

Global Value Chains in ASEAN

A Regional Perspective

PAPER 1
(Revised)
JANUARY
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ASEAN-JAPAN
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NOTES

The terms country and economy as used in this study also refer, as appropriate, to territories or areas; the designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the ASEAN-Japan Centre concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The following symbols have been used in the tables:

- Two dots (..) indicate that data are not available or are not separately reported.
- A dash (-) indicates that the item is equal to zero or its value is negligible.
- Use of a dash (-) between dates representing years, e.g., 2015–2016, signifies the full period involved, including the beginning and end years.
- Reference to “dollars” (\$) means United States dollars, unless otherwise indicated.

List of papers under the project on global value chains in ASEAN by the ASEAN-Japan Centre

The current paper is the first of a 16-paper series on ASEAN GVCs. The other 15 papers were published or will be produced subsequently.

Paper 1. A Regional Perspective (First published in September 2017; Revised)

Paper 2. Brunei Darussalam (Published in February 2018)

Paper 3. Cambodia

Paper 4. Indonesia

Paper 5. Lao People’s Democratic Republic

Paper 6. Malaysia

Paper 7. Myanmar

Paper 8. Philippines (Published in July 2017)

Paper 9. Singapore (Published in August 2018)

Paper 10. Thailand

Paper 11. Viet Nam

Paper 12. Automobiles

Paper 13. Electronics

Paper 14. Textiles and clothing

Paper 15. Agribusiness

Paper 16. Tourism (Published in March 2018)

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INTRODUCTION

Participating more in and moving up global value chains (GVCs) is an important strategic option for ASEAN as it moves towards achieving the ASEAN Economic Community (AEC) Blueprint 2025 with its characteristics of “a highly integrated and cohesive economy” and “a competitive, innovative and dynamic ASEAN”. A broader objective of becoming a highly integrated and cohesive economy is to enhance the region’s participation in GVCs (AEC Blueprint 2025, para. 22), and increasing the region’s competitiveness and productivity requires deepening ASEAN participation in GVCs (para. 25).

The concept of GVCs is well developed; theory and evidence for them abounds (e.g. Baldwin 2011; Gereffi, Humphrey and Sturgen 2005). However, despite anecdotal evidence and industry cases in abundance, including in ASEAN, what is lacking is a systematic and comprehensive view of GVCs that is based on data on value added trade.¹ The ASEAN-Japan Centre (AJC), in cooperation with Eora and the United Nations Conference on Trade and Development (UNCTAD), has been engaged in estimating and producing such data for all ASEAN member states. This paper is the revision to the first of a 16-paper series on GVCs in ASEAN (box 1).

The AJC is building on efforts in the world community to map the distribution of value added trade for ASEAN. A new data set on GVCs in ASEAN provides new perspectives on trade and investment links among ASEAN economies, and between ASEAN economies and major partner countries such as Japan, China and the Republic of Korea; on the distribution of value added resulting from trade; and on how investment drives patterns of value added trade.

ASEAN is becoming a major, competitive global production centre for a growing range of products and services. The wide development gap between member states and their industrial policies produce differences in GVC patterns by country. Regional value chains (RVCs) incorporating a number of member states are also being established, led by firms from advanced member states, e.g. Singapore, or by foreign affiliates of firms in developed countries such as Japan. In many cases, RVCs constitute an integral part of GVCs.

This general paper provides an overview of the ASEAN in member countries’ relations as a group and as individual countries with GVCs and RVCs. Whereas country- and industry-specific characteristics are addressed in the country and industry papers (Papers 2–16), this paper tries to capture major findings pertinent to the region and at the same time show outstanding differences in trends and patterns of GVCs among the 10 member states and in the five industries. Section I introduces a general picture and evolution of trends and patterns of GVCs in ASEAN. Section II briefly describes the GVCs of the five industries to be detailed in the industry papers (Papers 11–16). Section III identifies major impacts, both positive and negative, that GVCs can bring to economies. Section IV provides a general policy framework for ASEAN to maximize positive impacts from participating in GVCs while minimizing associated downside effects.

¹ In OECD terminology, it is “trade in value added (TiVA)”.

Box 1. GVC work undertaken by the ASEAN-Japan Centre: First Phase

This is a multiyear and first-phase research effort, producing every year value chain data for individual countries of ASEAN and analytical papers based on the results of these data. The first year (FY2016) generated basic data sets for ASEAN as a group and its individual member states (which are used in the present paper). In the remaining years, the AJC will produce evidence-based, policy-oriented technical papers while maintaining and updating the database created in the first year.

This work also reinforces the Centre's technical cooperation programme in trade, investment and tourism by identifying which sectors to target for their promotional activities from the point of view of value chains. It assesses the size and significance of economic partnerships between ASEAN and Japan through GVCs in different sectors, in part to identify for which sectors the Centre should make more promotional efforts and try to derive synergies between its technical cooperation and its analytical contribution.

Output 1: Creation of the database on ASEAN GVCs

On the basis of the UNCTAD-Eora GVC database and further data construction for ASEAN countries, a unique database on GVCs was established for 10 ASEAN member countries, with special emphasis on Japan as a partner. Other important partners of ASEAN such as China and the Republic of Korea are included in the database. This database uses value added trade data derived from the Eora global, multiregional input-output (MRIO) table (www.worldmrio.com). The Centre's database is called the AJC-UNCTAD-Eora database on ASEAN GVCs. It will be made public after the estimated data on GVCs is validated. Data have been updated from time to time.

Value added trade statistics can lead to important policy insights for trade, investment and development. The Centre, as part of new efforts to conduct research and policy analysis, aims to provide analysis of the relevance, impact and patterns of value added trade and GVCs across ASEAN, and in member countries. The database is helpful for this purpose.

Variables in the database include foreign value added trade, domestic value added trade, value added integrated in other countries' exports and gross exports for 26 industries in Brunei Darussalam and the CLM countries (Cambodia, the Lao People's Democratic Republic and Myanmar), 77 industries in Indonesia and the Philippines, 98 industries in Malaysia, 113 industries in Viet Nam, 154 industries in Singapore, 180 industries in Thailand and 402 industries in Japan, covering the period 1990–2015 (1990–2018 for bilateral country data) as of end-2018. Data are collected and estimated along these variables in a systematic manner. They are also presented in a standardized industry classification in the database for comparability among ASEAN countries on the following five variables:

- Foreign value added: FVA
- Domestic value added: DVA
- Value added incorporated in other countries' exports: DVX
- GVC participation: FVA + DVX
- Gross exports (total value added exports): FVA + DVA

Output 2: 16 evidence-based, policy-oriented technical reports

In a collaborative effort with the Eora project and UNCTAD, the new database of the Centre will be used to assess the patterns, development impact and policy implications of value added trade and investment. Under this multiyear programme, 16 evidence-based and policy-oriented technical reports will be prepared: in addition to this general paper on ASEAN as a whole (Paper 1), individual reports on 10 ASEAN member countries (Papers 2–11) and five selected industries (Papers 12–16) – electronics, automobiles, textiles and clothing, agribusiness, and tourism. These industries not only are central economic – and strategically important – activities of many ASEAN member countries, but also develop significant GVCs as well as RVCs.

I. TRENDS AND PATTERNS OF GVCs IN ASEAN

1. Current picture of ASEAN GVCs

Exports data as used in GVCs, which are referred to as value added exports, are all estimated from the countries' input-output tables. Thus, these data differ to a certain extent from exports data available from customs-clearance-based merchandise trade and those from national account statistics, in the sense that value added exports do not include the value of the trade in materials used for processing² or the value of re-exports, and are evaluated in the base prices. In trade statistics from certain countries (such as Singapore), re-exports are relatively large and exports are expressed in the freight-on-board price. Therefore, it is often the case that value added exports are lower than regular exports (table 1). For example, in 2016, the most recent year for which value added export data could be estimated, whereas exports of goods and services were \$1,434 billion, value added exports amounted to \$1,352 billion.

Ownership of each value for value added exports is attributable to a certain industry (not necessarily to the industry of the product) and to a certain country (not necessarily to the country of shipment). Some exports from an ASEAN country may be part of products used as inputs to other export products from another ASEAN country, and other exports may contain inputs from other countries. In total, in 2018, 36 per cent or \$531 billion of ASEAN exports contain imports from other countries, leaving 64 per cent or \$953 billion for the value created domestically (figure 1). For the former, the value of imports integrated into a country's own exports is called foreign value added, and for the latter, it is the domestic value added that constitutes the country's gross domestic product (GDP) (see box 2 on GVC terminology).

