

Expansion of Global Value Chains in Asian Developing Countries:

Automotive Case Study in the Mekong Subregion

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
AMEICC	AEM-METI Economic and Industrial Cooperation Committee
APTIAD	Asia-Pacific Trade and Investment Agreements Database
ASEAN	Association of Southeast Asian Nations
ATIGA	ASEAN Trade in Goods Agreement
CBU	completely-built unit
CKD	complete knock-down
CBTA	Cross-Border Transport Facilitation Agreement
ERIA	Economic Research Institute for ASEAN and East Asia
FDI	Foreign Direct Investment
FPRI	Fiscal Policy Research Institute
GL	Grubel-Lloyd index
GVC	Global Value Chains
IDE	Institute of Developing Economies
JETRO	Japan External Trade Organization
LDCs	Least developed countries
OICA	International Organization of Motor Vehicle Manufacturers (Organisation Internationale des Constructeurs d'Automobiles)
PPP	public-private partnership
R&D	research and development
SEZs	special economic zones
SITC	Standard International Trade Classification

Expansion of Global Value Chains in Asian Developing Countries: Automotive Case Study in the Mekong Subregion

Masato Abeⁱ

1. Introduction

During the past three decades, the development of highly integrated global value chains in which products are supplied, manufactured and distributed across national boundaries have created a new form of division of labour among Asian economies, especially in North-East and South-East Asia (IDE-JETRO and WTO, 2011). The rapid growth of global value chains has dramatically changed production patterns, international trade and foreign direct investment (FDI) in the region, with a notable expansion of intra-regional trade through multiple border crossings of parts and components (ESCAP, 2009).

While an increasing number of literatures have examined the global value chain phenomenon in Asia (cf. ESCAP, 2007 and 2009; ERIA, 2011), little attention has been paid to its expansion from developing countries to less developed neighbours, such as least developed countries (LDCs) (cf. Makishima, 2012). The lack of existing research and reliable national data has made an adequate review of global value chains in less developed countries particularly difficult.

Against this background, key research questions of this case study are proposed as follows:

- What are key drivers of global value chain, particularly in less developed countries?
- How do sectoral characteristics impact on the development of global value chains?
- How can public interventions accelerate the expansion of the global value chains in less developed countries?

The Mekong subregion (figure 1),ⁱⁱ which is part of South-East Asia and comprises five Mekong river basin countries (Cambodia, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam) is the geographical focus of this study. The subregion provides valuable laboratories to explore these research topics since it has experienced a varied degree of economic development and includes a middle-income country (Thailand), a lower middle-income country (Viet Nam) and three least-developed countries (Cambodia, Lao People's Democratic Republic and Myanmar).

In the Mekong subregion, the automotive industry has been growing rapidly. Several major automakers have established production bases in Thailand and Viet Nam, and their supplier networks have been expanding into Cambodia, Lao People's Democratic Republic and Myanmar. The subregion has benefitted from increased capital inflows, the creation of employment and human resource development. While the automotive industry operates within a single sector and shares a common frame of

reference, the industry shows much diversity in terms of products and technologies, presenting diversified supply and production networks.

This study is based on both quantitative and qualitative analyses. Trade, FDI and descriptive data are used to review the ongoing integration of the subregion into the global automotive value chains. The outcomes of three industrial surveys in the subregion (JETRO, 2009 and 2012; FPRI, 2012) are also reviewed to identify sectoral issues in the automotive industry. This article begins by examining the development of the automotive industry in the Mekong subregion and its key drivers. The characteristics of global automotive value chains are then identified, while covering the recent expansion of the automotive value chains within the subregion. The outcomes of the three industrial surveys are then discussed. Before concluding, policy implications are then presented.

Figure 1: Mekong subregion



Source: www.adb.org.

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

2. Development of the automotive value chains in the Mekong subregion

The automotive industry, which covers all companies and activities involved in the manufacturing of automobiles, parts and components, is the largest global industrial sector with a total unit production of nearly 80 million in 2011 (OICA, 2012) and total sales of approximately US\$ 2.2 trillion in 2008 (FPRI, 2012). Its final products, parts and components are the second most-traded manufactured goods in the world after electronic appliances and equipment, accounting for approximately 7.5 per cent of world trade in 2010.ⁱⁱⁱ Automakers have adopted an expansion strategy in Asia, particularly given the maturing markets of the European Union, Japan and the United States, with growth coming particularly from Asian developing countries (FPRI, 2012).

Since the 1960s, Thailand has gradually emerged as the major production base of automobiles and intermediaries for both Japanese and Western automakers. Later, the 1980s and the 1990s saw a wave of assembly and supplier plant construction in Thailand and Viet Nam, respectively, as declining tariffs and transportation costs allowed for more flexibility in assembling vehicles and sourcing components from various countries. The establishment of assembly lines in Cambodia in the 2000s further strengthened this trend. Myanmar recently started the mass production of commercial vehicles. Presently, major suppliers have begun sourcing labour-intensive parts and components from Lao People's Democratic Republic.

Along the way, automakers have taken advantage of regional trade and investment liberalization, such as the ASEAN Economic Community^{iv} to develop production facilities in South-East Asia and enhance the division of labour within the region in order to achieve greater market access and economies of scale (Kohpaiboon and Yamashita, 2011).^v However, economic integration has also evolved beyond the geographical scope of ASEAN, building the formal economic partnership of ASEAN+6 with China, India, Republic of Korea, Australia, Japan and New Zealand. Table 1 summarizes regional trade agreements pertinent to ASEAN and thus the Mekong subregion.

Table 1: List of regional trade agreements including the Mekong subregion

Agreement	Coverage	Type	Date of entry into force	Current signatory	Composition of regional trade agreement	Subregion
ASEAN Free Trade Area (AFTA)	Goods	Free trade agreement	28 January 1992	Ten ASEAN countries	Plurilateral	South-East Asia
ASEAN Trade in Goods Agreement (ATIGA)	Goods	Free trade agreement	17 May 2010	Ten ASEAN countries	Plurilateral	South-East Asia
ASEAN - China	Goods and services	Partial scope agreement and economic integration agreement	Goods: 1 January 2005 Services: 1 July 2007	Ten ASEAN countries and China	Bilateral; one party is a regional trade agreement	East Asia and South-East Asia
ASEAN - Japan	Goods	Free trade agreement	1 January 2008	Ten ASEAN countries and Japan	Bilateral; one party is a regional trade agreement	East Asia and South-East Asia
ASEAN – Republic of Korea	Goods and services	Free trade agreement and economic integration agreement	Goods: 1 January 2010 Services: 1 May 2009	Ten ASEAN countries and the Republic of Korea	Bilateral; one party is a regional trade agreement	East Asia and South-East Asia
ASEAN - Australia - New Zealand	Goods and services	Free trade agreement and economic integration agreement	1 January 2010	Ten ASEAN countries, Australia and New Zealand	Plurilateral; one party is a regional trade agreement	Oceania and South-East Asia
ASEAN - India	Goods	Free trade agreement	1 January 2010	Ten ASEAN countries and India	Bilateral; one party is a regional trade agreement	South-East Asia and South Asia

Source: APTIAD (2012).

