer investigation of the particular tariff rate quotas for vehicle imports reveals that import liberalisation under TPP will remain limited for used vehicles. As specified by Annex 2-D, Appendix A, the quotas only allow a low number of used vehicles to utilise TPP tariff rates (Table 4).

Table 4. Viet Nam's tariff rate quota on vehicles

Year(s) after TPP becomes effective	Number of vehicles
1	30
2	33
3	36
4	39
5	42
6	45
7	48
8	51
9	54
10	57
11	60
12	63
13	66
14	69
15	72
16	75

TPP = Trans-Pacific Partnership.
Source: TPP.

[13] Note that Viet Nam is no exceptional case. While a half of TPP members will not use tariff rate quotas (Australia, Brunei Darussalam, Chile, New Zealand, Peru, and Singapore), the other half (Canada, Japan, Malaysia, Mexico, the USA, and Viet Nam) will use this policy tool to maintain protection for certain products and industries.

It may be stated that while Viet Nam has agreed to gradually open its market for new vehicles, the country seeks to limit imports of used vehicles. Given that TPP includes some major global vehicle markets such as Canada, Japan, and the USA, it is understandable that the Vietnamese government has no intention of becoming the export destination for second-hand vehicles.

Concerning exports from Viet Nam, it is difficult to provide a brief, precise answer. While there are countries that will immediately open their markets for new vehicles, e.g. Singapore, countries such as Malaysia will apply a tariff reduction schedule similar to that of Viet Nam. However, other TPP member states' MFN rates on passenger cars and commercial vehicles are lower than those of Viet Nam. With 30%, Malaysia has the highest tariff base rate towards passenger cars.[14] Hence, full tariff elimination between all TPP members – except the USA and Japan as aforementioned – generally would be achieved 12 years after TPP becomes effective. Before this point in time, exports will be subject to decreasing tariffs, but the level of tariff protection and speed of reduction depends on individual countries.

As for automotive components, it can be generalised that tariff elimination is scheduled to proceed at a faster pace and is less limited by tariff rate quotas or side agreements between TPP members. Thus, components trade between member states can be expected to increase faster than automobile trade. This trend may be reinforced by the rules of origin clauses that apply to the automotive sector (see below).

Regarding TPP, it should be pointed out that the agreement's impact could go beyond tariff elimination, in that it would create a free trade area that consists of members which belong to two existing trade blocs, i.e. ASEAN and the North American Free Trade Agreement (NAFTA). In this sense, TPP could have a more strategic impact than any other FTA, as it may enable companies to link and coordinate their activities in those currently separate trade blocks through TPP. Out of its total 12 members, 7 belong to one of these trade blocs, namely Brunei Darussalam, Malaysia, Singapore, and Viet Nam (ASEAN) as well as Canada, Mexico, and the USA

[14] However, as both Malaysia and Viet Nam are part of ASEAN, this rate will only be relevant for Vietnamese cars that cannot reach 40% ASEAN regional content under AEC 2015. This highlights that generalised statements about FTA impacts are difficult as different FTAs may overlap and could be utilised to export to a certain market (the so-called spaghetti or noodle bowl effect).

(NAFTA). Hence, these TPP members could become major manufacturing and trade hubs that link these two trade blocs more closely.

Narrowing the view to the automotive industry, the advanced nature of their national economies and comparatively high wage levels make it appear unlikely that Canada and the USA will play roles as major vehicle manufacturing and export hubs. While those factors also apply to Brunei and Singapore, these two countries are too small to play a crucial role in vehicle manufacturing. This leaves Malaysia, Mexico, and Viet Nam as potential candidates. Mexico is already attracting considerable investments from both OEMs and components suppliers. Due to its proximity to the USA, still the second-largest automobile market behind China, Mexico receives a lot of investment that mainly seeks to manufacture in the country for subsequent export to the US market. Differing from Mexico, Malaysia and Viet Nam cannot serve as preferential access points to a similarly large, attractive market in close proximity. However, there is potential that these two countries could become major supply bases for automotive parts that are exported to the overlapping ASEAN, NAFTA, and TPP markets. As described above, Viet Nam has concluded FTAs with the EU and Korea, which are also major automobile producers. Thus, the country could become more attractive for automotive companies that seek a production base that allows export at preferential rates to some of the major automobile producing countries, excluding Brazil, China, and India.

One important aspect that can change supply chains are so-called rules of origin (ROO) that specify under which conditions a product is regarded as being produced by a specific country. Regarding ROOs under TPP, applicable rules for the automotive industry have been stipulated in Annex 3-D of the TPP agreement.

Regarding CBUs, TPP requires 45% regional value content (RVC).[15] According to the rules formulated in the document, seven different components[16] will be regarded

[15] RVC may also be called local content, but the term RVC better reflects the fact that local products from all TPP member countries count towards the threshold. This value is to be calculated under the so-called net cost method. If RVC is calculated under the so-called build down method, RVC must be at least 55%.

[16] These components are toughened safety glass, laminated safety glass, passenger car bodies (including cabs), bodies (including cabs) for tractors, road tractors for semi-trailers, trucks and special purpose vehicles, bumpers (not including parts thereof), body stampings and door assemblies (not including parts thereof), and drive-axles with differential, whether or not provided with other transmission components, and non-driving axles.

as RVC under the condition that they either satisfy their own RVC requirements which are between 35% and 45%, or that they are subjected to at least one of 11 specific processes in at least one TPP member country.[17]

From a strategic perspective, automotive component producers from developing TPP member countries such as Viet Nam should therefore be – or become – able to perform one of these relevant production operations in order to be able to utilise TPP. Regarding the seven specified components, however, Viet Nam is currently running trade deficits in all these items (Table 5).[18]

Table 5. Viet Nam's Trade of Selected TPP Auto Parts, 2014 (US$)

HS code (HS 2012)	Description	Viet Nam's trade of selected auto parts (US$)		
		Import	Export	Balance
7007.11	Toughened safety glass	9,298,470	443,505	(8,854,965)
7007.21	Laminated safety glass	9,223,861	1,313,837	(7,910,024)
8707.10	Bodies (including cabs) for passenger cars*	96,852	2,000	(94,852)
8707.90	Bodies (including cabs) for tractors, buses, trucks, and special-purpose vehicles	1,122,299	692,210	(430,089)
8708.10	Bumpers	17,385,511	1,890,090	(15,495,421)
8708.29	Body stampings and door assemblies**	287,375,843	100,059,151	(187,316,692)
9808.50	Drive-axles with differential	123,428,250	1,202,517	(122,225,733)

HS = Harmonised System, TPP = Trans-Pacific Partnership.
* 2012 data
** Viet Nam does not use the above wording of HS 2012. Instead, Viet Nam reports HS 8708.29 as 'Parts and accessories of bodies, n.e.s. for motor vehicles'. However, it appears that the differing description does not signify different items.
Source: UN Comtrade.

[17] Relevant processes are complex assembly, complex welding, die or other casting, extrusion, forging, heat treating including glass or metal tempering, laminating, machining, metal forming, moulding, and stamping including pressing.
[18] The author reviewed data for the last 5 available years, which in case of Viet Nam covers 2010–2014. Due to limitation of space, these data are not reported here as there is not significant variance from the latest data reported above. However, bodies of commercial vehicles registered a single year with a positive trade balance. The trade balance in all other items was, however, negative in all reviewed years.

While the trade balance is negative for all items, differences between items are significant. Clearly, manufacturing related to vehicle bodies and toughened safety glass are weakly developed in comparison to the other items. Moreover, body stampings and door assemblies register the largest export value by a wide margin. Against the background of this paper, it therefore appears sensible to consider supporting companies that are active in or related to these particular components. As mentioned, especially companies that perform manufacturing operations relevant under TPP to qualify as RVC should be considered for support. However, the production of the described stamping parts is skill-, technology-, and capital-intensive, factors which may constrain local firm activity in this field. Stamping operations for these larger parts typically require rather large investments and tend to be conducted either via OEMs' in-house operations or by Tier 1 suppliers. Thus, linking this particular operation to local enterprises may be limited to the procurement of dies or outsourced treatment processes of stamped body parts.

Moreover, caution is due because of the nature of these components. As most are bulky and/or rather heavy, manufacturing is commonly conducted in the vicinity of carmakers' plants to decrease logistics costs. It has been shown that suppliers active in ASEAN commonly apply a strategic division between large, bulky, and heavy components on the one side and small, light components on the other (Agustin and Schroeder, 2014: 93–95). The former are produced in every country with final assembly, the latter are manufactured in a single country that serves as a manufacturing hub for subsequent export to all customer plants in the region. These factors should effectively limit export potential. It therefore appears necessary to keep expectations about export potential limited. While the current level of production could be increased to satisfy local demand and increase exports, there is doubt as to whether any one country will be utilised as a central manufacturing hub for all TPP markets for these specific components.

4.5 Viet Nam's FTA strategy and its impact on the automotive industry

All in all, the latest FTAs demonstrate that Viet Nam is increasingly opening its economy. Viet Nam has remarkably opened its market to major automobile-producing regions or countries including ASEAN, the EU, and Korea – plus the possible

extension to Japan and NAFTA under TPP – within a short period of time. These differing tariff elimination processes may impact the competitiveness of cars sold in the Vietnamese market. Earlier tariff elimination could be a competitive advantage for OEMs that utilise 'early eliminators' as production bases. One example is tariff elimination for passenger cars with large gasoline engines (> 3.0 L). Viet Nam will allow duty-free imports from both ASEAN and Korea by 2018, from EAEU by 2026, from the EU 9 years after EVFTA becomes effective[19], and from TPP 12 years after it enters into force. Thus, vehicles of this class imported from ASEAN or Korea will no longer face tariffs, which should make them more competitive vis-à-vis imports from the EU or non-ASEAN TPP members such as the USA.

While the speed of tariff elimination varies, the general trend towards less tariff protection is clear. Thus, while ASEAN exports will be more competitive due to earlier tariff elimination under AEC, European, Korean, and possibly Japanese and North American vehicles will also gain free access to the Vietnamese market. The country accepts that some trade partners will not open their markets for Vietnamese automotive products in a similar fashion. Therefore, the number of Vietnamese vehicle imports is expected to increase when some, if not all, of these FTAs enter to force. Given the already outlined limited scale of Vietnamese vehicle production and its limitation to CKD assembly, Viet Nam's trade strategy seems to endanger vehicle production as protective measures are phased out.