Table 1. Comparison of value added exports with exports of goods and services from ASEAN, 1990–2018 (Billions of dollars)

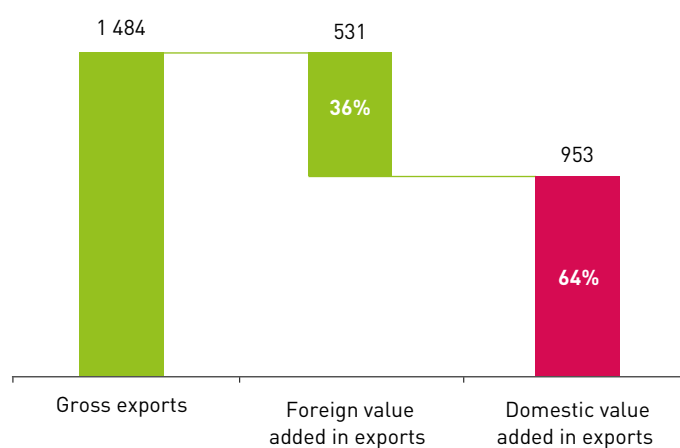
Year	Value added exports	Exports of goods and services
1990-1994	188	243
1995-1999	314	431
2000-2004	419	537
2005-2009	846	963
2010	1 130	1 241
2011	1 311	1 478
2012	1 304	1 526
2013	1 338	1 567
2014	1 419	1 599
2015	1 323	1 464
2016	1 352	1 434
2017	1 426	..
2018	1 484	..

Source: AJC-UNCTAD-Eora for value added exports data and UNCTAD for exports of goods and services data.

² Until the publication of the fifth edition of the Balance-of-Payments Manual, the value of processing trade was included in both the merchandise (goods) exports and the imports of the country in question. This approach inflates the value of trade even though it does not belong to the country. In the current edition (BOP6), this practice is no longer used; instead, differences in exports and imports of the processing trade are recorded in the services trade as value added created in the economy (see IMF 2009, Chapter 10).

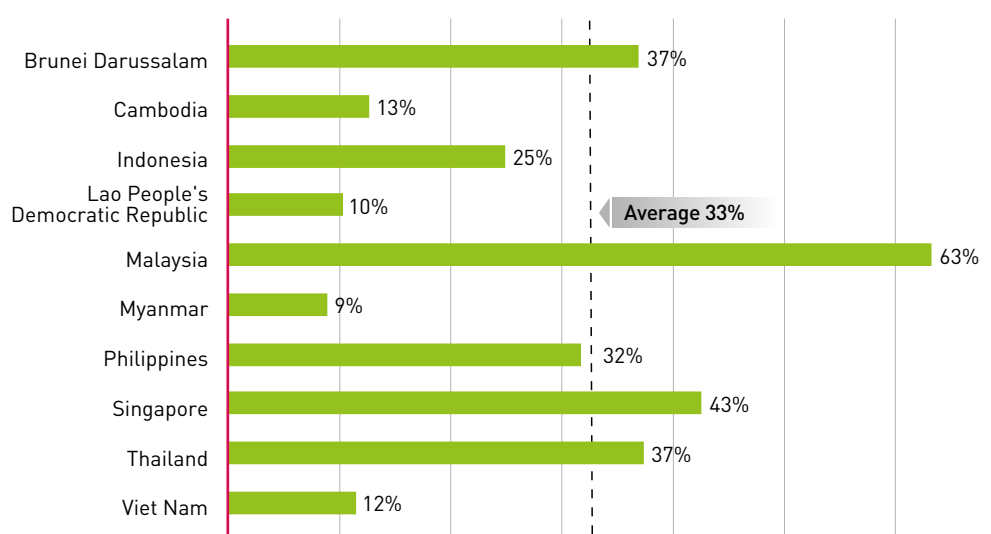
From any country's viewpoint, the more value added accrues to the country, the better. Indeed, in many ASEAN countries, exports generate value added for the country, and its share in GDP is significant. However, not all exports from a country contribute to its GDP, as one third of the export value belongs to foreign countries. The real contribution share in ASEAN was 33 per cent in 2018 (figure 2). However, ASEAN should not simply strive for more domestic value added at the expense of lowering foreign value added. As shown later, higher foreign value added is likely to lead to higher economic growth rates. There is a need for proper balance between foreign value added and domestic value added. This is the essence of GVCs.

Figure 1. Value added exports from ASEAN, 2018 (Billions of dollars)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 2. Domestic value added in exports as a share of GDP, 2018 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Box 2. GVC terminology used in the AJC paper series

A country's exports can be divided into domestically produced value added and imported (foreign) value added that is incorporated into exported goods and services. Furthermore, exports can go to a foreign market either for final consumption or as intermediate inputs to be exported again to third countries (or back to the original country). The analysis of GVCs takes into account both foreign value added in exports (the upstream perspective) and exported value added incorporated in third-country exports (the downstream perspective). The indicators used in this paper series are as follows:

1. Foreign value added: Foreign value added (FVA) indicates what part of a country's gross exports consists of inputs that have been produced in other countries. The FVA share is the share of the country's exports that do not add to its GDP.

2. Domestic value added: Domestic value added (DVA) is the part of exports created in country, i.e. the part of exports that contributes to GDP. Domestic value added can be put in relation to other variables:

- As a share of GDP it measures the extent to which trade contributes to the GDP of a country.
- As a share of global value added trade (the "slice of the value added trade pie") it can be compared with a country's share in global gross exports (relative value capture from trade).

The sum of foreign and domestic value added equates to gross exports.

3. Value added incorporated in other countries' exports: DVX indicates the extent to which a country's exports are used as inputs to exports from other countries. At the global level, the sum of this value and the sum of foreign value added is the same.

4. GVC participation indicates a country's exports that is part of a multistage trade process, by adding to the foreign value added used in a country's own exports (FVA) the value added supplied to other countries' exports (DVX). Although the degree to which exports are used by other countries for further export generation may appear less relevant for policymakers, as it does not change the domestic value added contribution of trade, the participation rate is a useful indicator for the extent to which a country's exports are integrated in international production networks.

The GVC participation corrects the limitation of the foreign and domestic value added indicators, in which countries at the beginning of the value chain (e.g. exporters of raw materials) by definition have a low foreign value added content of exports. It gives a more complete picture of the involvement of countries in GVCs, both upstream and downstream.

GVC indicators can also be used to assess the extent to which industries rely on internationally integrated production networks. A number of complex methods have been devised in the literature to measure GVC length; however, the degree of double counting in industries, conceptually, can serve as a rough proxy for the length of GVCs. Data on value added trade by industry can provide useful indications on the comparative advantages and competitiveness of countries, and hence form a basis for development strategies and policies.