When looking at the current tariff schedules for automobiles and auto parts in the Mekong subregion (table 2), the countries in the subregion, except for Lao People’s Democratic Republic and Myanmar, have provided preferential tariff rates within ASEAN, although automobiles and auto parts appear on the sensitive list under the ASEAN Trade in Goods Agreement (ATIGA). Lao People’s Democratic Republic and Myanmar apply flat rates with 122 per cent and 30 per cent, respectively, on both completely-built units (CBU) and complete knock-down (CKD) kits regardless whether it involves imports from within or outside ASEAN. For the category of intra-ASEAN imports of CBUs, Viet Nam applies the second highest rate with 70 per cent whereas the tariff rates of Cambodia and Thailand are significantly lower, with 0 to 5 per cent and 0 per cent, respectively. If the imported CBUs originate from outside ASEAN, then Cambodia, Thailand and Viet Nam use a 35 per cent, 80 per cent and 70-82 per cent tariff, respectively. While the same tariff rate is in place for both CBUs and CKDs in Cambodia, Thailand and Viet Nam apply higher rates on CKDs from outside ASEAN (30 per cent and 65-78 per cent, respectively). The applied tariff rates for auto parts range from 0 per cent in Thailand, through 0 to 5 per cent in Cambodia to 5 per cent in Viet Nam if the parts come from another ASEAN country. Otherwise, Cambodia charges 7 to 15 per cent, Thailand 5 to 30 per cent and Viet Nam 0 to 30 per cent. It is thus clear that Lao People’s Democratic Republic regulates automotive imports to the greatest degree, while Cambodia applies generally lower tariffs to open its automotive market.

Table 2: Tariff schedules for automobiles and auto parts in the Mekong subregion

			Cambodia	Lao PDR	Myanmar	Thailand	Viet Nam
Current Tariff Rates for Personal Cars in per cent (Engine capacity ≤ 2000 cc)	CBU	Within ASEAN	0-5	122	30	0	70
		Outside ASEAN	35	122	30	80	70-82
	CKD	Within ASEAN	0-5	122	30	0	0-30
		Outside ASEAN	35	122	30	30	65-78
Current Tariff Rates for Auto Parts in per cent	Within ASEAN		0-5	n.a.	n.a.	0	5
	Outside ASEAN		7-15	n.a.	n.a.	5-30	0-30

Source: Compiled from data in the 2012 Annual Report of the AMEICC Working Group on Automobile Industry.

Note: CBU stands for a completely-built unit, while CKD is a complete knock-down kit.

In addition to trade and investment liberalization, improvements in transport infrastructure and logistics development have contributed to the expansion of the automotive value chains in the Mekong subregion. A number of cross-border road connections and their linkages to seaports and airports within the subregion have been upgraded, a necessity in helping facilitate the movement of automotive parts and components (Ksoll and Brimble, 2012). Further, the signing of the Cross-Border Transport Facilitation Agreement (CBTA) by the five countries of the Mekong subregion and China in 1999 was a major step in helping to improve cross-border logistics. This agreement aims to facilitate and simplify procedures required for cross-border cargo transportation, including regulations and measures such as single-window customs

inspection, subregional road transport permits and “fast tracks” at border checkpoints (ADB, 2011).

Table 3 provides an overview of the automotive industry and market in the Mekong subregion. The recent value estimates of automotive trades in the Mekong subregion are over US\$ 19.1 billion in exports and US\$ 11.5 billion in imports. Thailand and Viet Nam are the first and second biggest trading countries for automotive products in the subregion. Production capacities demand and motorization rates in the subregion can also be seen in table 3. Thailand is by far the largest car market and vehicle producer in the subregion, while Viet Nam is the second-largest car market and producer, accounting for 8.2 per cent of total vehicle production in Thailand. It is important to note that car sales exceeded car production in the countries in the subregion, except for Thailand, where approximately half the volume produced was exported in 2010, mainly to South-East Asia, South Asia, Japan, the Middle East and Oceania. Regarding Myanmar, it can be assumed that the number of vehicles sold also exceeds the number of vehicles produced, as the sales number for Myanmar does not reflect the import of second-hand cars, which is the major source of automobile supply. Generally, the observation of this sales-to-production ratio indicates that opportunities for expansion still exist to serve consumer demand in this subregion.

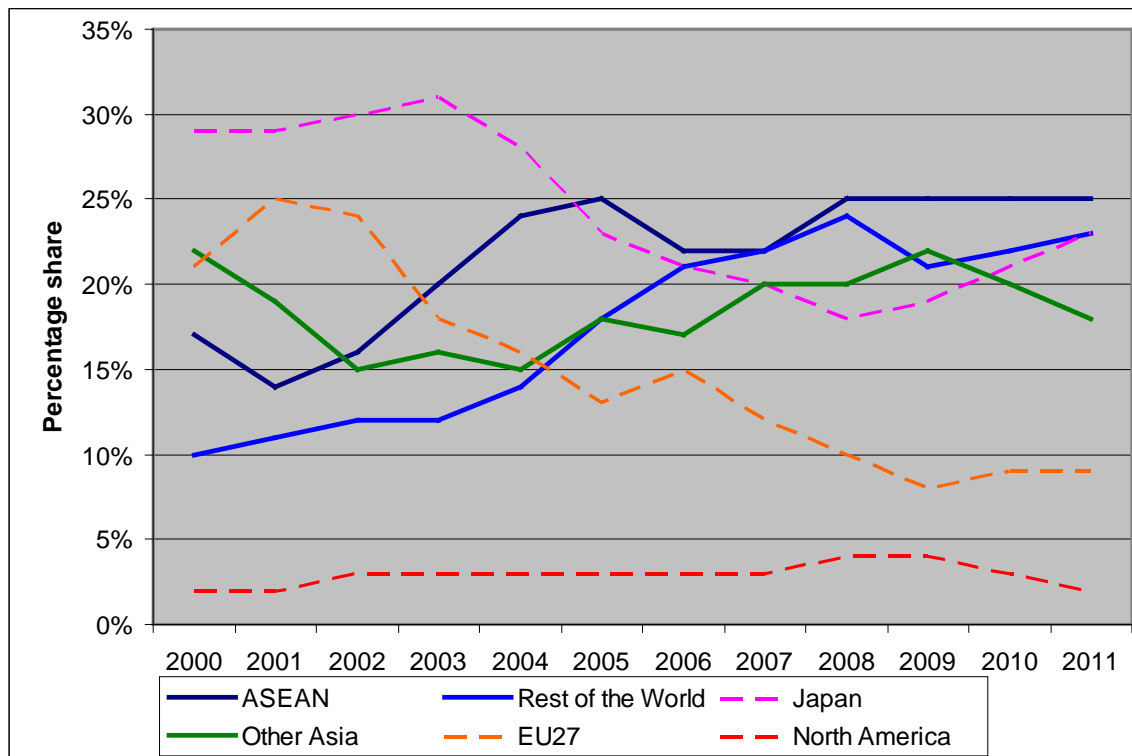
Table 3: Automotive industry in the Mekong subregion