Regarding the impact of lowered Vietnamese tariffs, local enterprises engaged in production of components subject to tariff elimination are expected to be forced to either exit the market or dramatically improve their technological capabilities. During field work, a company engaged in production of filters (air, fuel, and oil) for commercial vehicles was interviewed. The company suffers from weak technology and apparently only survives due to tariff protection. Key technology, e.g. the filter paper in oil filters is imported from Korea and locally processed (cutting, pleating, and seaming) and integrated into finished filters. The company mainly produces filters for Korean models and imported the filter paper from an affiliated Tier 1 supplier of Hyundai. Unsurprisingly, company management opposed trade liberalisation and

[19] As the EVFTA is currently expected to enter into force by 2017, tariffs on this product would be eliminated by 2026.

lamented that it would endanger the company's survival. As its business mainly utilises foreign technology plus local labour inputs, its business model revolves around tariff jumping. While oil filters so far faced a 5% tariff, filter paper could be imported duty-free. Thus, the tariff structure provided incentives to import the core technology and process it with comparatively cheaper Vietnamese labour. It stands to reason that local enterprises with such a business model will be eliminated from competition as FTAs make their tariff jumping function superfluous. In other words, companies without sufficiently independent capabilities and technological know-how will most probably not survive trade liberalisation.

At the same time, all discussed agreements except EAEUVFTA will simultaneously lower or eliminate tariff barriers for Vietnamese vehicles and auto parts.[20] While a dramatic increase in vehicle production may not occur in the short to medium term, the country could become a strategic production location for automotive components that can be exported to some major vehicle manufacturing nations and regions. Due to its various FTAs, Viet Nam may attract automotive parts suppliers interested in utilising it as a strategic production and export base.

However, there is one important caveat. As discussed for the cases of the EU, Korea, and TPP, ROOs are a major hurdle for the full utilisation of FTAs, because many automotive products currently cannot satisfy local content requirements. Therefore, ROOs effectively limit duty-free exports from Viet Nam. This finding reinforces the argument that Viet Nam must develop its supplier industry. Only if production is sufficiently deepened to required levels can the country benefit from these agreements. If the supplier industry is not developed, Viet Nam will have opened its market, but would lack the ability to utilise FTAs for its domestic automotive products.

So as not to solely depend on foreign automotive TNEs and instead promote the development of local enterprises, policymakers should draft policies that seek to link foreign and local companies. One viable approach would be to follow the example of Thailand when adopting incentive schemes. In its latest policy package towards the automotive sector, Thailand grants 6 years of income tax exemption to investing

[20] As mentioned, the situation for motorcycle exports appears more promising, especially given the provisions of the EVFTA.

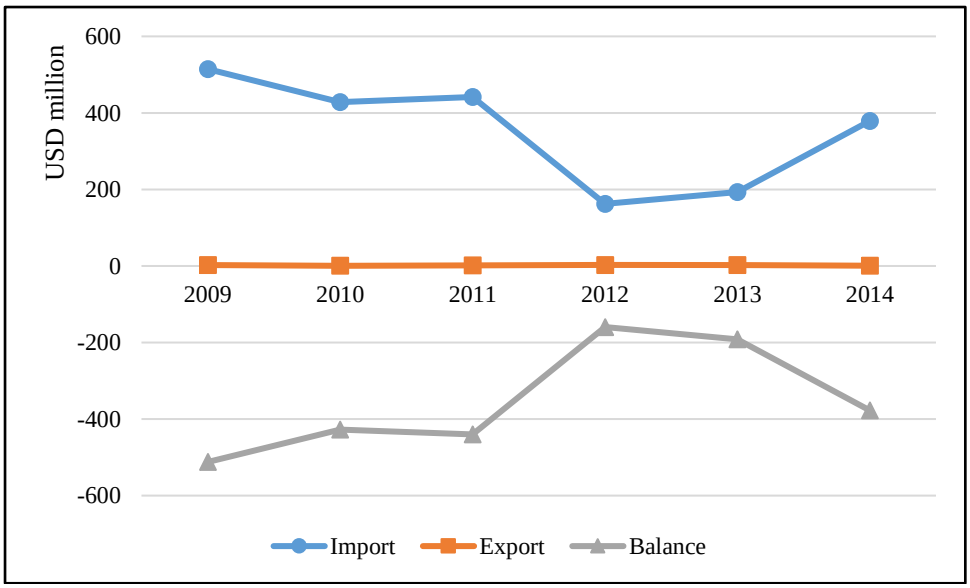
OEMs. Exemption may be extended for 1 year or 2 years if investors pledge to conduct development programmes with local Thai suppliers. In this way, conditional incentives may be utilised to not only provide comparatively cheap labour and access to export markets, but to link local firms to global production networks. Exposure to industry standards and best practices may help to develop local enterprises inside such networks.

Summing up, Vietnamese trade policy tends to prioritise opening markets for (sub)sectors such as agriculture, fisheries, garments, and footwear, which are the country's main exports. In short, exploiting existing competitiveness is the fundamental Vietnamese FTA strategy. This suggests that trade policy will not specifically promote automotive production in Viet Nam. At the same time, the FTAs discussed indicate that existing tariff barriers will be reduced further, so that Viet Nam can be utilised as an export base for some of the world's main automotive producing countries and markets. However, this strategy may only be viable if Vietnamese products are sufficiently localised to satisfy stipulated ROOs. Therefore, if the Vietnamese government can successfully promote the development of the automotive industry, the country may realise the potential inherently offered by tariff reductions or elimination through FTAs.

5. Viet Nam's Automotive Trade

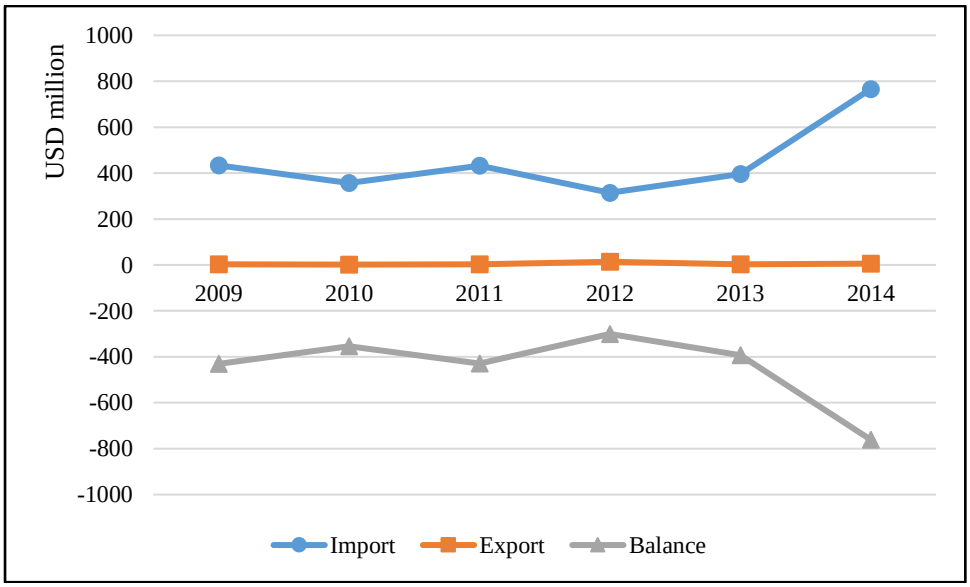
After clarifying Vietnamese trade policy and its potential dangers and benefits, it is useful to consider the present nature of the country's automotive trade. As for the international trade dimension of Viet Nam's automobile production, it is rather one-sided (Figures 1 and 2).

Figure 1. Viet Nam's Passenger Car Trade, 2009–2014



Source: UN Comtrade.

Figure 2. Viet Nam's Commercial Vehicle Trade, 2009–2014



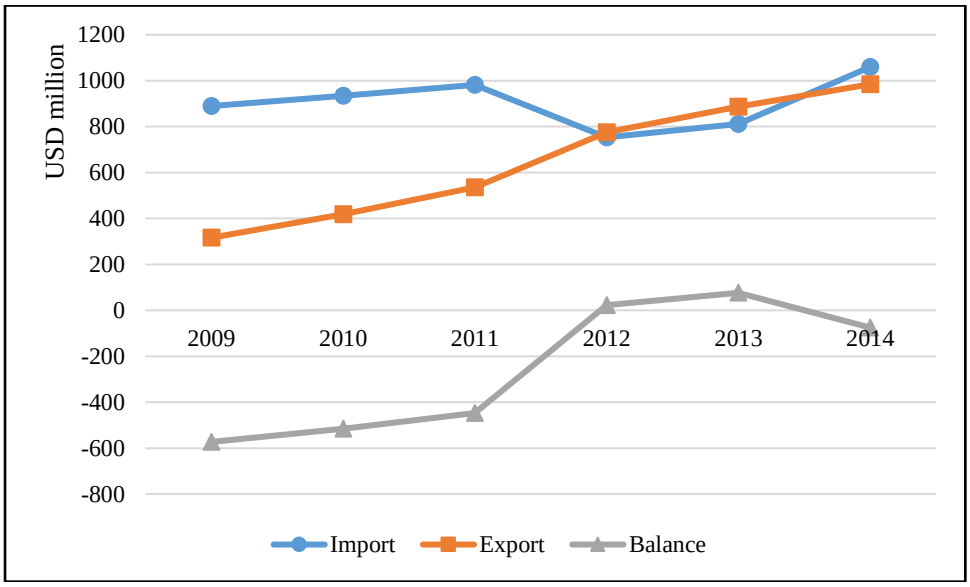
Source: UN Comtrade.