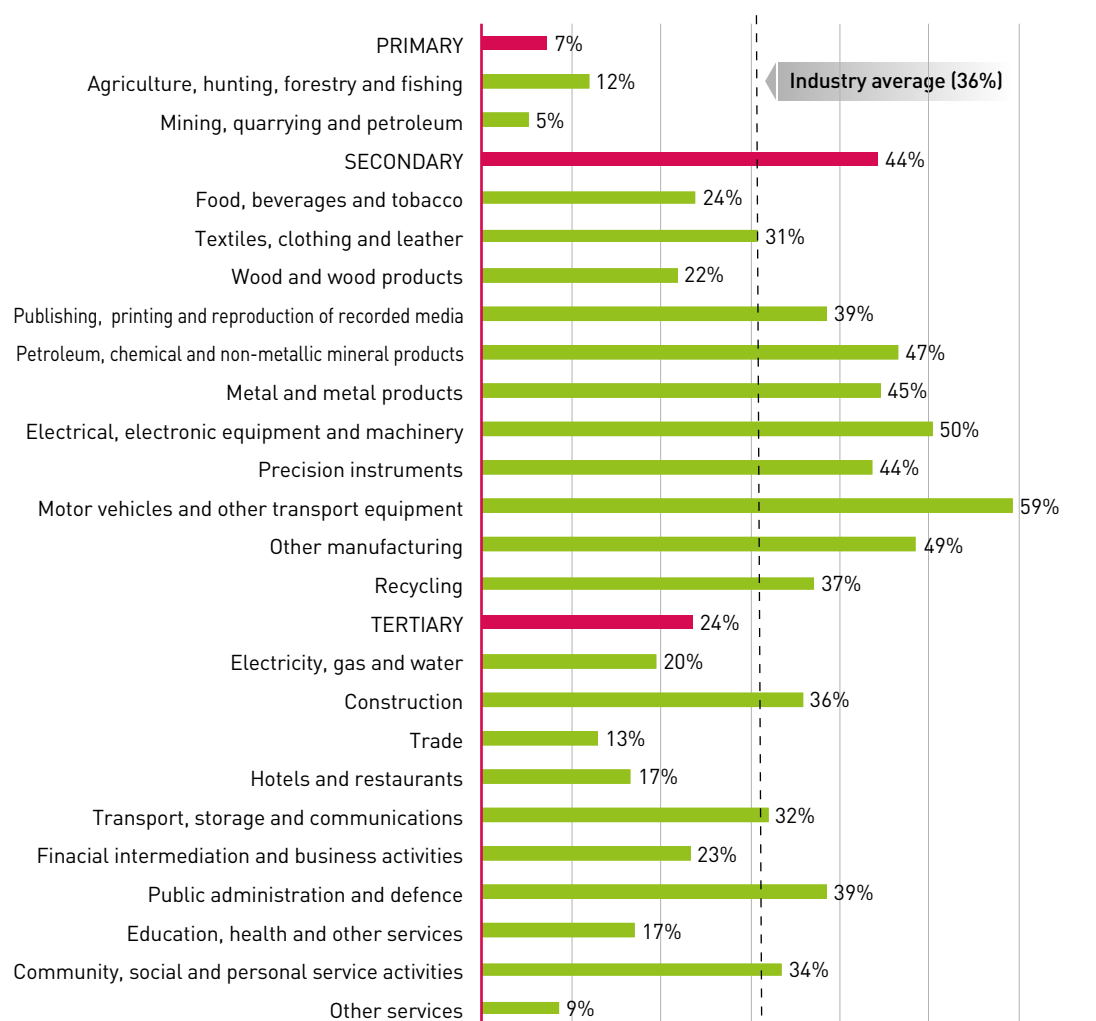
Source: Adapted from UNCTAD (2013).

Among ASEAN member countries, the contribution of exports to GDP is largest in Malaysia, followed by Singapore, Thailand and Brunei Darussalam. The other six countries show a lower contribution to GDP from exports than the ASEAN average. In the CLMV countries – Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam – for exports, the value created domestically seems to be low, much lower than the ASEAN average. There are different reasons for this low share. For Cambodia, Myanmar and the Lao People's Democratic Republic, exports are generally small, and

thus domestic value added exports are also small, whereas for Viet Nam, exports are growing, but much of their value goes to foreign countries and the domestic value added is small.

The share of foreign value added in exports shows a country's reliance on foreign inputs whether natural resources, parts and components, services provision or other inputs. This share varies by country, and it also varies by industry (figure 3). Generally speaking, the manufacturing (secondary) sector contains a larger share of foreign value added than the primary and services (tertiary) sectors. The primary sector does not use much foreign input – for example, in extracting minerals or in producing agriculture products. In the services (tertiary) sector, many of the products are not used as inputs to other industries, other than those services that are used as inputs to other industries – so-called producer services. Thus, its foreign value added share is smaller than in the manufacturing sector. In that sector, the largest industry is motor vehicles and other transport equipment, followed by electrical, electronic equipment and machinery. In many manufacturing industries, the share exceeds the average for all industries of 36 per cent (figure 3).

Figure 3. Share of foreign value added in ASEAN exports, by industry, 2015 (Per cent)

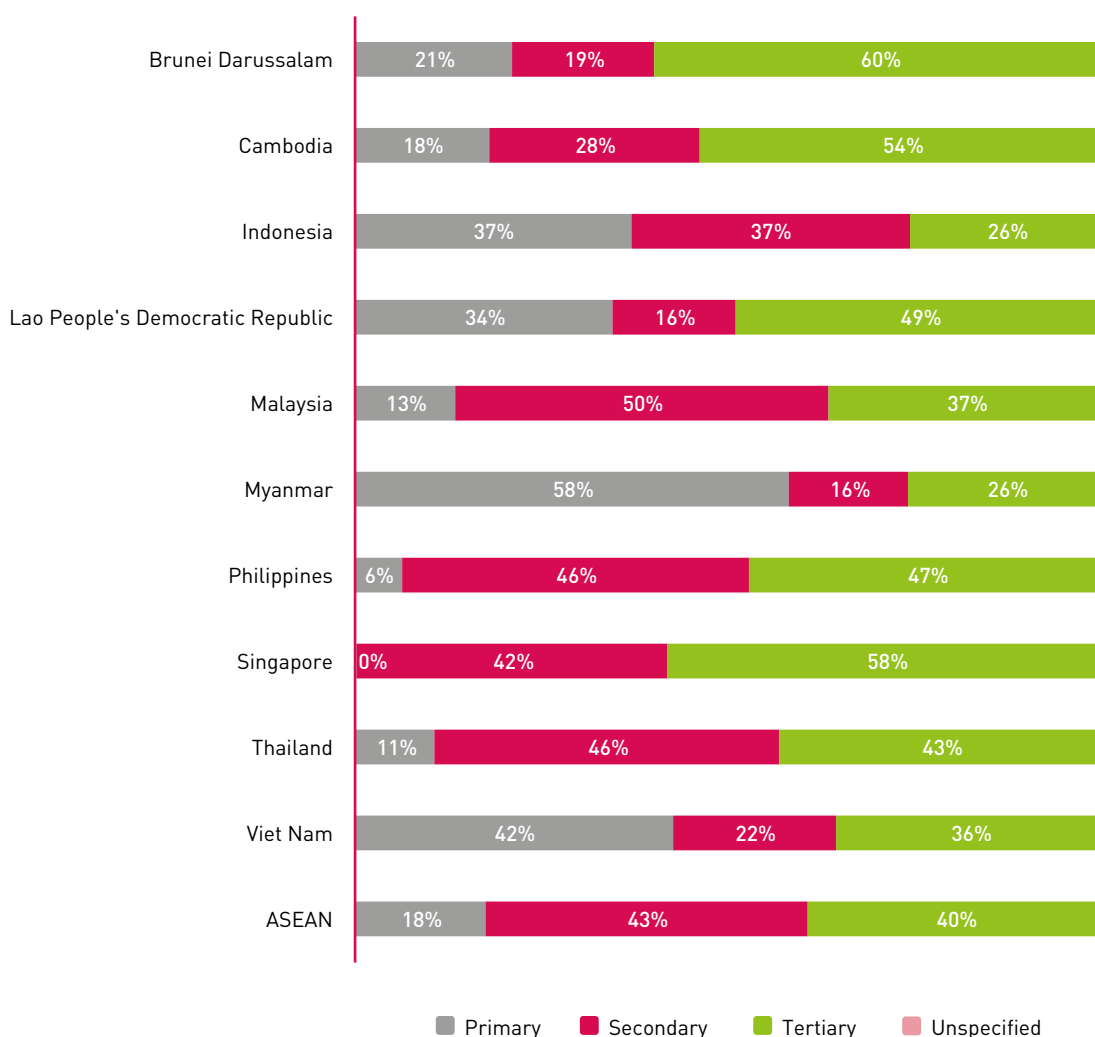


Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: Industry classification based on ISIC.

Differences in the foreign value added share in exports by industry indicate which industries tend to be more engaged in GVCs. The manufacturing sector, in particular electrical and electronic equipment, is the largest exporter in ASEAN, accounting for more than half of the total value added exports. The export capacity and GVCs reinforce each other. The industries with a higher foreign value added share tend to be exporting industries. The services (tertiary) sector contributes about one quarter of total exports; however, this does not mean that services are not important in value added trade. GVCs utilize services extensively. For example, the financial industry creates its own GVCs but also provides financial services to other GVCs. Indeed, many services products or producer services such as professional services are an integral part of production of any kind. Services provide value added inputs. Therefore, altogether two fifths of value added in trade is contributed by services sector activities, with Brunei Darussalam, Singapore and Cambodia heading the list in terms of the services share in value added trade (figure 4).