Country	Population (million, 2011) ¹	Population growth (per cent/year) ¹	GDP per capita (current US\$, 2011) ²	Annual average GDP growth (per cent, 2006-2011) ¹	Export value of road vehicles (million US\$, 2011, SITC Rev.2: 78) ³	Import value of road vehicles (million US\$, 2011, SITC Rev.2: 78) ³	Total production in units (2011) ⁴	Total vehicle sales in units (year) ⁴	Sales as a percentage of production	Motorization as units per 1,000 population (year) ⁵
Cambodia	14.3	1.2	854 (estimate)	8.2	298.1	416.8	6,300 ⁶	27,275 (2010)	433	18 (2005)
Lao People's Democratic Republic	6.3	1.3	1,320	9.6	7.6 ⁸	368.5 ⁸	0	85,000 (2011)	--	2 (2007)
Myanmar	48.3	0.8	824 (estimate)	5.5 ⁷	0.003 (2010)	156.8 (2010)	1,779	1,779 (2011)	100	5 (2009)
Thailand	69.5	0.5	5,395	3.6	18,043.4	8,317.9	1,457,795	794,081 (2011)	55	57 (2006)
Viet Nam	87.8	1.0	1,374 (estimate)	8.2	721.2 (2010)	2,288.9 (2010)	125,147	142,533 (2011)	114	13 (2007)

Sources: (1) World Bank (2012), World Development Indicators; (2) IMF World Economic Outlook Database (October 2012); (3) UN Comtrade (2012); (4) 2012 Annual Report of the AMEICC Working Group on Automobile Industry (AMEICC, 2012); (5) ESCAP (2012) The Statistical Yearbook for Asia and the Pacific 2012; (6) the author's interview with automakers in Cambodia; (7) estimate from the CIA (2012) The World Factbook for 2009-2011; and (8) International Trade Centre (2012), Trade Map, HS 4 Code 87 (vehicles other than railway, tramway).

Automotive production and supply linkages in the Mekong subregion through global value chains have been reflected in the increasing South-South trade flows of automotive products, such as parts, components, complete knock-down kits (CKD) and automobiles, at both regional and global levels. Figure 2 illustrates various regions' share of automotive product flows with the Mekong subregion, using SITC Rev. 2 (78 for road vehicles). During the 2000s the importance of South-South trade in automobiles and intermediates has increased, while the importance of advanced countries such as the European Union 27, Japan and North America declined or stagnated. In particular, the share of automotive product trades within South-East Asia and with the rest of the world have both increased.

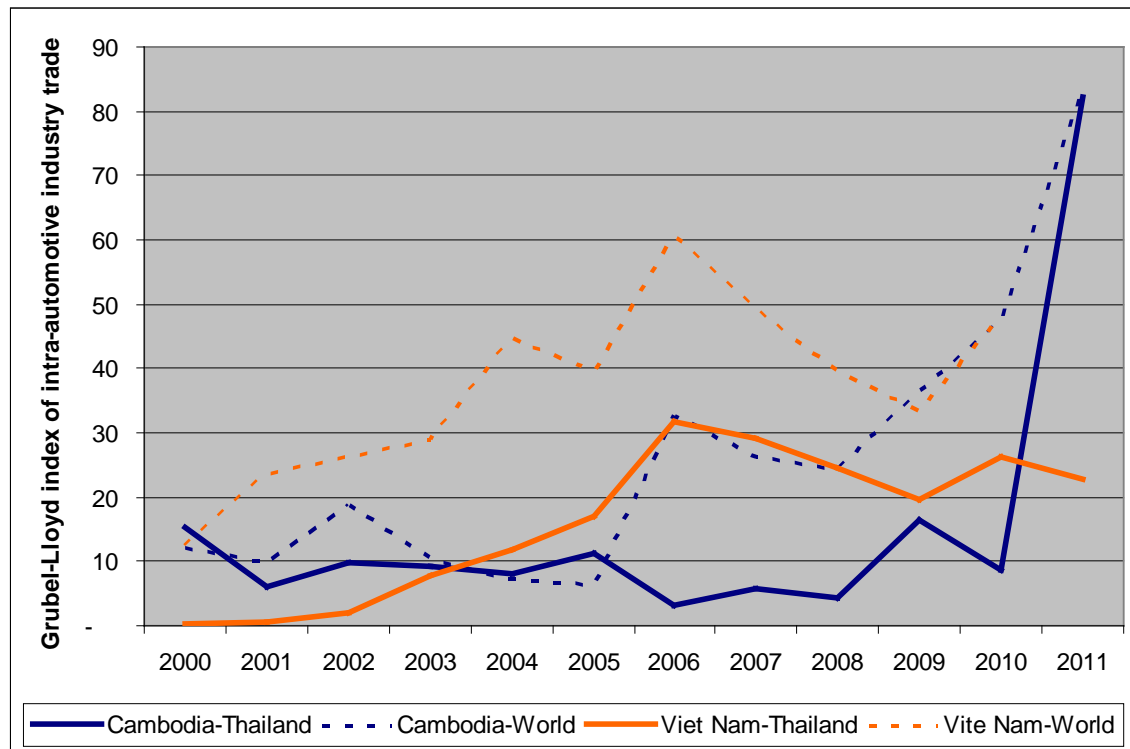
Figure 2: Share of automotive goods trade, Mekong subregion



Source: The author's calculation using data from the United Nations Comtrade.