According to available trade data from the UN Comtrade database, the country's passenger car and commercial vehicle exports are virtually zero. Regarding those limited exports, passenger cars are mainly destined to Lao PDR (91% of all exports in 2014) and commercial vehicles to Korea and Lao PDR (54% and 19%, respectively, in 2014). Nevertheless, production in Viet Nam is almost exclusively dedicated to the

domestic market. Concerning imports, data indicate that the value of passenger car imports is decreasing and the value of commercial vehicle imports fluctuates between US$300 million and US$400 million per year. However, as latest available trade statistics for 2014 indicate, imports have recently increased again and led to a growing trade deficit in the vehicle sector.[21]

Regarding auto components trade, Viet Nam has recently alternated between being a net importer or a net exporter (Figure 3).[22]

Figure 3. Viet Nam's Automotive Components Trade, 2009–2014



Source: UN Comtrade.

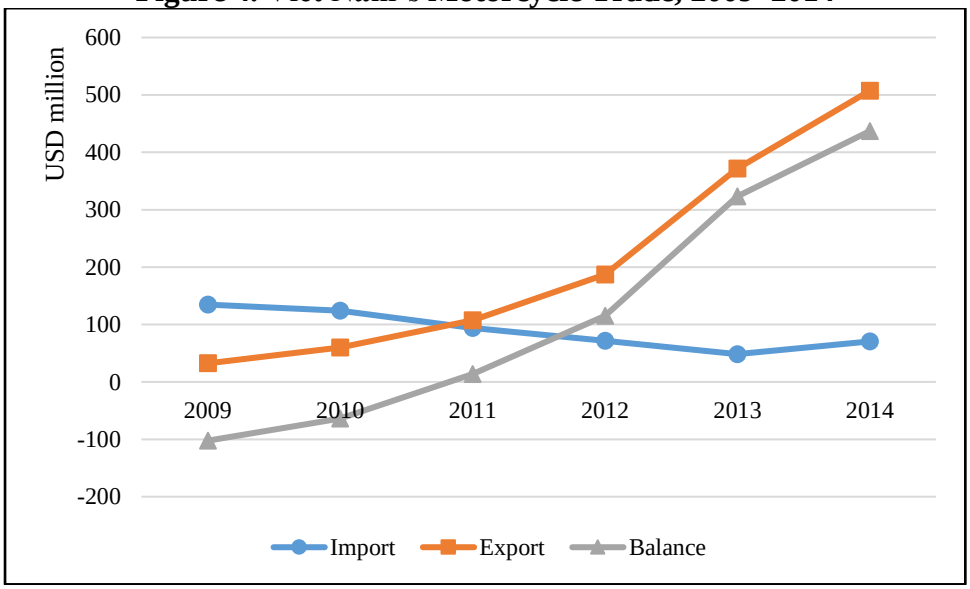
While the parts and components trade balance recently turned negative again, the gap between import and export values seems to have narrowed during the recent years due to increased exports. This suggests that the growing number of automotive components suppliers in Viet Nam use the country as an export base. Hence, while the outlook for vehicle production in the country is uncertain and largely dependent on OEM decision making, there is potential for expanding automotive parts production.

[21] This is consistent with VAMA reports that imports in unit terms have increased. As VAMA data document a continuation of this trend in 2015, future trade data are anticipated to record a growing trade deficit in vehicles (CBUs).

[22] The graph in Figure 3 lists items under HS code 8707 'parts and accessories of motor vehicles'. However, this category does not cover all automotive components. For details, please refer to subsequent paragraphs.

The picture changes if one includes motorcycle and motorcycle parts trade (Figures 4 and 5). This is mainly due to the fact that Viet Nam has become the world's fourth-largest motorcycle manufacturer. While the country is unable to rival leading producers such as China (21.2 million units in 2014), India (18.4 million), and Indonesia (7.9 million), Viet Nam (2.9 million) produces more units than competitors such as Thailand (1.8 million), Taiwan (1.1 million), the Philippines (0.7 million), and Japan (0.6 million).[23]

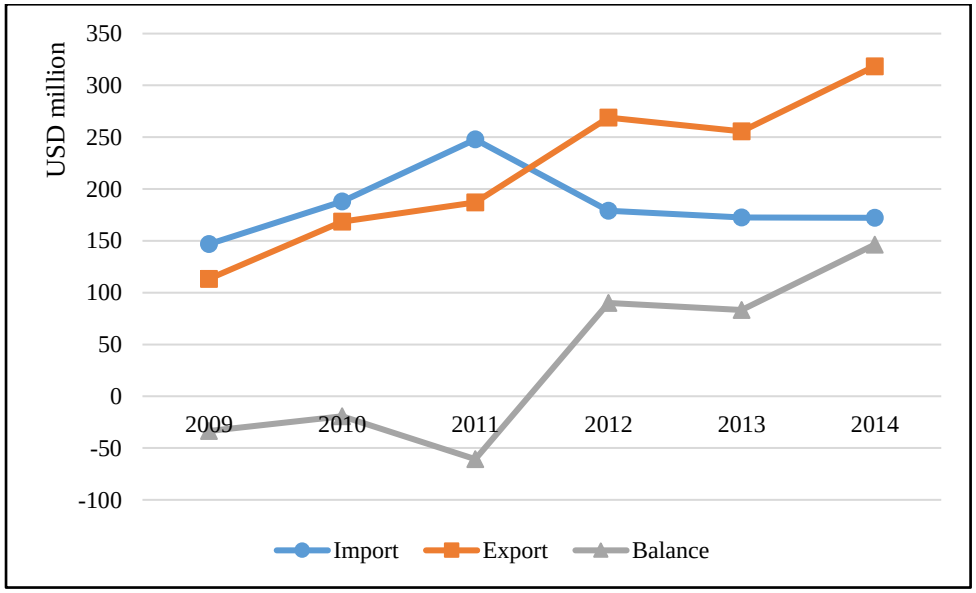
Figure 4. Viet Nam's Motorcycle Trade, 2009–2014



Source: UN Comtrade.

[23] Asia is the centre of global motorcycle production and sales. Looking solely at production, all mentioned Asian nations produce more units than Europe's leading producer Italy (0.2 million units in 2012 and 2013). Japanese production alone exceeds total European production.

Figure 5. Viet Nam's Motorcycle Components Trade, 2009–2014



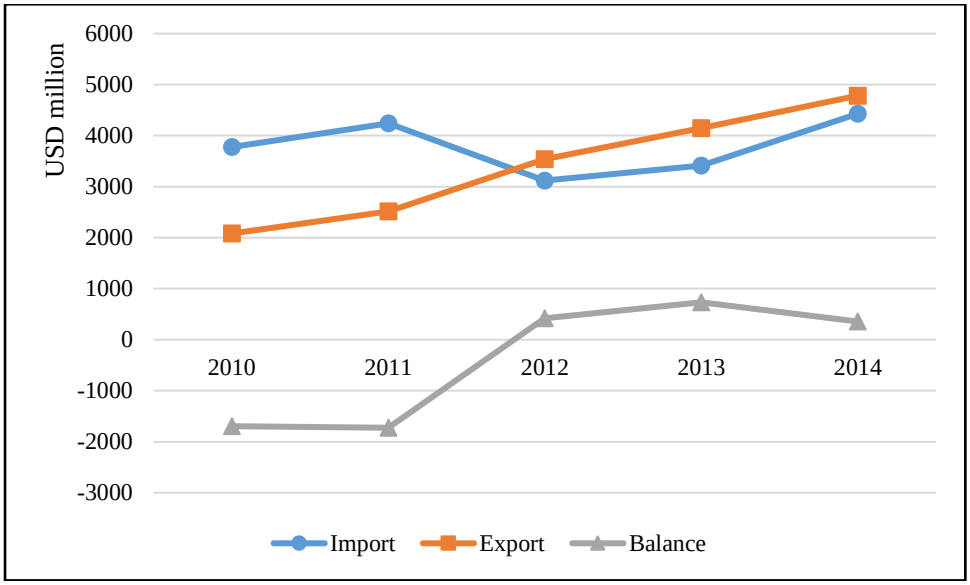
Source: UN Comtrade.

In both categories, the country has developed into a net exporter in recent years. This must be attributed to decreasing domestic sales, which indicate that the Vietnamese motorcycle market demand might be reaching saturation. Thus, international producers Honda, Yamaha, Suzuki, SYM (Sanyang Motors), and Piaggio that dominate the market are increasingly shifting to export production. Despite this positive development, however, it cannot be assumed that the same scenario will also occur in the passenger car and commercial vehicle markets. The reason is that motorcycle technology is less complex, especially in comparison to passenger cars. Thus, it is unlikely that current motorcycle suppliers can simply upgrade to passenger car parts manufacturing. While this scenario is plausible for foreign suppliers, especially for those related to motorcycle and passenger car manufacturers Honda and Suzuki, it is uncertain if Vietnamese suppliers can adapt.

Overall, the balance of Vietnamese automotive trade has become positive in recent years (Figure 6). [24]

[24] In Figure 6, the author has included HS codes 8702, 8703, 8704, 8705, 8706, 8707, 8708, 8711, and 8714 to include most motor vehicle types except tractors. While HS 8708 contains 'parts and accessories for motor vehicles', it only covers some major components, but not subcomponents (parts) and engines. Therefore, the author compiled a list of automotive parts and components that are listed under different headings and added these to the trade dataset. For the complete list of included items, please refer to the appendix.

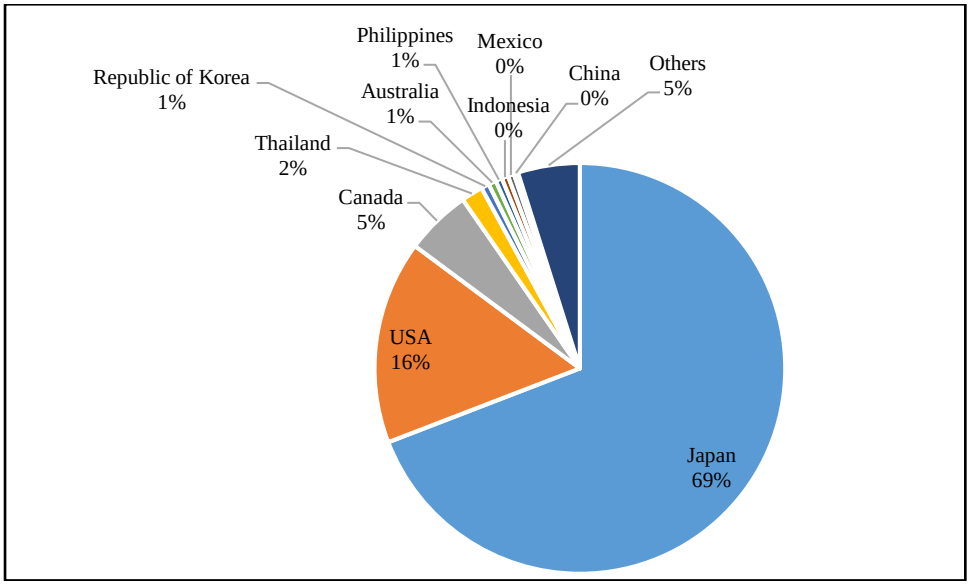
Figure 6. Viet Nam's Total Automotive Trade, 2010–2014



Source: UN Comtrade.