Figure 4. Structure of value added exports from ASEAN, by country and value added creator industry, 2015 (Per cent)



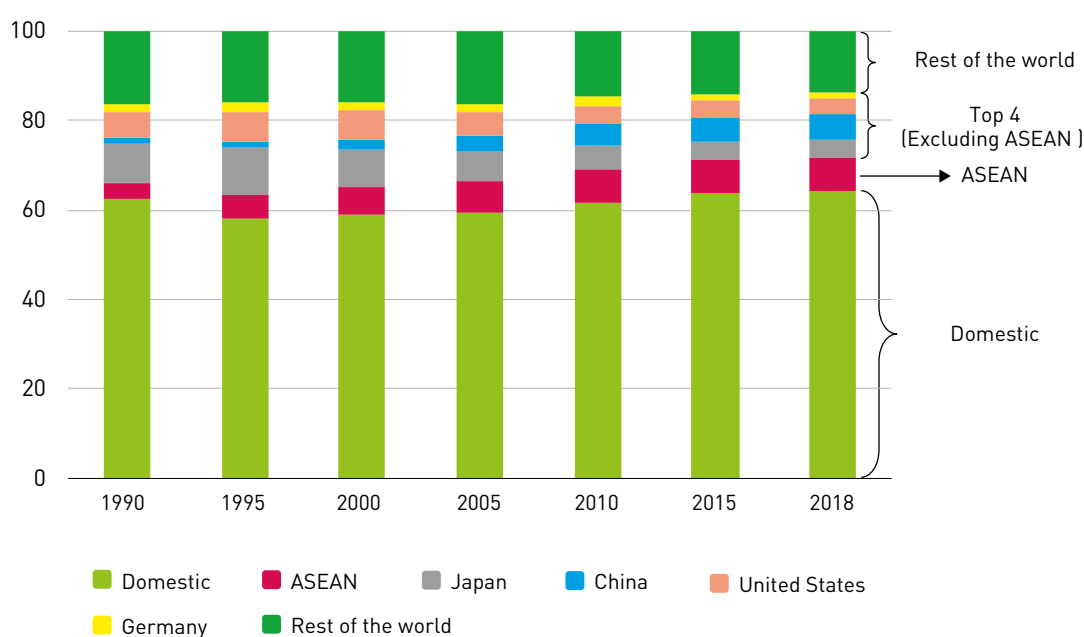
Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

2. Evolution of ASEAN GVCs

GVCs in ASEAN are manifesting the growth and spread of international and regional production networks in the region.³ These networks involve both transnational corporations (TNCs) and local firms as producers, and they form a number of value chains. Production value chains created in ASEAN spread into several ASEAN countries, forming RVCs, and may often go beyond the region, forming GVCs. Although the formation of GVCs/RVCs differs by industry and in some cases even by product, generally speaking, ASEAN member countries have intensified their production networks by importing more and more intermediate products from abroad and integrating these products into their export products, thus establishing value chains. Furthermore, these export products have been increasingly reintegrated into exports from other countries as intermediate products.

Already in 1990, 38 per cent of ASEAN exports was value added created by foreign countries (foreign value added or FVA – see box 2); in other words, more than one third of exports from ASEAN consisted of foreign inputs. Over the past two decades, ASEAN countries have used significant amounts of foreign inputs in their exports. Today this share, which once reached 40 per cent, is 36 per cent (2018 data) (figure 5). Interestingly, this share started to decline in the latter half of the 2000s. Its decline implies increases in the share of value added created by domestic entities, both local and foreign firms. This domestic value added part of exports belongs to a country's own GDP. Although the decline is small, more domestic value added in trade implies greater competitiveness in the ASEAN region. This is because not only do local firms participate in GVCs but also, as shown below, because imported parts and components have been substituted by local production in the region by foreign TNCs.

Figure 5. Value added exports from ASEAN, by domestic, ASEAN and other top four foreign country value added creators, 1990-2018 (Per cent)



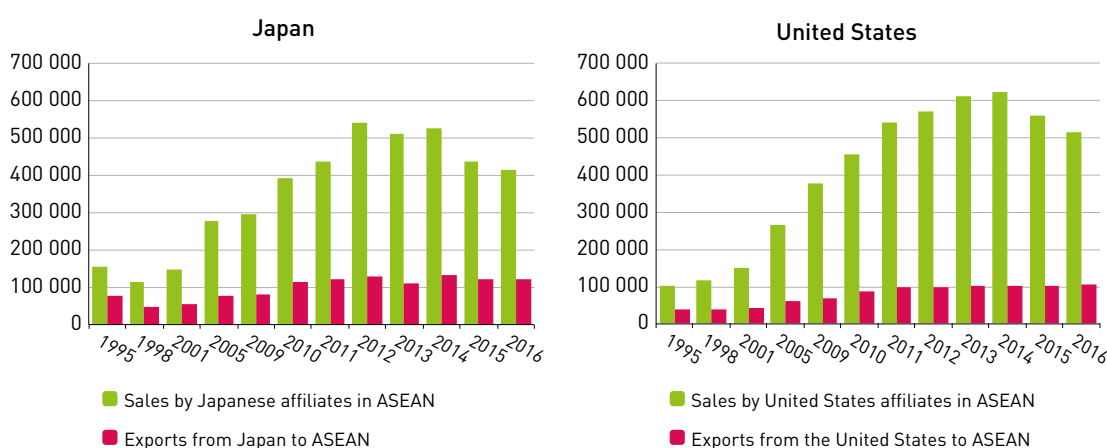
Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

³ Part of this section is based on Fujita (2014), which is the basis for ASEAN and UNCTAD (2014). Data are updated.

Among those foreign inputs used for ASEAN exports, the most important source country until the beginning of the 2000s had long been Japan, followed by the United States (figure 5). However, both countries have lost importance in contributing to ASEAN exports since the mid-2000s. Instead, the share of ASEAN inputs used in their exports has been increasing. This suggests greater competitiveness of ASEAN products as intermediate products over the years. In 2018, ASEAN inputs accounted for 8 per cent of total exports from ASEAN, compared with 4 per cent in 1990 and 6 per cent in 2000 (figure 5). The majority of those inputs have come from Indonesia and Malaysia, followed by Singapore and Thailand. CLMV countries accounted for less than 3 per cent of total ASEAN exports in 2018. Companies based in these countries that are involved in GVCs are still limited in number; growing them requires domestic capacity-building (section IV).

At the same time, China’s inputs have been increasing over the years, from 1 per cent in 1990 to 2 per cent in 2000 to 6 per cent in 2018. The decline in the share of intermediate inputs imported from Japan and the United States in total exports from ASEAN may be compensated by production by Japanese or United States foreign affiliates operating in this region. They might well replace imports from Japan or the United States and directly provide intermediate inputs for local production. This is confirmed by comparing data on exports to ASEAN from Japan and the United States with sales by Japanese and United States affiliates in ASEAN (figure 6). The sales of these affiliates increased by three times and five times, respectively, between 1995 and 2016, while exports from Japan and the United States grew only less than two times during the same period and remained flat afterwards. In FY2016, 46 per cent of these increasing sales by all Japanese affiliates in ASEAN were destined for local markets: this share rises marginally to 47 per cent for automobiles, the largest industry among Japanese affiliates in ASEAN (Japan METI 2018).⁴ Part of these sales constitute ASEAN exports through local procurement by companies in ASEAN markets. Therefore, the decline in foreign value added for Japan is partly compensated by local inputs and components from Japanese affiliates in ASEAN.

Figure 6. Exports to ASEAN from Japan and the United States and sales by Japanese and United States affiliates in ASEAN, 1995–2016 (Millions of dollars)



Source: Japan METI, Kaigai jigyo Ktsudo Kihon Chosa, various issues and US Department of Commerce, Activities of Foreign Affiliates of US MNEs, various issues (for sales by foreign affiliates) and UNCTAD GlobStat (for exports).

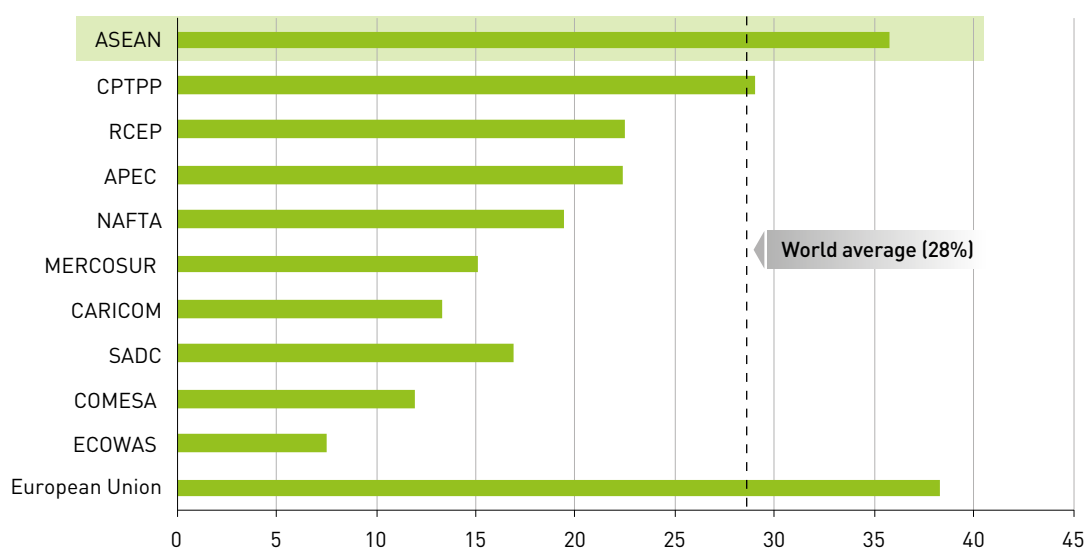
Note: For sales data, includes all affiliates for Japan and majority-owned foreign affiliates for the United States. Japanese affiliate data are on fiscal year basis.