Evidence of strengthened linkages within automotive value chains in the Mekong subregion is demonstrated by growing intra-industry trade, measured by the Grubel-Lloyd (GL) index (cf. Srivastava and Kumar, 2012). Figure 3 shows the GL index for automotive products between three countries in the Mekong subregion, namely Cambodia, Thailand and Viet Nam. Intra-industry trade as compared to inter-industry trade has increasingly characterized the trade of automotive products within the subregion during the 2000s. This means that there has been growing trade within the automotive value chains across borders, in this case, between Cambodia and Thailand as well as Thailand and Viet Nam. In addition, the GL index has also risen at the world level, indicating increasing integration of the Cambodian and Vietnamese automotive industries within the global automotive value chains. The trend highlights that these value chains have been strengthening both within and beyond the subregion.

Figure 3: Growth in intra-automotive industry trade 2000 to 2011



Source: ESCAP’s calculation using the UN Comtrade database.

Notes: The degree of intra-automotive industry trade is measured by the Grubel-Lloyd index at the sectoral level (Grubel and Lloyd, 1975). Intra-industry trade is defined as the trade of goods between two countries within the same category of a standard industrial classification. The aggregated index

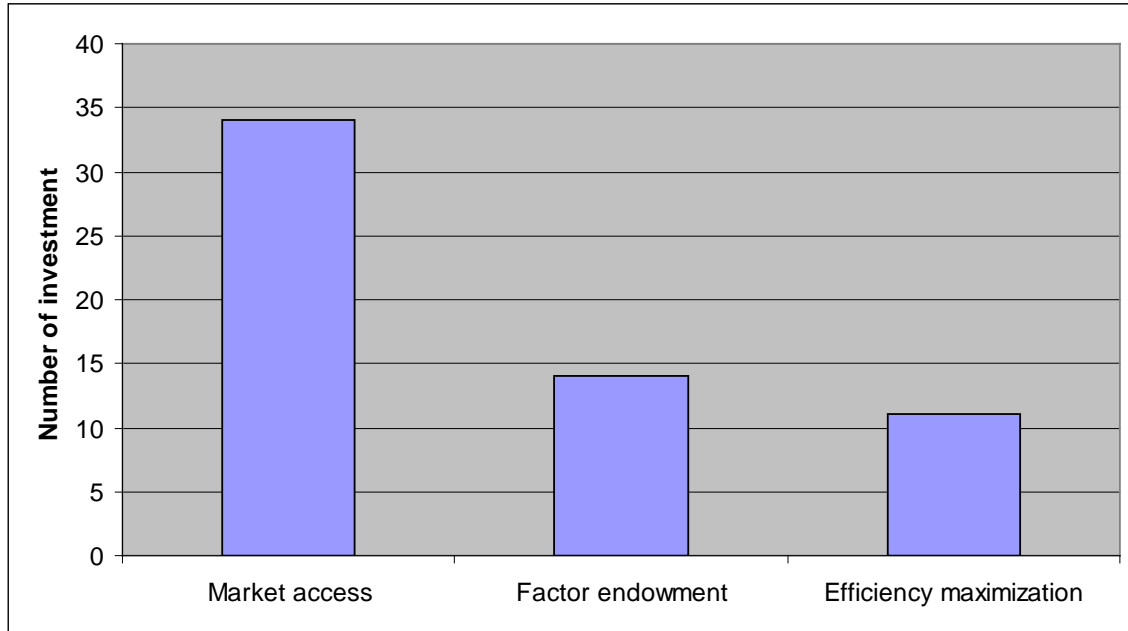
is calculated as $GL_i = \left[1 - \frac{|X_i - M_i|}{(X_i + M_i)} \right] * 100$, where GL_i is the Grubel-Lloyd index of intra-

industry trade in product category I , and X_i and M_i denote total exports and imports of the product category, respectively. GL_i takes value between 0 and 100. $GL_i = 0$ indicates that there is only inter-industry trade in the respective trade flows, while $GL_i = 100$ is interpreted as there is only intra-industry trade within the product category. The higher the index, the more the intra-sector trade between the countries. For this case, SITC (Rev.2) two-digit code (i.e. 78 for road vehicles) was used. Export-side data, a single series of trade values, were taken as the base data except that Thailand’s imports from Viet Nam were used due to the lack of Viet Nam export data in 2011. Total imports from the world were also taken as reported in the UN Comtrade.

Figure 4 presents the major motives for FDI in the automotive industry in the Mekong subregion. The main reasons for the expansion of the global automotive value chains can be grouped under three broad corporate strategies: (1) market access; (2) access to factor endowment; and (3) efficiency maximization. Firms are motivated to enter new markets for their further growth (Czinkota and Ronkainen, 2007). It is also natural that firms seek to access low-cost labour, scarce materials and advanced technologies across the globe (Handfield, 2007). They also aim to reduce costs within the overall value chain for higher productivity (Christopher, 2011), often through