Component exports are the main factor behind total automotive export growth. Note that wiring harness, which is not classified under automotive components, constitutes nearly half (42.9%) of total automotive exports. Moreover, wiring harness exports have basically doubled from US$992 million in 2010 to US$1.96 billion in 2014. This made Viet Nam the world's fifth-ranked wire harness exporter behind Mexico, China, Romania, and the Philippines, with a share of 5.7% in global exports of this commodity. Wiring harness sets are mainly exported to developed markets (Figure 7).

Figure 7. Viet Nam's Wire Harness Export (Volume in US$) by Destination, 2014

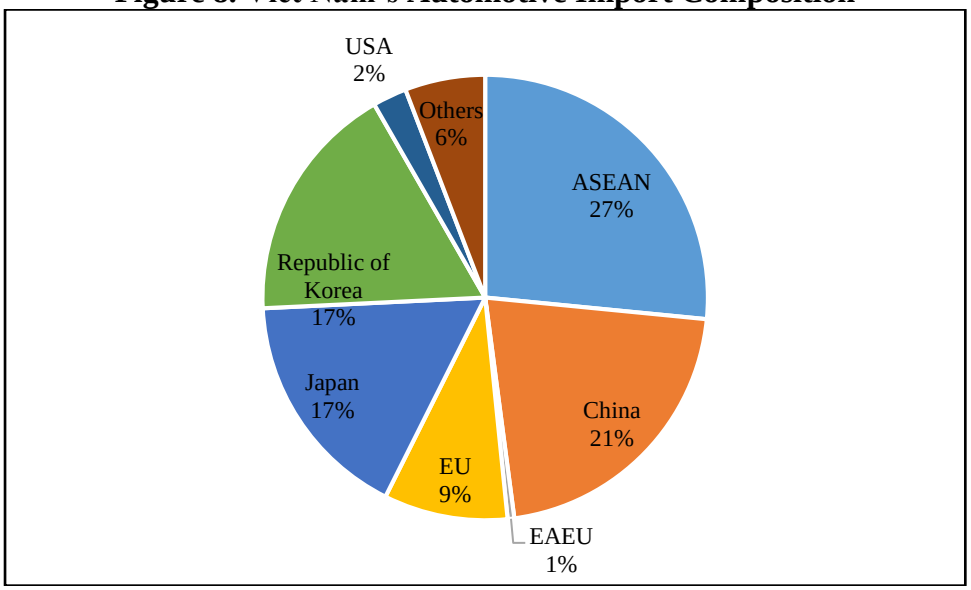


Source: UN Comtrade.

Vietnamese wire harness exports are predominantly destined to Japan, followed by the USA and Canada. Remaining export destinations are mostly within ASEAN and neighbouring countries. As several wire harness producers from Japan such as Fujikura, Furukawa, Sumitomo, and Yazaki operate factories in Viet Nam, this trade pattern can be explained as follows: Japanese wire harness manufacturers utilise Viet Nam as a production and export hub for developed markets. The companies take advantage of the lower labour cost to produce a commodity that is well-known to be labour-intensive and subject to intense cost pressure. Reviewing survey data of the Japan Auto Parts Industries Association (JAPIA), Nakagi (2015: 56) reports that Japanese wire harness manufacturers indeed export around 90% of their total Vietnamese output. This illustrates that Viet Nam is currently highly specialised in labour-intensive and cost-sensitive auto parts manufacturing.

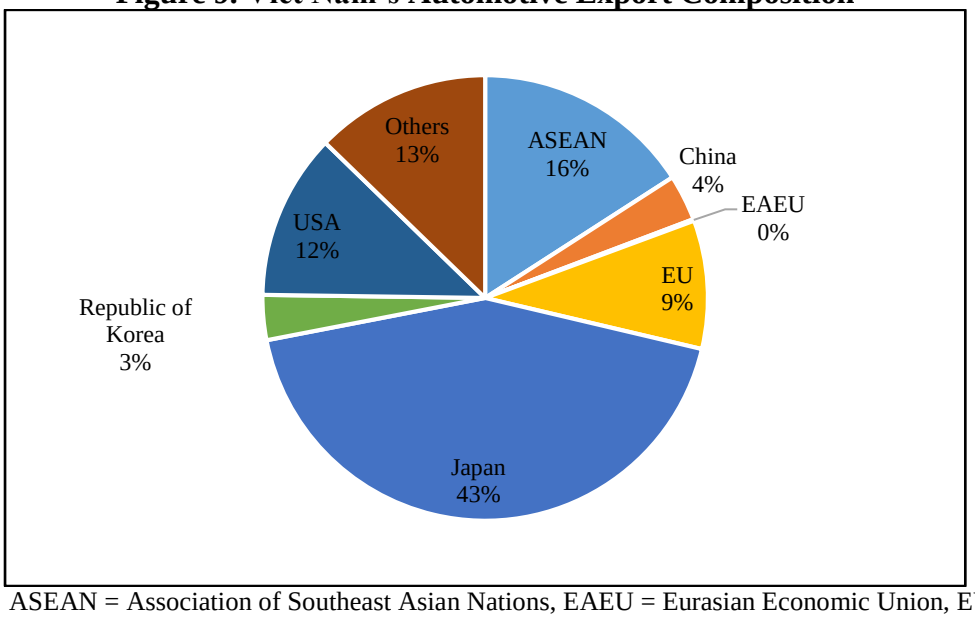
Before concluding this section, it should be linked to the preceding discussion of FTAs. Regarding the automotive sector as a whole, i.e. including items not classified as automotive components, while imports originate from various countries (Figure 8), Vietnamese exports are currently strongly directed at Japan (Figure 9).

Figure 8. Viet Nam's Automotive Import Composition



ASEAN = Association of Southeast Asian Nations, EAEU = Eurasian Economic Union, EU = European Union.
Source: UN Comtrade.

Figure 9. Viet Nam's Automotive Export Composition



ASEAN = Association of Southeast Asian Nations, EAEU = Eurasian Economic Union, EU = European Union.
Source: UN Comtrade.

Regarding the FTAs discussed, trade data suggest that automotive companies utilise them in differing ways. While Korea is a major source of automotive imports, exports to Korea are so far limited. It appears that Hyundai, Kia, and affiliates mainly export components for local assembly in Viet Nam, but do not use the country as a manufacturing or at least processing base that supports operations in Korea. This is

also consistent with the low number of automotive Korean firms in Viet Nam (see below). This is a strong contrast to Japan, which is not only a significant source of imports, but also the single-largest export destination. This fits the picture discussed in following sections that there is a high number of Japanese automotive firms in Viet Nam that not only produce for the local market, but rather utilise the country as a processing and manufacturing base to support operations in Japan and other developed countries. EAEU is not a significant partner in automotive trade, and, as aforementioned, it stands to reason that the FTA will not change this situation. The EU's share in automotive trade is roughly 10% for both imports and exports. While import items from the EU are mainly CBUs, exports are quite diverse, including not only labour-intensive items such as wire harness and electrical lighting and signalling equipment, but also sophisticated items such as engine components. Lastly, looking at the USA as TPP's largest individual market, automotive exports are limited, but it is a relatively sizable destination for Vietnamese goods.

As vehicle component exports expanded more than threefold between 2009 and 2014, further developing the auto parts industry could be regarded as a viable growth strategy. Developing this subsector should be considered as having two potential positive impacts. First, deepening component production may make Viet Nam more attractive for vehicle producers and Tier 1 suppliers that seek to establish a presence in the regional market. To this end, however, it will be necessary to move towards technologically more sophisticated automotive components. Second, even if carmakers decide to close down production in Viet Nam, exporting parts and components may still be a viable economic development strategy under conditions of fragmented GVCs.

While the motorcycle supplier industry in its entirety is not automatically qualified to expand into vehicle parts production, the motorcycle industry nevertheless provides a critical lesson for the Vietnamese automobile industry, i.e. the importance of localisation. After the so-called China shock, describing a wave imported CKD kits from Chinese manufacturers locally assembled by Vietnamese firms in the early 2000s, Japanese OEMs reacted by decreasing their prices and increasing local content. In the case of Honda, the local content ratio increased from below 30% in 1997 to above 60% in 2006 (Fujita 2011: 81). By localising production, Japanese makers plus SYM and

Piaggio could reclaim market shares from Chinese producers. Chinese motorcycle producers such as Zong Shen converted their Vietnamese operations to related business fields and local enterprises that used to assemble imported Chinese CKD kits became suppliers to OEMs that localised production. Today, Vietnamese motorcycle production is mainly competitive due to a very high degree of local content, estimated to constitute 90% of total inputs (Fujita, 2013: 3). Due to this high degree of localisation, motorcycles made in Viet Nam can be successfully exported. In this sense, the motorcycle industry can indeed be regarded as a role model for the automobile industry.

6. Viet Nam's Automotive Supplier Industry

In order to more closely investigate the nature of the Vietnamese automotive supplier industry, a database was created. Data were collected on companies' plant location, date of establishment, date of production start, equity ownership, customers, and produced components. Data from various sources were utilised, among others information from brochures published by JETRO (2015a, 2015b, 2015c, 2015d, 2016), JICA (2015), the Board of Investment of Thailand, company websites, as well as field research interviews in Viet Nam. Overall, 425 companies were included in the database.