⁴ The value of local sales by Japanese affiliates in ASEAN reached some \$213 billion in FY2016 (METI, 2018).

Despite the decline in the foreign value added share, the ASEAN share is higher than that of other regional groups in developing countries as well as the world average (28 per cent in 2018) and close to the share in the EU (figure 7). This reflects the fact that ASEAN has a higher presence of foreign direct investment (FDI) than other developing regions: the share of FDI stock in GDP, for example, was 79 per cent for ASEAN, compared with 37 per cent for COMESA (Common Market for Eastern and Southern Africa) and 29 per cent for Mercosur (Southern Common Market) in 2017. Economic groups involving both developed and developing countries such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership, the Regional Comprehensive Economic Partnership (under negotiation), Asia-Pacific Economic Cooperation and the North American Free Trade Agreement (now United States - Mexico - Canada Agreement) show a somewhat lower foreign value added share. This is because the large volume of exports from countries such as Japan and the United States does not necessarily contain much imported parts and components, and such countries' exports through GVCs are relatively small compared with the sheer size of their total exports. In 2018, the foreign value added share was 21 per cent for Japan and 13 per cent for the United States, about half of the share in ASEAN as a whole.

The evolution of GVCs by industry varies in the foreign value added share in exports from ASEAN in many industries (figure 8). There is a rise in the services sector and a decline in the primary and manufacturing sectors. However, industries in each sector exhibit some variance. In the case of the manufacturing sector, resources-based industries such as metal and metal products, and food, beverages and tobacco tend to use more foreign inputs into their processed products, which implies that these industries are more involved in GVCs. Integration of these resources-based products into GVCs is what ASEAN governments have been striving for over the years. In the case of the services sector, all industries except the utility industry (electricity, gas and water), trade and

Figure 7. Which regional groups import more foreign value added in their exports in 2018?
(Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: CPTPP – Comprehensive and Progressive Agreement for Trans-Pacific Partnership; RCEP – Regional Comprehensive Economic Partnership; APEC – Asia-Pacific Economic Partnership; NAFTA – North American Free Trade Agreement; MERCOSUR – Mercado Comum do Sul; CARICOM – Caribbean Community; SADC – Southern African Development Community; COMESA – Common Market for Eastern and Southern Africa; and ECOWAS – Economic Community of West African States.

public administration have more foreign inputs. The sector has become more internationalized. The primary sector (including agriculture and mining) continues to show little involvement of GVCs, and the foreign value added share in exports has even declined in mining, quarrying and petroleum, implying a more and more domestic-oriented economic activity without the use of imported inputs.

The two industries that show the largest foreign inputs – motor vehicles and other transport equipment; and electrical, electronic equipment and machinery – all use foreign imports equivalent

Figure 8. Which industries have been more involved in GVCs between 1990 and 2015?
(Share of foreign value added in ASEAN exports)

Sector and industry		1990	↑ → ↓	2015
Primary	Primary total	10.3	↓	7.3
	Agriculture, hunting, forestry and fishing	11.6	↑	11.9
	Mining, quarrying and petroleum	9.8	↓	5.3
Manufacturing	Manufacturing total	48.7	↓	44.3
	Food, beverages and tobacco	22.0	↑	23.9
	Textiles, clothing and leather	29.1	↑	30.9
	Wood and wood products	22.5	↓	21.8
	Petroleum, chemical and non-metallic mineral products	49.2	↓	46.5
	Publishing, printing and reproduction of recorded media	28.6	↑	38.6
	Metal and metal products	40.3	↑	44.5
	Electrical, electronic equipment and machinery	62.8	↓	50.3
	Precision instruments	49.6	↓	43.6
	Motor vehicles and other transport equipment	63.8	↓	59.3
	Other manufacturing	49.4	↓	48.6
	Recycling	37.8	↓	37.1
Services	Services total	21.9	↑	23.6
	Electricity, gas and water	22.5	↓	19.5
	Construction	32.5	↑	35.9
	Trade	13.3	↓	13.0
	Hotels and restaurants	13.9	↑	16.7
	Transport, storage and communications	29.8	↑	32.0
	Financial intermediation and business activities	22.3	↑	23.3
	Public administration and defence	40.2	↓	38.5
	Education, health and other services	14.6	↑	17.1
Community, social and personal service activities	33.6	→	33.5	

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: Based on two-three digit level of ISIC.

to more than half of their exports but exhibit some declines in foreign content in their exports (figure 8). As pointed out earlier, inputs from local firms, whether foreign or domestic, are gaining in importance (figure 5). This suggests that not only are imports replaced by direct investment by TNCs, particularly in automobiles, but also that domestic producers have become competitive enough to produce more value added products in these industries.

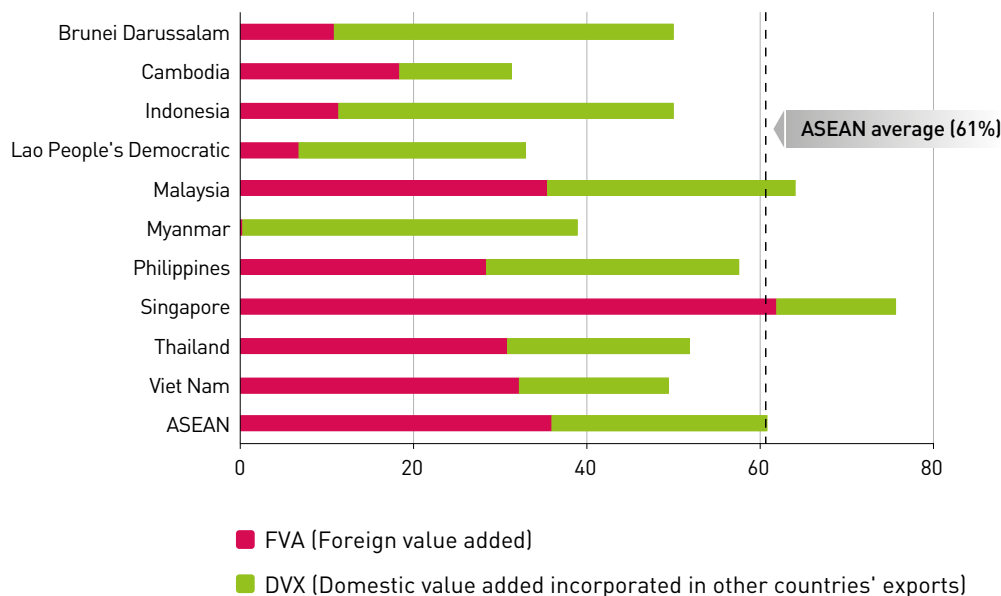
3. GVC participation

The sum of domestic value added (DVA – see box 2) and the value added created by ASEAN in exports from its other member states (part of FVA) yields the total of value added that constitutes ASEAN's GDP. As noted earlier, the former is created in each ASEAN member states and the latter is the value created by other ASEAN member states. In particular, with constant increases in the latter over the past two decades, the share of ASEAN value added in total exports rose from 63 per cent in 1995 to 72 per cent in 2018 (figure 5). The rise of ASEAN's share in value added trade is due to the rise of both ASEAN inputs in exports from ASEAN (from 5 per cent to 8 per cent) and domestic value added (from 58 per cent to 64 per cent) during this period. This suggests that regional production networks are becoming stronger.