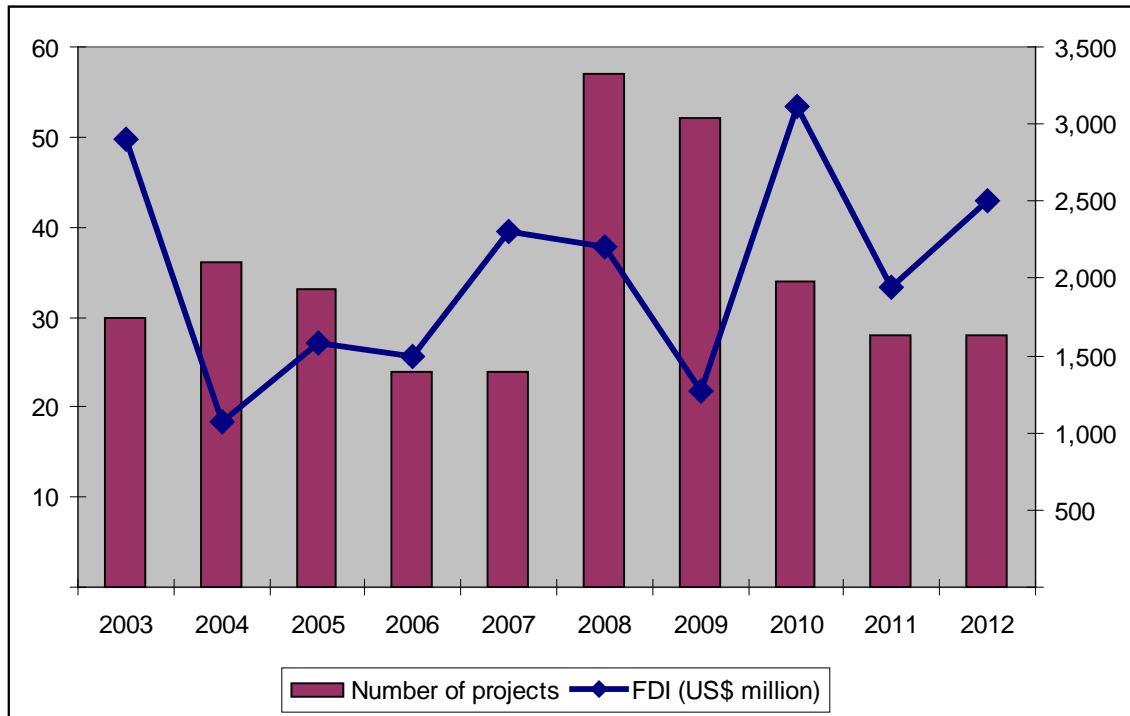
offshoring.^{vi} While automakers and their suppliers seek resources and cost reduction by entering the subregion, a majority of automotive investors have aimed to access the markets in the subregion through their direct investment. Figure 5 also shows the trend of strong FDI inflows to the automotive industry in the subregion.

Figure 4: Major motives of FDI for the automotive industry in the Mekong subregion



Source: The author's compliance based on the data of Financial Times Ltd., fDi Intelligence (2013).

Figure 5: FDI inflows to the automotive industry in the Mekong subregion



Source: The author's compliance based on data from Financial Times Ltd., fDi Intelligence (2013).

Note: No FDI project for Lao People's Democratic Republic is reported during the period.

3. Characteristics of automotive value chains

The automotive value chain can be characterized as an automaker-driven network. This is because, common to many capital and technology intensive industries, automobile production systems are, to a great extent, controlled by the automakers (ESCAP, 2009). The automakers also own car brands whose value is maintained by massive investment in sales and marketing, after-sales services and quality assurance. The value chain consists of a complex mixture of firms of different sizes, types and geographic scope, producing an enormous variety of products from simple parts to technologically complex systems.^{vii} Thus, the present automotive value chain has evolved into a complex, multi-tiered supplier structure with a high degree of outsourcing (Dicken, 2007). Automotive value chains specifically comprise the following players: standardizers, material suppliers, component specialists, integrators, assemblers and distributors (FPRI, 2012; Veloso and Kumar, 2002).

Standardizers, who are often automakers, conduct marketing research, develop the vehicle concept and design the specifications of the vehicle including its key modules and systems, heavily investing in research and development and process engineering. A first-tier supplier could be a standardizer by cooperating with the automakers in designing components and modules. Thailand has been the location of choice to date for standardizers, and R&D centres have been established by automakers in Thailand for the design of engines and localization of specifications. This is mainly due to the growing importance of the Thai market and Thailand's role as a regional production hub, where a localized R&D function is necessary to comply with local needs and trends, such as the green car policy, enacted in Thailand and other countries in the region. Standardizers have not as yet been established in other countries in the subregion.

Material suppliers provide various raw materials to automakers and their suppliers for parts and components production. Those materials include steels and metals, textiles, glasses, plastics, rubbers and chemicals. From the data currently available from the author's interviews with automakers and suppliers in the subregion, materials for automotive parts and components production are mainly sourced from Thailand (both Thai and foreign nationals) and supplemented by imports from other ASEAN countries, in particular Indonesia and Malaysia, and in some cases Australia, China, Europe, India, Japan, the Republic of Korea and North America. The automotive industry in the subregion still has to rely on imported materials from countries where advanced production technology and know-how are available.

Components specialists manufacture, according to the specification and requirement given by the standardizers, and deliver the required goods to integrators or assemblers for the purpose of module and system production or the final assembly of vehicles. The components specialists can be further categorized as either first-tier suppliers that deliver components directly to the assemblers and lower-tier suppliers that provide components to other suppliers or integrators. The lower-tier suppliers — most of them are smaller enterprises — tend to manufacture simpler and more labour-intensive

parts that would later be incorporated by the higher tier suppliers (cf. Veloso and Kumar, 2002). Thailand and Viet Nam are two primary locations for component specialists. Thailand has established its automotive parts sector with over 1,800 suppliers with growing involvement by local firms. Viet Nam has also established an automotive parts sector on a smaller scale with 200 suppliers, and it is more heavily reliant on imported parts than that of Thailand. Localization for Thai auto production now exceeds 90 per cent, while in Viet Nam it accounts for approximately ten per cent (Yamamoto, 2012). The presence of component specialists in other countries in the Mekong subregion apart is, at the moment, not yet widely established but some Japanese and other first- and second-tier suppliers have recently expanded into Cambodia, Lao People's Democratic Republic and Myanmar (JETRO, 2012).