6.1 Country of origin

Regarding companies' country of origin, the following pattern was adopted for classification: Wholly-owned subsidiaries are assigned to a company's country of origin. Even if the Vietnamese subsidiary is officially owned by another subsidiary, i.e. if a Thai subsidiary of a Japanese firm officially established and owns Vietnamese operations, such a company is categorised as Japanese, not as Thai. Furthermore, if a company has set up several subsidiaries, those subsidiaries are all treated as one company in order to not inflate the sample. In case of joint ventures, majority ventures are accounted to the majority owner's country of origin. In case of 50:50 joint ventures, the company was counted twice if partners came from different countries. This may be criticised as inflating the number of companies, but as there were only seven such

cases, the impact on the total sample size is negligible. However, while the number of firms is 425, the sample number for countries of origin increases to 432 due to this accounting method (Table 6).

Table 6. Number of Automotive Firms in Viet Nam by Country of Origin

	Number of companies
Japan	181
Viet Nam	137
Taiwan	65
Republic of Korea	20
Malaysia	8
Germany	6
USA	6
Thailand	4
China	1
India	1
Indonesia	1
Netherlands	1
Singapore	1
Total	**432**

Source: Author's investigation.

Turning to the actual companies, the majority are Japanese (44%), followed by Vietnamese (33%), and an even smaller group of Taiwanese enterprises (14%). These are followed by Korea, Malaysia, the USA, and Germany, but the total number of automotive investors from these countries is low. Moreover, there are a few firms from Thailand, China, India, Indonesia, the Netherlands, and Singapore actively manufacturing automotive parts in Viet Nam.

Similar to other automotive industries in ASEAN, that of Viet Nam is characterised by a strong presence and position of Japanese companies. Concerning the huge share of Japanese firms, as the main sources of the dataset are Japanese, companies from other countries are possibly not covered to the same extent and therefore underrepresented. Moreover, it must be pointed out that several Japanese OEMs and Tier 1 suppliers explained that Vietnamese firms often lacked technological capabilities and therefore utilisation of established (*keiretsu*) suppliers was commonly practiced. Collected data on inception dates by and large confirm such anecdotal evidence (Table 7). [25]

[25] Regarding supplier classification, refer to section 5.3 below. Note that companies classified as unknown are not represented in Table 7.

Table 7. Number of Japanese Automotive Components Producers in Viet Nam by Date of Establishment and Industry Position

	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014
Tier 1	1	14	6	14	14
Tier 1/2	1	1	2	6	4
Tier 2		1	10	12	16
Tier 2/3		1	3		2
Tier 3	1	1	2	7	9
Aftermarket producer		1			2
Total	**3**	**19**	**23**	**39**	**47**

Source: Author's investigation.

Data indicate that enterprises that rank relatively high in the supplier hierarchy indeed entered the Vietnamese market earlier than lower tier manufacturers. Thus, the case of Japanese suppliers in Viet Nam indeed represents what is commonly referred to as follow sourcing, i.e. co-location of suppliers to complement OEM operations. In this particular case, it appears that this initial process has continued upstream along the supply chain. Note that early entrants that are classified as Tier 3 suppliers are materials suppliers such as steel and paint makers, i.e. enterprises that provide basic inputs for various industries instead of basic automotive parts.

One Japanese Tier 1 supplier that specialises in electronic components stated that it did not have a single Vietnamese supplier due to quality issues of local firms. The majority of locally produced components are exported to various markets, including the USA, Japan, China, and Thailand. Only about a fifth of production is directed to the Vietnamese market. Despite rather export-oriented production, the supplier clearly stated that OEMs have recently demanded local production of more complex components. Managers explained that their local staff in cooperation with the Japan External Trade Organization (JETRO) therefore monitored and assessed local firms in order to increase local procurement. However, the Tier 1 supplier encountered various issues in during this endeavour: While some local companies could produce components of sufficient quality at small lot sizes, when the company contracted local suppliers in trials with larger lot sizes, these 'mass' produced parts had inconsistent quality. Moreover, the Japanese company lamented that Vietnamese suppliers did not take technical advice seriously, e.g. companies did not engage in *kaizen* activities.

Furthermore, it was pointed out that local firms did not possess co-development capability, meaning that product development or localisation fully depended on the Tier 1 supplier. This suggests that local firms mainly work with supplied drawings and lack design-in capability. While this company represents the most demanding end of the procurement policy spectrum, its case illustrates that customers may require high standards, especially if companies are export-oriented.

Another characteristic of Japanese suppliers' operations in Viet Nam is that they are often limited to motorcycle production. This is not due to limited technological capability, but caused by demand. Several Japanese companies that are mainly car parts suppliers in other markets explained that their customers were mainly or exclusively engaged in motorcycle production in Viet Nam. For this reason, Vietnamese plants would only supply these operations. However, these suppliers all could add or shift to automobile parts production if they received respective orders.

As for Vietnamese suppliers, they are by and large confined to supplying motorcycle components, which can be said to be less technologically sophisticated than automobile parts. Differing from Japanese suppliers, not all these companies could easily shift to automobile components production. Aside from this issue, they often occupy positions as equipment, tooling, or machinery maintenance service providers. While there are several state-owned enterprises (SOEs) active in the automotive industry, the majority of Vietnamese companies are privately owned and were established after the year 2000 (Table 8).

Table 8. Number of Current Vietnamese Automotive Suppliers by Date of Establishment

	1955 – 1959	**1960 – 1964**	**1965 – 1969**	**1970 – 1974**	**1975 – 1979**	**1980 – 1984**	**1985 – 1989**	**1990 – 1994**	**1995 – 1999**	**2000 – 2004**	**2005 – 2009**	**2010 – 2014**
Number of firms	2	4	3	5	4	5	3	4	18	19	30	24

Source: Author's investigation.

Two factors explain this distribution across time. First, Viet Nam started liberalising its planned economy in the second half of the 1980s, enabling the

foundation of private enterprises.[26] Second, the first foreign car and motorcycle OEMs set up plants from 1992 onwards, so that demand for automotive components increased after this point in time. The aforementioned China shock in motorcycle production and the subsequent policy measures protecting the market and demanding localisation may explain why the number of industry entries accelerated in the subsequent time periods. Entrepreneurs apparently found ways to establish their companies as automotive suppliers and the number of companies that were only recently set up suggests that there are niche local or global value chain that can be occupied by Vietnamese enterprises. In some cases, local enterprises were founded by individuals who used to work for foreign OEMs or Tier 1 suppliers. These individuals chose to use the skills they had learned by creating their own companies. These firms typically engage in tasks such as mould, jig, or die design and production or maintenance. Thus, these companies are examples for the gradual emergence of the supply industry in Viet Nam. Moreover, this relatively short history of most local enterprises partly explains their comparatively low technological level. They simply had limited time to accumulate technical and managerial know-how (as an organisation). As the novelty of privately owned firms is due to limitations on private economic activity under the planned economy, technological and especially financial limitations of such enterprises should be understood in this particular historic context.

As for Taiwanese firms, these enterprises are also mostly active in the motorcycle business and have supply relations with Taiwanese OEMs SYM and Kymco (Kwang Yang Motor Corporation), which both produce motorcycles and scooters in Viet Nam.[27] As both OEMs have production sites near Ho Chi Minh City, Taiwanese enterprises are mainly concentrated in the southern part of the country. However, there

[26] This is a simplification of the actual process. Note that some liberalisation experiments, especially in agriculture, enabled some form of entrepreneurship under state control to be carried out before the official *Doi Moi* shift, some experiments even dating back to the 1960s, when the country was still at war (Beresford, 2001: 209–2015; Fforde, 1993; Ljunggren, 1993: 58–60, 66–72). Initial reforms became more widespread after being officially sanctioned by the sixth plenum of the Fourth Party Congress of the Communist Party of Viet Nam in 1979. Subsequently, liberalisation, i.e. abandoning central planning, continued and finally became official state policy under the slogan *Doi Moi*.

[27] SYM also produces four-wheelers such as small trucks and vans in Viet Nam. However, the number of produced vehicles is very low. In 2015, the company only produced and sold 165 units according to data from VAMA. While data for motorcycle production are not available, it is safe to state that SYM is mainly a motorcycle manufacturer.

are also several Taiwanese companies that have started to supply motorcycle production of Japanese OEMs and Italy's Piaggio. As all these companies except Suzuki have locations in northern Viet Nam, some Taiwanese suppliers have set up additional plants in this region. The pattern of entry to Viet Nam also suggests that the China shock and the subsequent localisation policy measures induced Taiwanese suppliers to set up factories in the aftermath of the shock (Table 9).[28]

Table 9. Number of Taiwanese Suppliers in Viet Nam by Date of Establishment

	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014
Number of firms	3	5	34	17	3

Source: Author's investigation.

Last but not least, it is somewhat surprising that the number of Korean firms is rather low. Given the fact that Kia is Viet Nam's second best-selling OEM brand, the number may be called small. As Kia uses local assembler Truong Hai Auto Corporation (THACO), most inputs are imported and a limited number of components is locally produced by Vietnamese firms supplying THACO. Further, THACO seeks to increase local content via vertical integration of parts production, which may explain the small number of Korean suppliers in Viet Nam.

6.2 Regional distribution

As mentioned, there are distinct regional concentrations of suppliers, which are by and large due to co-location with OEM customers. To illustrate the regional distribution, site locations where divided into three categories: It is possible to differentiate three different clusters or concentrations which correspond to Viet Nam's north, centre, and south (Table 10).

[28] Note that dates of establishment could not be found for two Taiwanese suppliers. However, the general finding that most companies located after the year 2000 would not have to be altered if such data were available.

Table 10. Number of Automotive Supplier Plants by Province in 2016

	Number of Plants
North	**277**
Ha Noi	122
Vinh Phuc	34
Hung Yen	29
Hai Phong	26
Bac Ninh	25
Hai Duong	10
Ha Nam	9
Thai Nguyen	8
Bac Giang	7
Hoa Binh	2
Quang Ninh	2
Thai Binh	2
Nam Dinh	1
Central	**13**
Da Nang	11
Quang Nam	2
South	**158**
Dong Nai	58
Ho Chi Minh City	43
Binh Duong	42
Long An	10
Ba Ria Vung Tau	2
Binh Phuoc	2
Ben Tre	1
Khanh Hoa	1
Tay Ninh	1
Tra Vinh	1
Total	**448**

Source: Author's investigation.