The foreign value added share in exports shows only one-sided participation of GVCs. Value chains are extended both upstream and downstream. Foreign value added is the upward part of value chains. Exports from ASEAN can be also used as intermediate products in other countries' exports. This downward part of value chains is also an important indicator of GVCs. Combining the upstream part (foreign value added or FVA – see box 2) and the downstream part (domestic value added integrated into other countries' exports = DVX – see box 2) gives the total participation in GVCs. This GVC participation of ASEAN also varies by country (figure 9). Singapore is the ASEAN member most integrated into GVCs, followed by Malaysia. Both are more involved in GVC participation than the ASEAN average (61 per cent in 2018). In contrast, Cambodia, the Lao People's Democratic Republic and Myanmar are the least involved. Four countries – Malaysia, Singapore, Thailand and Viet Nam – derived more than half of their participation in GVCs from the upstream part of value chains (foreign value added). In three countries – Brunei Darussalam, Indonesia, and the Lao People's Democratic Republic – more than half of their participation derives from the downstream part of value chains. These countries are essentially dependent on commodities or natural resources, in which foreign inputs are not required much; however, their products are used extensively as basic inputs to many industries after exporting. And in the case of Myanmar, almost full participation in GVCs is only through the downstream part as this commodity-dependent country was essentially closed until recently and has not established production networks. Significant amounts of FDI to the country started only after 2013.

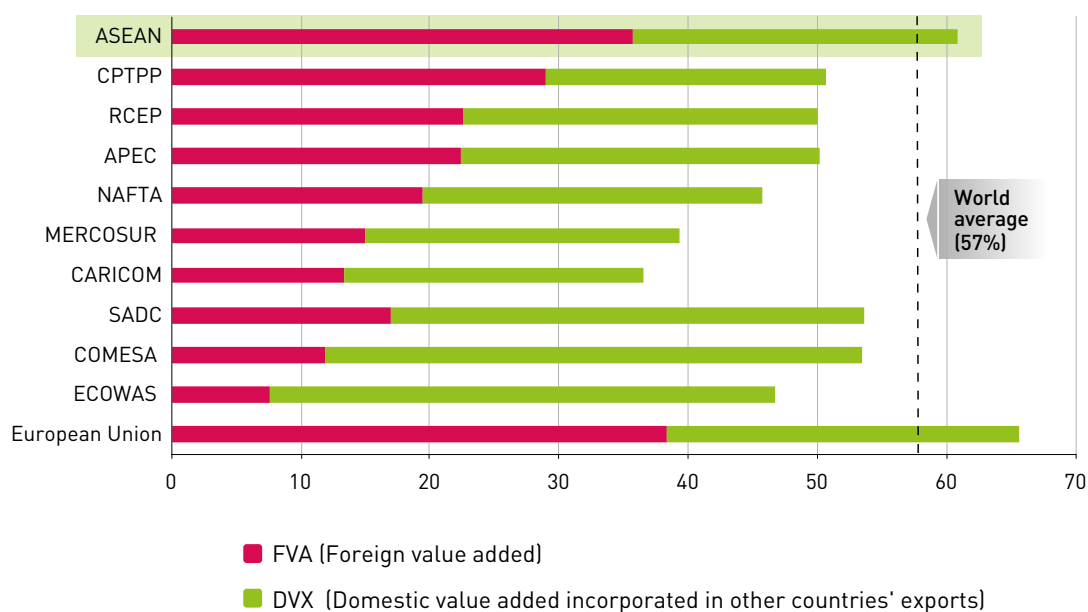
The extent to which ASEAN participates in GVCs seems to be again larger than any other major regional groups in developing countries (e.g. MERCOSUR and COMESA, as well as CARICOM (Community of Caribbean Countries), SADC (Southern African Development Community) and ECOWAS (Economic Community of West African States)) and, in the world, just behind the EU (figure 10). This participation largely emanates from the upstream part of the value chains. When it comes to the downstream part of the chains, ASEAN's share is lower than that of most of the other regional groups. This is because the export structure of ASEAN is more manufacturing oriented and includes both intermediate and final products. By contrast, in other developing-country regional groups, exports are more commodity-dependent and tend to be used or incorporated into other products as basic materials (e.g. energy, raw materials, foods). Such regional groups include ECOWAS, COMESA and SADC in Africa and MERCOSUR in Latin America.

Figure 9. GVC participation by ASEAN member states, 2018 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 10. Which regional groups are more involved in GVC participation in 2018? (Per cent of gross exports)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: CPTPP – Comprehensive and Progressive Agreement for Trans-Pacific Partnership; RCEP – Regional Comprehensive Economic Partnership; APEC – Asia-Pacific Economic Partnership; NAFTA – North American Free Trade Agreement; MERCOSUR – Mercado Comum do Sul; CARICOM – Caribbean Community; SADC – Southern African Development Community; COMESA – Common Market for Eastern and Southern Africa; and ECOWAS – Economic Community of West African States.

4. Regional value chains

ASEAN has been integrated into both international and regional production networks. Many large TNCs that are operating in ASEAN have extended their value chains beyond the region. RVCs are part of GVCs, but the importance of the former is increasing in ASEAN. Over the past two-three decades, ASEAN has established regional networks in both upstream and downstream parts of the value chains, which accounted for 14 per cent (7.5/56.2) of all GVCs in 1990, 20 per cent (12.1/61.4) in 2000 and 25 per cent in 2018 (15.5/60.9) (table 2). Total GVCs have remained almost at the same level since 2005, but RVCs have been rising constantly. Although ASEAN member countries are involved in international production networks, they seem to place more emphasis on regional production networks within the GVCs.

The extent to which RVCs, rather than GVCs, are utilized in company value chains varies by industry (figure 11). The five industries that show the largest involvement in RVCs are finance, three natural-resource-related industries – electricity, gas and water; mining; and petroleum products – and transport services, and electrical, electronic equipment and machinery. These industries tend to be expanded regionally, rather than globally. Even for these industries, however, 70–80 per cent of the production networks are with countries outside ASEAN. Generally speaking, primary and tertiary (services) industries tend to be more regionally spread than secondary (manufacturing) sector, which is on a more global scope.

Among the five industries that are subject to further study in this series of papers on GVCs by the AJC – namely, agribusiness, automobiles, electronics, textiles and clothing, and tourism – RVCs are the largest for the electronics (electrical, electronic equipment and machinery) industry, larger than the average for all industries. In both the automobile (motor vehicles and other transport equipment) and the textiles and clothing industries, however, RVCs are much weaker; this implies that production networks are stronger with non-ASEAN members than with ASEAN members. Government efforts to strengthen regional networks could be targeted more to these industries that have the potential to further develop production networks. Given the higher shares of foreign value added in exports of these industries (figure 8), they establish larger production networks. The question is how to create the support firms or related industries within individual ASEAN countries and at the regional level through, for example, industry and investment policies. It should not be forgotten, however, that