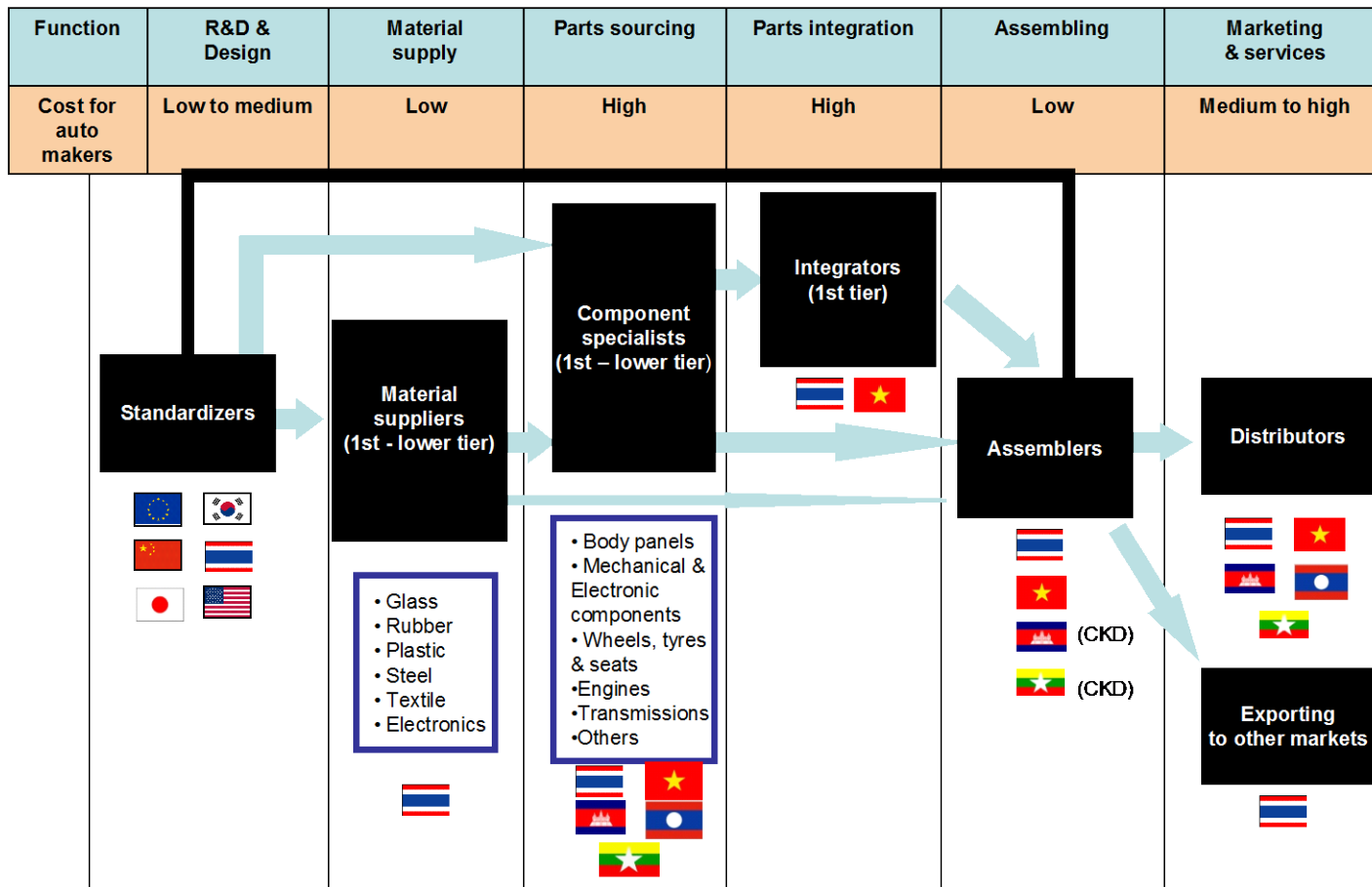
Integrators design and assemble key modules and systems for final assembly and are typically first-tier suppliers. Examples include integrating key elements into an engine and an air conditioning system. As the integrators must deal with a number of lower-tier suppliers, they must possess high degree of supply chain management skill, while adequately investing in R&D and process engineering. Today, Thailand and Viet Nam are the primary locations for the integrators in the subregion. No integrator has yet to move to Cambodia, Lao People's Democratic Republic or Myanmar.

Assemblers, which are typically automakers (and for some exceptional cases first-tier suppliers), assemble vehicles in locations near their main markets or offer adequate access to factor endowment. Thailand is the leading location in terms of volume and variety of car assembly, including a large share for export. Since the 1990s, assemblers have also been also present in Viet Nam but on a much smaller scale, solely for the domestic market. Cambodia is now receiving increasing, if still modest, attention from assemblers, starting complete knock-down (CKD) assembly in the mid 2000s. Myanmar has recently developed auto assembly lines on a small scale and still imports used cars as a main source of automobile supply. Lao People's Democratic Republic has yet to attract any assembly line and is a net importer of vehicles.

Distributors supply vehicles to consumers in the local market, conducting various sales and marketing activities and providing after-sales services. As there is growing automobile demand in all countries in the subregion, a need for dealership and repair services has rapidly arisen. Dealership networks have been set up by major automakers in all countries except Myanmar where dealership development is underway.

Figure 6 illustrates the simplified relationships among the key players within the global automotive value chains. It also indicates specific national presence among the value chain players in the Mekong subregion.

Figure 6: A simplified global automotive value chain



Source: The author's compliance.

Note: Both inbound and outbound logistics costs are included in each function.

Regarding the cost structure of the automotive value chain, the purchasing and production of parts, components and modules represent the largest cost area (see figure 6), accounting for between 40 and 70 per cent of the price of an average car (ABN-AMRO, 2000; Holweg, Davies and Podpolny, 2009). The second and third largest cost areas are sales and marketing as well as research and development,^{viii} accounting for roughly 20 per cent and nearly 10 per cent of the car price, respectively. The costs for assembling and materials are both modest, each accounting for less than 10 per cent of the car price (cf. Holweg, Davies and Podpolny, 2009). Since supplies such as parts, components and modules account for the largest cost group, one key strategy adopted by the automakers to improve competitiveness has been effective supply chain management in order to reduce costs, and this has led to the expansion of automotive value chains to low-cost neighbouring countries.

Key findings from three industrial surveys

This section reviews the results of three most recent industrial surveys conducted in the Mekong subregion. The Japan External Trade Organization (JETRO) conducted the first and second surveys in 2009 and 2012, respectively. The third survey was conducted by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the Fiscal Policy Research Institute (FPRI) of Thailand in 2012. The first survey interviewed 103 Japanese investors and local enterprises mainly in manufacturing sectors, which operate in the Mekong subregion, to identify corporate strategies and challenges in their cross-border operations (JETRO, 2009). The second survey was conducted with 240 firms as the follow-up to the first survey and aimed to identify the major changes of corporate strategies and challenges from the 2009 survey, including the quality of infrastructure and related policies and regulations (JETRO, 2012). The third survey conducted by UNESCAP and FPRI looked into the specific strategies and challenges of the automotive industry in the subregion to complement the results of the JETRO surveys; thus, it was undertaken with 22 automotive-related agencies in the subregion, including automakers and automotive parts suppliers as well as automotive associations and institutes (FPRI, 2012). All three surveys adopted the semi-structured interview method but some informants participated in the surveys through telephone interviews and questionnaires.

The major findings from the three surveys are summarized as follows:

- The majority of surveyed firms have expanded or have a strong intention to expand their automotive value chains within the Mekong subregion, including less developed countries such as Cambodia, Lao People's Democratic Republic and Myanmar, for example, through investment in new factories and upgrading of existing facilities.
- The motives for expansion of cross-border operations in the subregion are in line with the three major motives for automotive investment (see figure 4): (1) to seek a greater access to market; (2) to secure key factor inputs such as labour;

and (3) to reduce operational costs through pro-business policy framework in the host country.