In the North, companies are mainly located in and around Ha Noi, especially in Vinh Phuc and Hung Yen provinces. Moreover, the port city of Hai Phong, the third-largest city in Viet Nam, is an important location for non-Vietnamese companies mainly producing for export. The strong concentration of automotive suppliers in the northern region can be explained by the presence of various OEMs, including Ford, GM, Honda, Toyota, and Yamaha.

Viet Nam's central region apparently has the weakest developed supplier industry. This can be related to several factors. First, the region has only Tan Chong, the Malaysian assembler of Nissan, and the aforementioned THACO, which assembles passenger cars for Kia, Mazda, and Peugeot based on imported CKD kits as well as commercial vehicles, of which some are based on imported chassis from China's Foton.

Nissan's sales volume is low, which makes localisation difficult. Therefore, the company currently only sources very few components locally (Agustin and Schröder, 2014: 101f.). In the case of THACO, the production and sales volume is comparatively high. However, as the company engages in vertically integrated parts production, e.g. body and chassis parts, bumpers and fascia, steel blanks, seals, seats, and wire harness, it only utilises Tier 2 suppliers for its in-house manufacturing.[29] Thus, THACO's differing approach to localisation may explain the low number of suppliers in Viet Nam's central provinces. For this very reason, however, the above reported numbers can be somewhat misleading as they are unable to represent THACO's component manufacturing activities adequately. Therefore, despite the fact that Viet Nam's central region has the weakest automotive supplier industry, actual manufacturing capabilities are more developed – mainly through THACO's vertical integration – than the low number of enterprises suggests.[30]

In southern Viet Nam, production sites are concentrated around Ho Chi Minh City, similar to the agglomeration around Ha Noi in the northern region. Differing from the North however, most plants are not located in the metropolis proper, but in neighbouring Dong Nai province. The concentration in this particular province must be related to the OEM plants of Suzuki and SYM, which both mainly produce motorcycles in Viet Nam. While there are OEM plants in Ho Chi Minh City (Isuzu, Mercedes-Benz, Saigon Transportation Mechanical Corporation (SAMCO)) and Binh Duong province (Mitsubishi), these vehicle producers mainly engage in CKD assembly with few local components, so that the lower number of suppliers can be related to lacking OEM demand. Moreover, all these OEMs produce only few vehicles

[29] THACO could not provide data on which or even how many local sub-suppliers it was utilising. Company officials stated THACO was currently reviewing its procurement activities, so that data may become available in the future (THACO interview, 27 May 2016).

[30] It should be further noted that THACO and Mazda have agreed to aim for increasing production capacity from currently 25,000 units per year to 100,000 units. Due to these plans, 46 Mazda suppliers visited the THACO production complex in Chu Lai, Quang Nam province to investigate conditions for investment (Vietnam Investment Review, 2016). Apparently, the planned increase of output may be followed by investment of Mazda-related suppliers. It follows that Viet Nam's central provinces may increase their role in automotive production via foreign direct investment in production sites.

in Viet Nam[31], which effectively limits localisation to highly standardised components such as batteries and tires.

Overall, the prospects for supplier industry development appear more promising for northern and southern Viet Nam, as there are already agglomerations of automotive suppliers. Field research suggests that the Red River Delta may have advantages as the number of OEMs engaging in actual car production is higher than in the South. However, it should be noted that even car plants in the North are currently equipped with rather dated equipment, so that competitiveness against other ASEAN production sites will require capital investment. In this context, it must be noted that OEMs seem to be waiting for the Vietnamese government to finalise its sectoral policy before making investment decisions.

OEMs located in southern Viet Nam produce rather low volumes, often of commercial vehicles. Thus, possibilities towards GVC participation in the agglomeration around Ho Chi Minh City are mainly in export-oriented component production and the motorcycle industry. Regarding upgrading in such GVCs, it has been argued that the motorcycle OEMs exert even more control over suppliers than automobile OEMs (Ohara and Sato, 2008). While studies on Viet Nam (Fujita, 2011) and Indonesia (Sato, 2011) have demonstrated that this is generally correct, it was also found that a low number of companies could significantly develop skills through motorcycle GVC participation.

Judging the state of development in central Viet Nam is difficult as THACO integrates parts production vertically. Thus, despite the low number of companies, the actual level of parts manufacturing is considerably more developed than pure numbers suggest. Thus, central Viet Nam's potential must not be underestimated as our analytical tool is unable to represent parts manufacturing operations carried out by OEMs and assemblers. Continued study of THACO appears necessary to better understand the development of the automotive parts industry in this region. Here, case studies and qualitative analysis of manufacturing processes may be appropriate tools to gauge the level of parts production in central Viet Nam. As mentioned, the possible influx of Mazda-related component producers is another reason why this region may

[31] According to VAMA data, Isuzu produced slightly more than 7,000 units in 2015. The other companies mentioned produced even fewer vehicles.

play a more prominent role in automotive production networks within and beyond Viet Nam.

6.3 Industry structure

As mentioned, a large number of enterprises only supply motorcycle production. Within the total sample, 69 firms only supply motorcycle parts, and another 51 firms supply both automobile and motorcycle components. With a mere 21 firms that exclusively supply automobile components, it can be stated that the Vietnamese automotive supplier industry is still largely dedicated to motorcycle production. It must be pointed out, however, that a very large number of sampled firms, 284, could not be categorised. This is mainly because many firms do not exclusively produce automotive parts in Viet Nam, but also manufacture inputs for the electronics and white goods industry. Thus, classifying them as pure automotive suppliers would be misleading. While micro-level data on turnover by industry subsector could allow a more detailed classification, such data are currently not available.[32]

Further, sampled firms were categorised according to their position in the supply chain. To this end, firms were designated as Tier 1, Tier 2, Tier 3, or aftermarket producers. Regarding Tier 1, companies that manufacture modules or systems were grouped together under this category. Regarding Tier 2, companies that produce components or sub-assemblies are found under this designation. Regarding Tier 3, companies that manufacture relatively simple parts such as screws or bolts, process components, e.g. electro-plating or heat treatment, supply manufacturing equipment such as moulds, jigs, dies, or robots, and materials such as steel, glass, or paint are all grouped in this category. As the name suggests, aftermarket producers are companies that exclusively manufacture spare parts and therefore operate outside OEM supply chains.

Turning to the sample, a distinct characteristic of the Vietnamese supplier industry is that the lower tiers of the supply chain are rather weakly developed (Table 11).

[32] However, during field research in Viet Nam, the author learned that the Industrial Policy and Strategy Institute (IPSI), which operates under the Ministry of Industry and Trade, is planning to conduct a survey study of automotive firms in Viet Nam towards this and related issues. If such data can be accessed for future scientific study is however not clear at the time of writing.

Table 11. Viet Nam's Automotive Supplier Industry in 2016

	Number of companies
Tier 1	91
Tier 2	69
Tier 3	71
Aftermarket producer	6
Unknown	188
Total	**425**

Source: Author's investigation.

As can be seen, the number of Tier 1 suppliers is larger than those of Tier 2 producers. Similarly, the number of Tier 3 suppliers is only insignificantly larger than the number of Tier 2 suppliers. Thus, field research interviewees from OEMs and Tier 1 suppliers often mentioned that finding sub-suppliers was rather complicated. As mentioned, this leads many Japanese companies to encourage their affiliated *keiretsu* suppliers to enter Viet Nam in order to ensure supply. This in turn explains why local firms are largely confined to lower tier positions in automobile supply. While some Vietnamese firms are motorcycle Tier 1 suppliers, it is questionable if these enterprises are capable of developing into Tier 1 automobile suppliers.

Regarding these findings, there is one important caveat. Tier 1 suppliers might be overrepresented as many companies in this category only supply motorcycle production. As motorcycles are less complex products than cars, the supply chain is less tiered in comparison to a car supply chain. Apart from the issue of overrepresentation in our sample, this also has implications for the Vietnamese automotive industry in general. Tier 1 motorcycle suppliers may only be Tier 1 suppliers in automotive chains. A critical question is if local enterprises that are currently Tier 1 motorcycle suppliers have sufficient capabilities to become Tier 2 car suppliers.

Regarding the large number of companies categorised as unknown, there are several reasons for this. First, some components such as piston rings or o-rings and other gaskets are regularly supplied to both OEMs and Tier 1 suppliers, so that categorising producers of such components would require information on turnover by the customer. As mentioned, such information is currently unavailable, so a definite categorisation is not possible. Second, some companies' product line-ups make categorisation difficult as they contain products that would fall into each category or

into Tier 1 and Tier 3 profiles. Consider the following case: A company produces both power transmission belts and conveyor belts, i.e. parts directly supplied to OEMs and production equipment. Similar to the above scenario, it would be necessary to analyse turnover data to categorise appropriately. Third, several automotive suppliers do not report which products are manufactured in each plant, so that a reliable categorisation for Vietnamese operations cannot be conducted.

In order to provide a more detailed picture of the Vietnamese automotive supplier industry without oversimplification of supply chain relations, the companies labelled as unknown have been classified into subdivisions (Table 12). Category OEM/T1 contains local enterprises that produce both complete motorcycles and also deliver certain components to foreign motorcycle producers. Note that their motorcycles heavily borrow either Honda's de facto standard designs or those of Chinese motorcycle manufacturers.[33] Companies subsumed under the label T1/T2 supply OEMs and Tier 1 suppliers alike, such as the aforementioned producers of components such as piston rings. The category T2/T3 is constituted by firms that neither clearly fit into the role of Tier 2 nor Tier 3 suppliers. Common cases are firms that manufacture not only dies, jigs, and moulds, but also use these for production and supply to higher tier suppliers. T3/AMP means that companies produce and sell jigs or moulds to other suppliers and further produce aftermarket parts. Finally, T1/AMP contains companies that produce both parts for OEMs' local manufacturing operations and the aftermarket. The remaining companies without sufficient information for a sub-categorisation have been labelled as unknown.