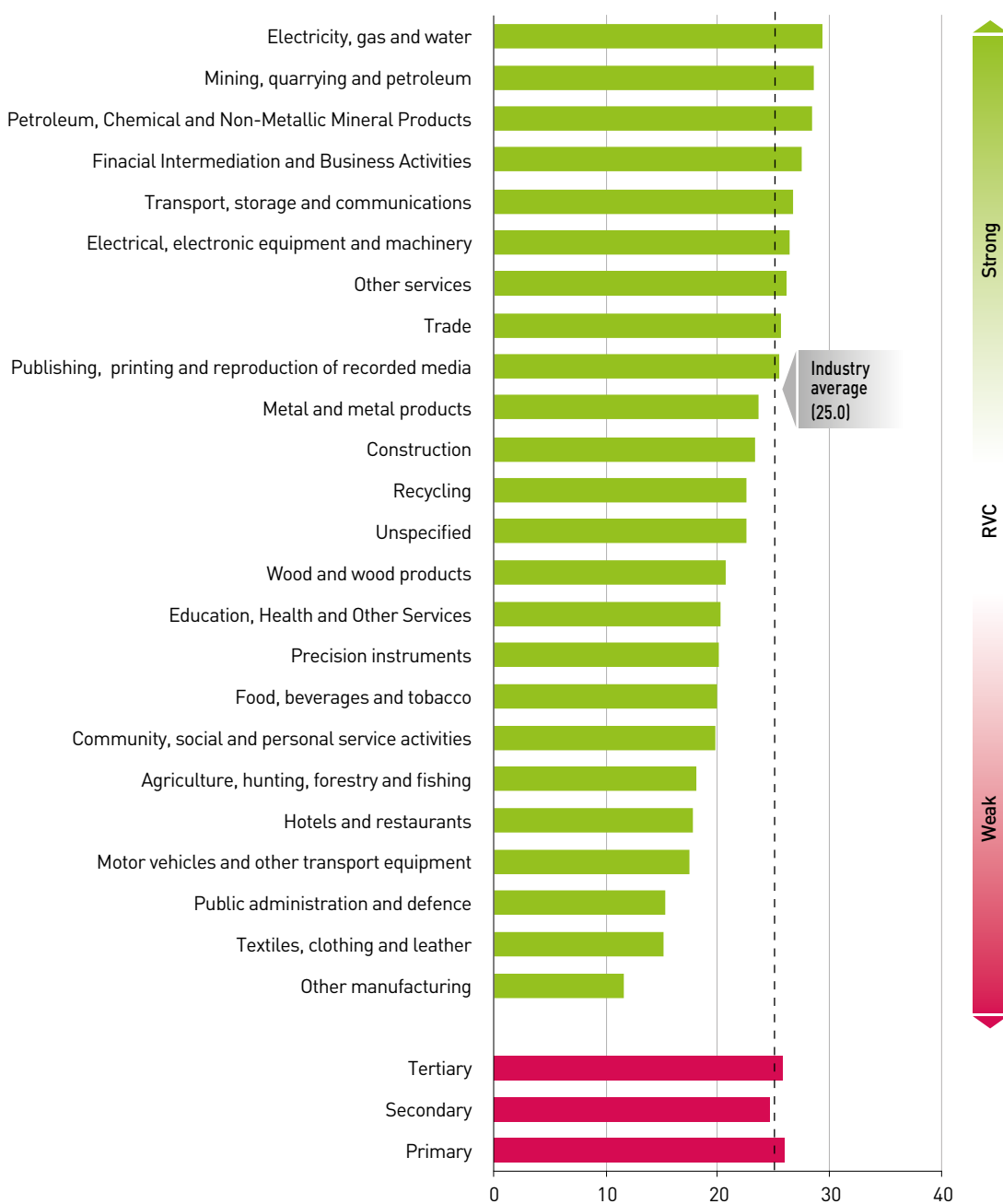
Table 2. GVC and RVC participation by ASEAN, 1990–2018 (Per cent of total exports)

Year	FVA: Foreign value added			DVX: Domestic value added incorporated in other countries' exports			Value chain participation	
	Total (A) = (B+C)	Created outside ASEAN (B)	Created within ASEAN (C)	Total (D) = (E+F)	Incorporated outside ASEAN (E)	Incorporated within ASEAN (F)	GVC participation (A + D)	RVC participation (C + F)
1990	37.6	33.9	3.8	18.6	14.8	3.8	56.2	7.5
1995	42.0	36.6	5.4	17.9	12.5	5.4	59.9	10.8
2000	41.0	35.0	6.0	20.4	14.3	6.0	61.4	12.1
2005	40.5	33.7	6.8	23.4	16.5	6.8	63.9	13.7
2010	38.3	30.8	7.5	25.6	18.0	7.5	63.9	15.1
2015	36.2	28.6	7.6	24.8	17.1	7.6	61.0	15.3
2018	35.8	28.1	7.7	25.1	17.4	7.7	60.9	15.5

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

value chain participation by countries outside ASEAN also contributes to ASEAN’s economic growth, by improving the productivity and competitiveness of its export products. This is a subject to be dealt with in section III.

Figure 11. How important are RVCs, compared with GVCs, by industry in 2015?
(Share of RVC participation in GVC participation)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.
 Note: The higher the share of RVC participation in GVC participation is, the more production networks are established in the region. However, for any industry, the degree of participation of countries other than ASEAN in GVCs is larger than that of ASEAN. Industry classification is at the two- to three-digit level of ISIC.

II. FIVE INDUSTRIES SUBJECT TO STUDY

As noted earlier, for the industry papers of this series (Papers 12–16), electronics, automobiles, textiles and clothing, agribusiness and tourism were chosen as the industries subject to study. These industries have attracted both FDI and non-equity modes (NEMs) of operations (e.g. subcontracting and licensing) by TNCs. In each of these five industries, a majority of the firms is foreign owned or foreign linked; foreign countries include ASEAN members and other Asian economies. Furthermore, the industry contributed to regional integration through investment.

1. Automobiles

Most global auto firms have a presence in ASEAN, and many pursue a regional production networks strategy. ASEAN as a whole posted \$55 billion in value added trade in transport equipment in 2015, more than 10 times as high as in 1990. Thailand is by far the largest exporter at \$28 billion in 2015, followed by Malaysia with \$3 billion (table 3).⁵

Automobile firms in Indonesia, Malaysia and Thailand – major producers – undertake full production of assembling automobiles. These firms drive the value chain, using numerous parts and components from various countries as well as from within the countries. Engines, gearboxes, batteries, wheels, doors and air-conditioning systems may come from different places through value chains.

Indonesia's production is essentially for domestic use. Thus, this industry section focuses on Thailand and Malaysia. Both countries have considered the automobile industry as strategically important for the country but adopted different approaches. This difference is reflected in their respective value chain patterns (figure 12).

Table 3. Value added exports in automobiles from Malaysia and Thailand, 1990–2015
(Millions of dollars)

Year	Malaysia			Thailand		
	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added
1990	272	117	155	2 892	2 056	836
1995	904	465	439	7 553	5 357	2 196
2000	879	504	375	7 920	5 757	2 164
2005	1 420	824	596	16 093	11 327	4 766
2010	2 574	1 393	1 181	22 222	15 739	6 483
2015	2 797	1 405	1 392	27 726	18 947	8 779

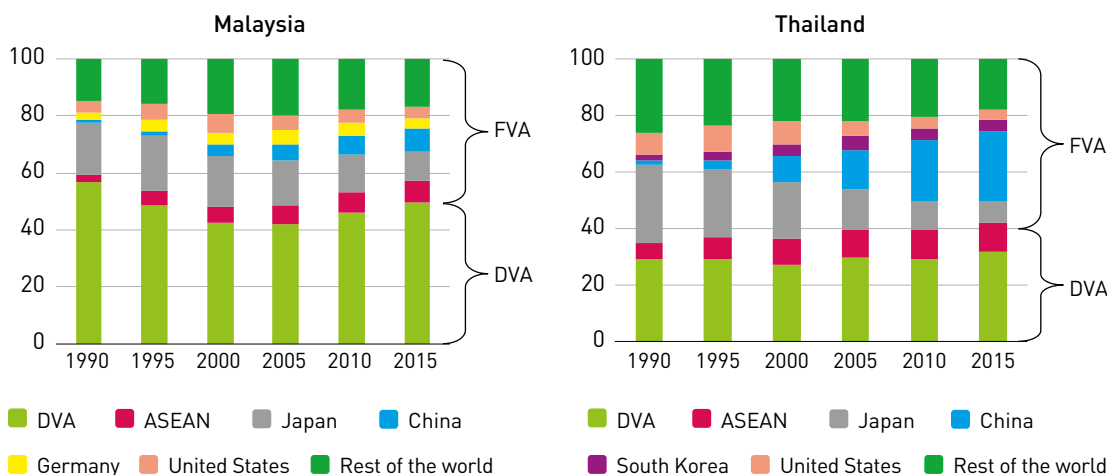
Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

⁵ Value added trade data differ from merchandise trade data, which are available from various sources including the UNCTAD GlobStat database. The latter data set is larger than the former and particularly so for industries that use processing trade.

Malaysia. At \$3 billion, Malaysia’s value added trade in automobiles was only one tenth that of Thailand; however, the relative importance of domestic supplies to automobile production (and exports) is much larger than in Thailand (figure 12). Nearly half of all exports of automobiles are created domestically, though inputs imported from foreign countries (foreign value added) have shown an upward and then downward trend. The share of foreign value added increased until 2005, when it started to decline. This corresponds with the start of involvement of TNCs in producing parts and components, as well as the emergence of domestic firms that had been strategically and deliberately fostered to supply parts and components to national automobile firms. Among imported foreign inputs, the importance of Japan declined in Malaysia, mainly because of replacement with local production by Japanese affiliates. China’s penetration of inputs in Malaysia has been constantly increasing. ASEAN has been playing an increasingly important role in Malaysia over the years, providing inputs to Malaysian automobile exports.