- The automotive industry has tried to reap benefit from various free trade agreements such as AFTA and ASEAN+6, sourcing parts and components from other ASEAN countries and ASEAN+6 partners. Different processes in automotive production can be shifted from one country to the other. For example, a firm in Thailand brings materials to Cambodia to be processed in a factory in the country and transports those processed products back to Thailand to finish the process.
- Due to the implementation of the Cross-Border Transport Facilitation Agreement (CBTA), the movement of goods within the subregion has been significantly smoothed. For example, transshipment between Thailand and Lao People’s Democratic Republic became unnecessary, resulting in the reduction of time and the risk of damage. Customs procedures were also improved significantly, officially introducing e-customs and fast-track systems.

While their results strongly suggest major improvements in the cross-border business environment, the three industrial surveys also highlight a number of obstacles to the growth of automotive production linkages within the Mekong subregion. Those obstacles can be categorized into six groups: (1) trade liberalization; (2) trade facilitation and logistics; (3) infrastructure; (4) policy and regulatory framework; (5) labour market; and (6) business strategies. Those six groups are summarized in table 4.

Table 4: Obstacles to the development of global automotive value chains in the Mekong subregion

Category	Details
Trade liberalization	<ul style="list-style-type: none"> • Different and stringent rules of origin across various free trade agreements (e.g. ASEAN-India FTA) • Different HS classifications among FTAs (even at the 6 digit level) and HS revisions • Difference in classification and understanding of the HS code among customs • Insufficient tariff reduction including those caused by “reciprocity” among FTAs (ATIGA and ASEAN-China) • Lack of information on ongoing FTA implementation and negotiations • Required specific documentations (certificates of origin)
Trade facilitation and logistics	<ul style="list-style-type: none"> • Insufficient simplification and harmonization in customs clearance systems • Time-consuming trade licensing • Original documents required at customs

	<ul style="list-style-type: none"> • Unofficial fees at customs • Higher import duties due to misclassification of the HS code and lacking transparent ruling systems • Low utilization of ICT based customs systems, particularly at the provincial level • High logistics costs of cross-border shipments • Lack of single-stop inspection at the borders • Inconvenient operation time of customs • Cumbersome procedures of certificate of origin (e.g. inspection in factories) • Insufficient deregulation of cross-border transportation (i.e. triple license) • Trans-shipment at borders (Myanmar border; Cambodia and Thailand border) due to non-ratification/implementation of CBTA • Increased number of permissions for cargo transportation • Lack of third-party international transport insurance • Inadequate customs and trans-shipment facilities • Inadequate linkage among logistical hubs (connecting routes, seaports and airports)
Infrastructure	<ul style="list-style-type: none"> • Poor road conditions and limited capacity and access • Instability and shortage of power supply • Insufficient water supply • Lack of railway networks (Bangkok-Phnom Penh-Ho Chi Min City railway) • Lack of adequate deep seaports and airports • Insufficient industrial estates, particularly in the border areas • Underdeveloped communication facilities (e.g. internet access and speed)
Policy and regulatory framework	<ul style="list-style-type: none"> • Unfavourable investment law and land acts for foreign direct investment • Stringent regulation and cumbersome procedures • Frequently changing legislation and lack of consultation with the private sector • Lack of transparent policy decisions • High registration fees and taxes (e.g. automotive sector in Viet Nam) • Inadequate protection of intellectual property rights (e.g. patents and trademarks) • Weak supporting industry and lack of policies for its development (i.e., poor SME cluster) • Underdeveloped legal system • High cost of foreign currency remittance
Labour markets	<ul style="list-style-type: none"> • Increasing labour costs (Thailand and Viet Nam) • Shortage of skilled labour (engineers and technicians) • Low labour productivity

	<ul style="list-style-type: none"> • Low quality of national education system, particularly lack of technical and engineering education (such as secondary vocational education)
Business strategies	<ul style="list-style-type: none"> • The necessity of proximity between automakers and suppliers for just-in-time delivery • Difficulty with punctual delivery by cross-border shipments • Lack of economies of scale • Lack of technology • Substantial financial outlays

Source: The author's compliance based on JETRO (2009; 2012), FPRI (2012) and the author's interviews with the automotive sector.

4. Policy implications

A number of key findings were derived from the analyses as described in the previous sections. The automotive industry has increasingly moved to adopt a subregional production sharing strategy, that is, “the break-up of a production process into vertically separated stages carried out in two or more countries” (Athukorala and Menon, 2010). This strategy is to manufacture complex components and sub-assemblies in a central location (such as Thailand and Viet Nam); use lower tier parts suppliers from low cost countries in the subregion (e.g. Cambodia, Lao People’s Democratic Republic and Myanmar); then distribute these components and sub-assemblies to the central location for integration; and ship those intermediate products to final assembly plants.

In this, the Mekong countries can enhance their cost-competitive position, while growing their domestic markets and increasing subregional linkages under the ongoing trade and investment liberalization in South-East Asia (i.e. ASEAN Economic Community and ASEAN+6). Strengthening cross-border automotive value chain linkages can enhance the participation of the Mekong subregion in this important industry and facilitate upgrading related to technology and skills. This, in turn, can strengthen the role of the subregion as a production base within an increasingly integrated regional economy. To apply this concept to the Mekong subregion, there are many opportunities to relocate the production of some parts and components — most likely labour intensive process — to the countries within the same geographical areas with the purpose of reducing costs as production of automobiles relies on many different activities.

In this context, a subregionally coordinated strategy of production relocation and integration could provide opportunities for neighbouring lower-cost countries such as Cambodia, Lao People’s Democratic Republic and Myanmar to become lower-tier suppliers of selected labour-intensive components for the Thai automotive parts sector (and Vietnamese automotive parts sector to a lesser extent). Such cross-border production linkages could provide an entry point for such a country to the global automotive value chains, with significant developmental benefits.

In order to achieve the development potential derived from the global automotive value chains, collective actions may be seriously considered among key stakeholders, particularly in the areas of constraint summarized in the previous section: trade liberalization; trade facilitation and logistics; infrastructure; policy and regulatory framework; labour market; and business strategies. Table 5 combines specific policy suggestions for enhanced cross-border automotive value chains via strengthened sharing responsibility among governments, business and public-private partnership (PPP) and international organizations.