[33] Concerning the existence of this de facto industry standard which is based on Honda's Super Cub (C100) model developed in the 1950s and its relation with OEM captive control over suppliers and prospects for supplier development, refer to the work of Ohara and Sato (2008). Note that Chinese manufacturers are also producing slightly modified versions of Honda's design.

Table 12. Sub-classifications of Viet Nam's Automotive Supplier Industry in 2016

	Number of companies
OEM/T1	2
T1/T2	48
T2/T3	31
T3/AMP	1
T1/AMP	2
Unknown	104
Total	**188**

AMP = aftermarket producer, OEM = original equipment manufacturer.
Source: Author's investigation.

Mirroring the structure found in already classified suppliers, these sub-categories also indicate that there are more companies that occupy higher positions in the supply chain hierarchy or supplier pyramid than ones belonging to lower tiers. This suggests that especially Tier 1 and Tier 2 suppliers experience problems in subcontracting production in Viet Nam.

Overall, the analysis of the supplier industry in Viet Nam highlights that the number of lower tier suppliers is rather low. As the number of Tier 1 suppliers exceeds those of lower tier suppliers, it can be concluded that their operations either rely on imported intermediate inputs for complex components or that only relative simple components are produced in Viet Nam. It follows that local value-added is rather low. The rather large presence of Japanese firms can therefore be regarded as a coping strategy. Instead of utilising local enterprises, Japanese firms appear to invite or coerce *keiretsu* affiliates positioned in lower tiers to set up production in Viet Nam.

7. Discussion

Regarding the preceding investigation, it is possible to identify a set of issues that require policy measures in order to overcome these major development hurdles for the automotive industry in Viet Nam.

7.1 Vehicle production capacity

Currently, the majority of firms that constitute the automotive supplier industry of Viet Nam is mainly focussed on motorcycle component production. Regarding automobile components, suppliers mainly produce labour-intensive parts such as wire harness for export to developed markets. Therefore, it may be stated that Viet Nam's automotive supplier industry is a mixture of producers that produce motorcycle components for local assembly operations and others that utilise the country as an export platform for labour-intensive automobile components. In order to deal with the challenge from duty-free imports from the ASEAN region, Viet Nam should consider how to enable current motorcycle suppliers, especially local enterprises, to become automobile parts manufacturers.

Here, it seems crucial to not focus on final assembly alone, but to support both OEMs and suppliers. As the carmakers are necessary to provide sufficient local demand, it is essential that at least two or three OEMs locally produce around 50,000 or even 100,000 units per year. As countries are aware of the impact of AEC, all major vehicle producing nations in the region, i.e. Indonesia, Malaysia, the Philippines, and Thailand, have issued policies targeted at the automotive sector. Thus, Viet Nam must move from merely formulating visions towards clear measures.

So far, only Mazda has openly declared plans to increase production in Viet Nam: It has signed a deal with assembler THACO to increase production from currently 25,000 units per year to 50,000 units in a first step and later to 100,000 units per year (Vietnam Investment Review, 2016). During field research, it became clear that while several OEMs are interested in expanding their activities in the country due to its large market potential, they are also frustrated by the lack of a concrete sectoral policy. For this reason, carmakers will only make decisions when Viet Nam has clarified its automotive policy. As trade liberalisation in ASEAN will occur from 2018, drafting a sectoral policy is a truly urgent matter.

Automotive policies of neighbouring ASEAN countries mostly provide incentives to investors if certain required criteria are met. Thus, it may be necessary for Viet Nam to also provide some sort of investment incentive scheme to maintain (preferably expand) automotive assembly operations. However, such measures could be coupled to conditions that should help develop the automotive industry.

Such conditional support criteria can be utilised to guide investment to desired branches. Just a few examples from competing ASEAN Member States illustrate options. Thailand requires OEMs to meet certain environmental criteria and production targets as well as to conduct engine manufacturing locally. Further, companies pledging to work with local companies get a 1- or 2-year extension of their 6-year tax exemption. The Philippines requires investors to produce at least 200,000 units of a new model generation over a maximum time span of 6 years. Among other conditions, 50% of the so-called body-in-white's weight has to be produced or procured locally to qualify for government support.

7.2 SME support

Related to the previous issue of production capacity, the limited number of Tier 2 and Tier 3 suppliers in Viet Nam deserves attention. In comparison to major regional competitors such as Thailand, lacking opportunities for subcontracting production explain why Tier 1 suppliers regard Viet Nam as a problematic production location. However, the limited number of local firms may also be regarded as an opportunity: Government support measures could be directed at competent local firms to help them become automotive suppliers or, if they already are, expand their business to OEM-required output levels. As this process will most likely require large capital investments, the Vietnamese government should consider measures such as low-interest loans or allowing increased depreciation for capital investment goods to mitigate limited financial resources of mostly rather novel local enterprises.

In this context, it appears necessary to explain that the financial markets, especially the money market, are not a real option for Vietnamese small and medium-sized enterprises (SMEs), which as mentioned earlier are the dominant form of local enterprises in this industry. Interviewed companies all stated that bank loans were only available at prohibitively high rates, effectively blocking this route for financing

investment. Thus, local firms often rely on utilising savings of family and friends to finance investment. However, it is doubtful that this self-help mechanism is sufficient to finance larger capacity expansions. While this suggests that developing Vietnamese financial markets is a task for state policy, it appears necessary in the meantime for the state to step in to fill the gap in SME finance left by the banking sector.[34]

During field research, some local companies stated that while they could receive financial support in the form of low-interest loans from the state (in most cases, provincial government bodies or state-owned banks), this would usually require concrete OEM orders and loaned sums were rather limited. Thus, expanding SME support policies, e.g. by increasing the number and scale of low-interest loans, appears necessary in order to allow more companies to enter automobile parts production.

On the bright side, the current selection process indicates that support is not a case of government 'picking winners', but government supporting companies that have been chosen by market processes. Thus, the SME support selection process appears to be sufficiently insulated from arbitrary bureaucratic or political influence.

7.3 International industry standards

Another issue encountered during field research are international industry standards and certification. Most TNEs make standards such as ISO 14000 or ISO/TS 16949 the minimum requirement suppliers have to meet to even be considered as a potential business partner.[35] Hence, local enterprises must seek certification if they want to enter automotive GVCs. However, interviewed local suppliers indicated that it was difficult to obtain know-how necessary to pass the certification process.

For this reason, it could be useful to set up a public research institute whose mission is to support local enterprises in meeting global industry standards. As a neutral, non-business actor, a research institute could facilitate certification via

[34] The author would like to point out that this is easy to demand, but difficult to implement. During cooperation with JICA and IPSI, JICA staff explained that SME support programmes are often partly or even largely financed by foreign official development assistance (ODA) due to limited government resources. Typically, provided funds are distributed through low-interest loan schemes administrated by state-owned banks.

[35] Only after meeting such base requirements will OEMs and Tier 1 suppliers truly begin evaluation processes, which can last 2–5 years before actual supplier status will be granted. Hence, certification is a fairly intermediate goal that local enterprises have to achieve in order to join supply chains.

proliferating necessary skills and know-how, i.e. through workshops or consultancy services. Furthermore, such a public institution could also act as an intelligence gathering mechanism that could provide information on the industry to policymakers.

One way to realise this goal would be to utilise the already existing technical assistance centres (TAC) operating under the Ministry of Planning and Investment to form a dedicated institute that solely specialises in the automotive industry. Alternatively, TACs may continue to operate under the present structure, but need to become more accessible for SME suppliers. It appears that SMEs either did not know about TACs or took issue with TAC service fees. While addressing the latter issue is complicated, the former should be relatively easy to solve by increasing promotion, e.g. at industrial fairs, workshops, or business associations. The main weakness of TACs appears to be that their technical experts are often foreigners that officially work in official development assistance (ODA) organisations. Thus, it may be necessary to increase the pool of local experts, possibly using the 'train a trainer' method. Alternatively, a stronger link between TACs and Vietnamese technical universities may be formed to strengthen local skill formation and training.

Overall, TACs appear suitable cores that could proliferate industry-specific know-how and standards, irrespective of whether current TACs simply could form a dedicated branch or whether such an entity should be spun out into a dedicated research institute. However, it appears advisable to build up a pool of local technical experts that could gradually replace ODA personnel.

7.4 Inter-company learning

As capital investment and plant certification alone may not be sufficient to meet OEM quality standards, policies should contain incentives for foreign firms to share production and management know-how with local firms and to facilitate learning. Similarly, it would be useful to encourage local enterprises to engage in joint learning activities such as quality circles. While this process was institutionalised by OEMs in Japan through top–down pressure, it could be useful for local firms to not wait for OEM pressure, but to take matters into their own hands.

Another way to promote and organise skill transfer may be dedicated programmes by ODA organisations. Such institutions already are active in this field, but it may be

possible to intensify development cooperation with the goal of transferring skills relevant for automotive supply chain participation. While GVC participation alone does not guarantee successful upgrading in itself, exposure and cooperation programmes could increase changes of local skills formation.

7.5 Stakeholder organisation

Last but not least, in order to facilitate policy formulation towards the auto parts industry, the government should encourage the foundation of an industry association in Viet Nam. So far, there is no entity that represents the interest of auto parts makers, meaning that policy drafts all too often only address the industry in passing. As parts producers nowadays produce the bulk of automobile content – roughly around 75% of inputs – it would be useful to integrate auto parts makers into policy deliberation.[36] Moreover, including both foreign and domestic components producers into policy deliberation would help reduce the often rather antagonistic relationship between foreign OEMs represented by VAMA and various Vietnamese government agencies overseeing the automotive industry.[37]

Limitations

As the review of trade statistics found wire harness to be Viet Nam's principal automotive export commodity, a closer investigation of the production of this particular commodity would have been meaningful, especially to understand how export-oriented production may contribute to Viet Nam's industrial development. Unfortunately, it was not possible to interview wire harness manufacturers in Viet Nam for this study. Thus, future research should address this shortcoming.

To support policymakers in formulating measures towards these manufacturing operations, it would be crucial to gain insight into the following practical questions: How much is wire harness production localised? To what extent are Vietnamese

[36] However, VAMA intends to open membership to automotive components makers. I am grateful to Ms Nguyen Thi Xuan Thuy (IPSI) for providing this information. In case VAMA indeed enlarges membership towards the automotive components sector, the industry will have solved that issue on its own, so that government action is no longer necessary.

[37] It should be pointed out, however, that there is no general pattern of government–industry relations. During field research work with IPSI and JICA, the author encountered very different OEM behaviour, ranging from outright complaints about policy and unilateral demands, on the one hand, to calls for cooperation to support local supplier development, on the other.

suppliers participating in wire harness GVCs? Which inputs are currently imported and is it possible to localise their production? If those issues can be clarified, it would become clear if supporting policies are necessary to increase local content and thereby Vietnamese value-added.

Moreover, discussing the future direction of the wire harness manufacturers appears advisable. As wire harness constitutes a significant share of total vehicle weight, it is currently being debated if wire harness manufacturers will gradually switch from copper to aluminium wires to support OEMs' weight reduction aims. In this regard, the local availability of aluminium might be an important factor for future wire harness investments. Another issue is that the automotive industry anticipates a shift from current 12-volt (V) towards 48 V on-board electrical systems. Reasons for such a shift are the anticipated proliferation of so-called mild hybrid electric vehicles and downsized, turbocharged engines, which would both benefit from 48 V systems. Moreover, 48 V systems should also be more lightweight than 12 V systems. Thus, engaging wire harness producers to ensure that such systems can be produced in Viet Nam would be sensible to support future local manufacturing.

8. Conclusion

This investigation found that Viet Nam is increasingly liberalising formal trade barriers, i.e. tariffs, via FTAs with various partners. This reduction of protective measures is a key challenge for the automotive industry in Viet Nam. Regarding OEM operations, their scale is currently too low to be competitive against other ASEAN production sites. Moreover, operations are limited to CKD assembly, indicating that most inputs are imported as kits. TNE suppliers active in the country find it difficult to source local parts due to a low number of local enterprises and quality issues. Consequently, produced components are either dependent on imported intermediate parts or are highly labour intensive. Moreover, labour-intensive parts constitute the largest share of all Vietnamese automotive exports, indicating that the country is currently mainly successful in exploiting its comparative advantage in low-wage labour. While the motorcycle industry is rather strongly developed, its lower technological level requires companies to improve quality to levels required by the

automotive sector. While this is certainly possible for some companies, this hurdle may prove to be a de facto entry barrier for Vietnamese suppliers.

Trade data indicate that parts production has expanded rapidly during recent years. As component exports are currently slightly larger than CBU imports, Viet Nam has recorded a trade surplus in the automotive subsector. This fact can be interpreted in two opposing ways. On the one hand, export-oriented GVC participation obviously helps to balance against final goods imports. Moreover, employment generation must be regarded as substantial. Therefore, participation in production networks certainly has its merits. On the other hand, wire harness manufacturing is notorious for utilising the lowest-wage locations, making production highly subject to relocation. With AEC entering into force in 2018, it is entirely possible that wire harness makers will consider lower-wage locations such as Cambodia or Lao PDR as production bases. The precarious nature of Viet Nam's single largest automotive export commodity illustrates why the country should seek to develop its industry towards more skill-intensive manufacturing. Simultaneously, the number of newly founded local firms suggests that it is possible to join automotive GVCs, at least at upstream levels. Therefore, while the challenges from forthcoming liberalisation are truly difficult, there is nevertheless potential that exposure to increased competition will induce local suppliers to upgrade their capabilities.

As the scale of local OEM production is rather limited at the time of writing, all automotive firms in Viet Nam suffer from a lack of scale economies in production. To address this topic, the forthcoming automotive policy should encourage OEM investment that creates economies of scale. Field research has led to the conclusion that some carmakers aim for 100,000 units per year and this level appears reasonable to support.[38] While this production capacity likely exceeds the domestic market sales potential, this means that produced vehicles must aim to reach 40% ASEAN content to enable duty-free intraregional export of surplus production. From the Vietnamese

[38] As mentioned, the Philippines' so-called Comprehensive Automotive Resurgence Strategy (CARS) Program is limited to three participants and only requires 200,000 units of a qualifying model over 6 years, i.e. 33,333 units per year. While this may be enough to maintain some level of final assembly in the Philippines, it is doubtful that this policy will induce significant development of the automotive sector in the country. Thus, Viet Nam should not aim too low with its forthcoming automotive policy, but rather seek to support higher economies of scale in automobile and auto parts manufacturing.

perspective, the merit is certainly that CBU exports would support the country's trade balance sheet.

Due to GVC dynamics, it appears necessary for the Vietnamese government to consider policies that enable local enterprises to respond to requirements concerning product quality, timely delivery, and production scale. Without supporting policies, it is doubtful whether most local enterprises – which typically have a rather short organisational history – will have sufficient financial, technological, and managerial resources to successfully make the transition from motorcycle to automobile parts supply. Regarding these three constraints, the government should consider policies that directly address the first limiting factor, e.g. via direct subsidies or tax incentives. As the other two factors are mainly issues related to industry standards, the government should support the diffusion of these standards. Moreover, as innovation in the automotive industry is mostly incremental and related to tacit, i.e. non-codifiable, knowledge, policies should seek to promote inter-firm cooperation. While cooperation alone does not guarantee positive results, there seems to be no realistic alternative to learning by doing inside GVCs. Therefore, generating opportunities for local parts suppliers to engage in learning by doing should be addressed when formulating Vietnamese automotive policy.

All in all, Viet Nam's automotive industry is at a crossroads. One way leads to the end of automobile assembly. Pure CKD assembly faces serious challenges mainly stemming from trade liberalisation, i.e. putting Vietnamese often rather dated, low volume assembly plants in direct competition with more modern, fully integrated manufacturing plants in Thailand. It is a real possibility that carmakers decide to shut down production sites and shift to serving the Vietnamese market through imports. At the same time, there is another way, which could let the country benefit from liberalised trade. However, there is one central challenge. ROO clauses make it necessary to localise manufacturing processes more deeply as only sufficiently localised products are eligible to use preferential terms of trade. Hence, it appears imperative that forthcoming sectoral policy contain measures that promote deepened production within Viet Nam in order to actually utilise FTAs for economic development. Without orchestrated measures towards localising manufacturing, especially OEMs will very likely refrain from expanding and modernising production

facilities due to currently lower total cost of production in countries such as Thailand. As localisation is a key to achieving lower production cost, policy should support measures towards this goal. Viet Nam certainly has several advantages such as a large market potential, a young, increasingly well-educated workforce, and a fairly strong developed motorcycle industry, but the country will require continued institutional support and well-designed policy measures to realise its automotive manufacturing potential.

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Appendix I: HS Codes Relevant to the Automotive Industry

HS code	Description
4009.31	Tubes, pipes & hoses of vulcanised rubber other than hard rubber, reinforced or otherwise combined with textile materials, without fittings
4009.41	Tubes, pipes & hoses of vulcanised rubber other than hard rubber, reinforced or otherwise combined with other materials, without fittings
4011.10	Pneumatic tyres new of rubber for motor cars
4013.10	Inner tubes of rubber for motor vehicles
4016.93	Gaskets, washers and other seals of vulcanised rubber
7007.11	Safety glass (tempered) for vehicles, aircraft, etc.
7007.21	Safety glass (laminated) for vehicles, aircraft, etc.
7009.10	Rear-view mirrors for vehicles
7318.15	Bolts or screws, n.e.s., with or without nut or washers, iron or steel
7318.23	Rivets, iron or steel
7318.24	Cotters and cotter-pins, iron or steel
7320.10	Springs, leaf and leaves thereof, iron or steel
7320.20	Springs, helical, iron or steel
7320.90	Springs, iron or steel, n.e.s.
7326.19	Articles of iron or steel, forged or stamped, but not further worked
8301.20	Locks of a kind used for motor vehicles of base metal
8302.30	Motor vehicle mountings, fittings, of base metal, n.e.s.
8407.31	Engines, spark-ignition reciprocating, < 50 cc
8407.32	Engines, spark-ignition reciprocating, 50–250 cc
8407.33	Engines, spark-ignition reciprocating, 250–1000 cc
8407.34	Engines, spark-ignition reciprocating, > 1000 cc
8408.20	Engines, diesel, for motor vehicles
8409.91	Parts for spark-ignition engines except aircraft
8409.99	Parts for diesel and semi-diesel engines
8413.30	Fuel, lubricating and cooling pumps for motor vehicles
8415.20	Air conditioners used in vehicles
8421.23	Oil or petrol filters for internal combustion engines
8421.31	Intake air filters for internal combustion engines
8421.39	Filtering or purifying machinery for gases, n.e.s.
8483.10	Transmission shafts and cranks, including cam and crank shafts
8483.20	Bearing housings etc. incorporating ball or roller bearings
8483.40	Gears and gearing, ball screws, speed changers or torque converters
8483.50	Flywheels and pulleys, including pulley blocks
8483.60	Clutches and shaft couplings (including universal joints)
8483.90	Parts of power transmission equipment
8484.10	Gaskets of metal sheeting, including sandwich type
8484.20	Mechanical seals
8484.90	Gasket sets, other joints of similar composition
8507.10	Lead-acid accumulators (used in vehicles)
8511.20	Ignition magnetos, magneto-generators, and magnetic flywheels
8511.30	Distributors and ignition coils
8511.40	Starter motors
8511.90	Parts of electrical ignition or starting equipment
8512.20	Lighting or visual signalling equipment
8512.30	Sound signalling equipment
8512.40	Windscreen wipes, defrosters and demisters
8512.90	Parts of electrical lighting, signalling and defrosting equipment

8527.21	Radio receivers, external power, sound reproduce/record (of a kind used in motor vehicles)
8527.29	Radio receivers, external power, no sound reproducer (of a kind used in motor vehicles)
8544.30	Ignition/other wiring sets for vehicles/aircraft/ships
9029.20	Speed indicators and tachometers; stroboscopes
9401.20	Seats for motor vehicles

HS = Harmonised System, n.e.s. = not elsewhere specified.

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