Table 5: Sharing responsibility to strengthen automotive value chains in the Mekong subregion

	Governments	Firms	Public-private partnership (PPP)	International cooperation
Trade liberalization	<ul style="list-style-type: none"> • Harmonization of various components of FTAs (preferential rules of origin, documentation and cost-analysis method) • Merging of existing FTAs • Further tariff reduction through multilateral and regional FTAs 	<ul style="list-style-type: none"> • Development of corporate strategies based on FTAs • More use of FTAs • Best production locations and value chain development based on FTAs • Collection and evaluation of FTA information • Communication with the public sector 	<ul style="list-style-type: none"> • Development of consultation process • Joint training and awareness building campaigns 	<ul style="list-style-type: none"> • Further trade liberalization • Harmonization of various bilateral and regional FTAs • Promotion of multilateral FTA (i.e. WTO framework)
Trade facilitation and logistics	<ul style="list-style-type: none"> • Improvement in logistic and customs systems • Full implementation of CBTA 	<ul style="list-style-type: none"> • Communication of business needs to the public sector 	<ul style="list-style-type: none"> • Joint development of third party transport insurance scheme • Joint task forces 	<ul style="list-style-type: none"> • Region wide assessment • Facilitation of subregional negotiation • Regional forums • Information sharing
Infrastructure	<ul style="list-style-type: none"> • Development of the master plan • Improvement of road connection and condition • Development of border industrial estates including special economic zones (SEZs) • Development of seaports and airports • Enhanced power and utility supply • Improvement of ICT facilities (high-speed internet access) 	<ul style="list-style-type: none"> • Communication of business needs to the public sector • Investment in infrastructure development 	<ul style="list-style-type: none"> • Appropriate “shared responsibility” • GVC led infrastructure planning • Infrastructure development and associated investment • Risk information sharing 	<ul style="list-style-type: none"> • Regional forums • Forum for transparent infrastructure development • Regional plan

Policy and regulatory framework	<ul style="list-style-type: none"> • Improvement of investment law and land act • Support and incentives to facilitate investment to neighbouring countries • Enhanced banks' role in the facilitation of investment • Harmonization of policies as well as rules and regulations among governmental agencies • Proper foreign exchange system and bilateral tax treaties • Anti-corruption • Material and supporting industries development 	<ul style="list-style-type: none"> • Communication of business needs to the public sector • Collective action among business associations • Adherence to legislation 	<ul style="list-style-type: none"> • Formal consultation process • Joint assessment • Joint task forces • Information sharing and distribution • Introduce PPP regulatory schemes on infrastructure development • Joint institutional and capacity building for industrial development 	<ul style="list-style-type: none"> • Region-wide information sharing • Assessment and evaluation • Harmonization of policy and regulatory framework • Forum on cross-border division of labour
Labour markets	<ul style="list-style-type: none"> • Reform in national education system • Vocational /engineering training • Initiates to improve labour productivity 	<ul style="list-style-type: none"> • Production in the low-labour-cost neighbouring countries • On-the-job training • Internship • Collaboration with public training institutes 	<ul style="list-style-type: none"> • Joint training schemes • Joint internship schemes • Joint institutes to provide skill development training • Joint funds and resource pools for human resource development 	<ul style="list-style-type: none"> • Regional forums • Region-wide information sharing
Business strategies	<ul style="list-style-type: none"> • Sharing and consulting development plan • Provision of market information 	<ul style="list-style-type: none"> • Careful supply network planning • Relocation of labour intensive production to low-cost neighbouring countries • Strengthened R&D functions • Diversification of risks 	<ul style="list-style-type: none"> • Joint task forces • Information sharing • National forums 	<ul style="list-style-type: none"> • Targeted development aid • Regional task forces • Regional forums

Source: The author's compliance.

5. Conclusion

Trade liberalization, along with investment by automakers and increasing trade facilitation and logistics development, has been the cause of the recent transformation in the automotive industry in the Mekong subregion. The automakers have looked for opportunities for greater market and resources access as well as for cost reduction. As a result, less developed countries in the Mekong subregion are increasingly integrated into the global automotive value chains, and a number of suppliers, particularly those producing labour-intensive goods, are increasingly moving to Cambodia, Lao People's Democratic Republic and Myanmar. Integration into global automotive value chains, which typically comprise standardizers, material suppliers, components specialists, integrators, assemblers and distributors, has made it possible for the subregion to establish strong manufacturing bases and benefit from increased exports and further FDI inflows. Diversified and growing division of labour also is being developed among the countries in the subregion.

However, a number of constraints still exist preventing full achievement of the growth potential of cross-border automotive production linkages within the subregion. Collective actions among governments, business and international agencies are required in various fields, including: trade liberalization; trade facilitation and logistics; infrastructure; policy and regulatory framework; labour market; and business strategies.

For further research, two approaches are recommended. First, more reliable trade and investment data must be collected directly from the countries in the Mekong subregion. With growing membership among the countries of the subregion to the WTO (most recently, Lao People's Democratic Republic accession in 2012), it is expected that more reliable and comprehensive trade statistics will become more available in the subregion. Second, a small number of representative automotive value chains should be selected for detailed mapping, in close consultation with governments and automotive industry in the Mekong subregion. Diagnosing specific bottlenecks that constrain growth and efficiency in the selected automotive value chains will then provide the basis for recommendations with more general implications for the automotive industry in the subregion.

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Endnotes

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ⁱⁱ This subregion is also part of the Association of Southeast Asian Nations (ASEAN). It is often called mainland ASEAN, while Brunei Darussalam, Indonesia, Malaysia, the Philippines and Singapore are called maritime ASEAN.

ⁱⁱⁱ ESCAP's calculation based on data from the UN Comtrade (SITC Rev.2: 78).

^{iv} ASEAN countries have agreed to establish the AEC by the end of 2015. For more details visit <http://www.aseansec.org/>.

^v For details see Legewie (1999a; 1999b) and Hiratsuka (2010).

^{vi} Offshoring refers to activities that utilize facilities located in a country other than where the enterprise is based (Vitasek, 2006). The motivation for offshoring has primarily been cost reductions, economies of scale and possibly lower financial costs such as borrowing costs and tax rates (Aron and Singh, 2005).

^{vii} For example, over 4,000 parts and components are used for the 2012 model of the Toyota Camry sedan car (the author's interview with the automotive industry in Bangkok, November 2012).

^{viii} It is understood that the cost of research and development varies widely among standardizers and automakers.