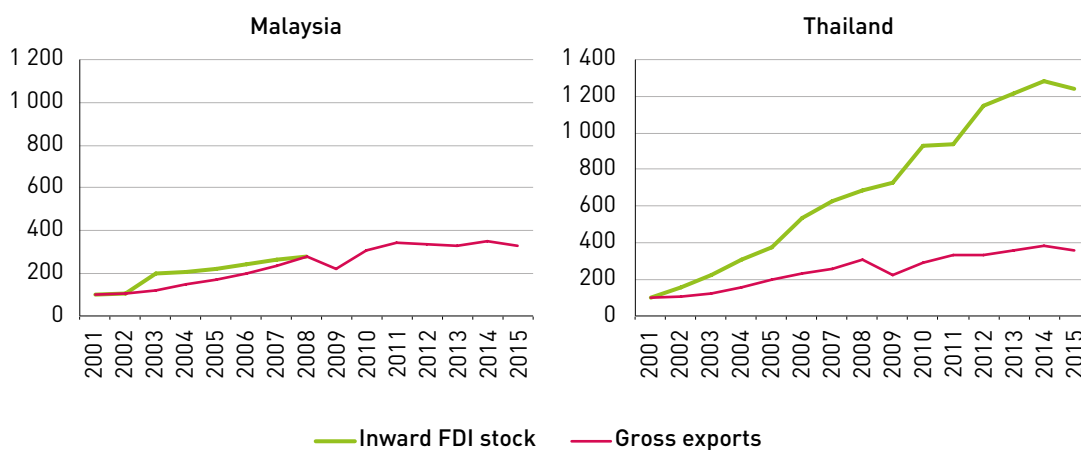
Thailand. As a hub of automobile production in ASEAN, with value added exports amounting to \$28 billion in 2015 (table 3), Thailand has seen various inputs and materials used for assembly imported from both ASEAN (through regional production networks) and outside ASEAN (through international production networks). Therefore, the share of foreign value added (imported inputs) in the exports of automobiles from Thailand accounts for 70–75 per cent of the total over the past two decades. This significant high share suggests that domestic productive facilities and capacities are still small and weak. However, because of increases in production in Thailand by foreign TNCs, as well as the rise of domestic component makers, the domestic value added component has been gradually increasing since about 2000, when foreign automobile TNCs, in particular Japanese ones, started to invest heavily in Thailand. As a corollary, the share of inputs imported, particularly from Japan, has been declining steadily from 28 per cent in 1990 to 8 per cent in 2015 (figure 12). The same applies to the United States, whose share more than halved (from 8 per cent to 3 per cent during the same period). The remaining traditional source economy, the EU, has retained at least a 10 per cent share in 2015, though this share has declined throughout the past two decades from 15 per cent. By contrast, inputs imported from China used in automobile exports from Thailand now make up the single largest share, at 25 per cent in 2015. Intra-regional exports are also rising, with the other ASEAN countries accounting for one tenth of ASEAN automobile exports.

Figure 12. Distribution of value added exports in automobiles from Malaysia and Thailand, by value added creators, 1990–2015 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 13. Inward FDI in and value added exports of automobiles from Malaysia and Thailand (2001 = 100)



Source: UNCTAD, World Investment Report 2018, annex tables for inward FDI and AJC-UNCTAD-Eora database on ASEAN GVCs for value-added exports.

Note: Inward stock data for Malaysia are on an approval basis. Data are not available after 2009.

Differences in the GVC pattern of automobile industries for these two countries relate to the evolution of FDI and trade. During 2001–2015 in Thailand, the value of automobile exports in value added nearly quadrupled (figure 13). Behind this growth, FDI also increased even more dramatically but did not bring value added exports up to the level of its growth rate. This is because FDI started from a low level and exports started only after the Asian financial crisis. Malaysia’s value added exports also more than tripled during the same period (no FDI data are available after 2008).

2. Electronics

Total value added exports of electric and electronics (including parts and components as well as machinery) from ASEAN reached \$384 billion in 2015, compared with only \$36 billion in 1990, making this industry by far the largest value added export source in ASEAN. Malaysia and Singapore are the largest exporters (one third each of the ASEAN total), followed by the Philippines (14 per cent), Indonesia (10 per cent) and Thailand (9 per cent).

In ASEAN, electronic firms range from those producing electronics components to those engaged in intermediate- to high-technology products. Typical value chains of electronics in ASEAN include all segments except for frontier research and development operations. The hard disk drive industry is one of the important components of the electronics industry and has driven the establishment of an RVC in the industry.

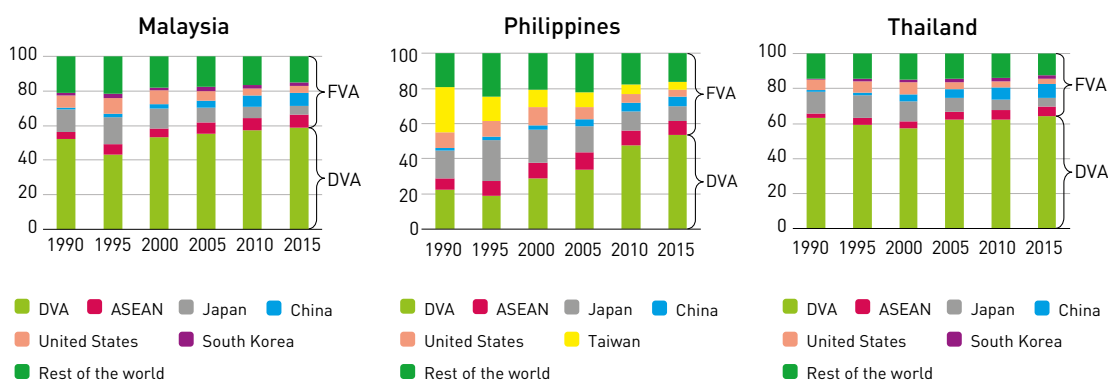
ASEAN electronics component firms have absorptive capacities to learn and adopt best practices to increase productivity. Malaysia, the Philippines and Thailand have large-scale industry bases, exporting \$116 billion, \$51 billion and \$24 billion, respectively in value added terms in 2015 (table 4). Unlike in the automobile industry, Malaysia and Thailand show similar GVC patterns (figure 14). ASEAN, China, the EU and Japan have contributed almost the same share of inputs to electronics exports from Malaysia and Thailand. In the Philippines, the Japanese share of foreign value added has been the largest, followed by that of ASEAN as a whole.

Table 4. Value added exports in electronics from Malaysia, the Philippines and Thailand, 1990–2015 (Millions of dollars)

Year	Malaysia			Philippines			Thailand		
	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added
1990	10 167	4 830	5 337	5 568	4 307	1 262	2 322	855	1 466
1995	26 940	15 328	11 612	10 775	8 755	2 019	5 646	2 288	3 358
2000	35 485	16 643	18 842	15 540	11 039	4 501	6 423	2 731	3 692
2005	58 583	26 111	32 472	25 685	16 988	8 696	12 377	4 648	7 729
2010	103 478	44 332	59 146	44 681	23 361	21 319	20 104	7 583	12 521
2015	116 694	47 829	68 865	51 031	23 677	27 354	24 497	8 716	15 781

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 14. Distribution of value added exports in electronics from Malaysia, the Philippines and Thailand, by value added creators, 1990–2015 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

3. Textiles and clothing

Clothing value chains are driven by brand holders, and upstream material developers enjoy control of textile value chains. Textile manufacturing typically begins with the preparation of fibres, which are used to manufacture textiles. Textiles are then bought by another set of firms that manufacture garments. Garment or clothing firms carry out fabric scanning, clothing design, cutting, stitching and finishing (including pressing) of garments. The clothing industry is largely a technology-using industry, with advances in materials technology (fibres) and manufacturing technology (e.g. the use of information and communication technology and of computer-aided design and computer-aided manufacturing) being the main drivers of technological upgrading.

The significance of this industry to Cambodia, like the significance of automobiles or electronics to ASEAN, cannot be emphasized enough. Garment production is a major export industry in Cambodia and generated more than 850,000 jobs in 2017 and \$1.4 billion in value added exports in 2015 – one

quarter of the value recorded as exports in the merchandise trade statistics.⁶ A majority of the firms is foreign owned, with investors from ASEAN and other Asian economies. More than one fifth of FDI stock in Cambodia is in the garment industry. Similarly, in Viet Nam TNCs' presence in the industry has helped put the country on the world map. Viet Nam is today one of the major garment, textile and shoes exporters, at a value of \$39 billion in 2015, with major world players operating directly or as contract manufacturers in the country. Like Cambodia, Viet Nam created small value added exports of \$6 billion in 2015, only one sixth to one seventh of the export value as recorded in merchandise trade statistics. When it comes to domestic value creation only, it was \$2.8 billion in 2015. In both countries, most production is contracted out to local producers by brand holders.

Clothing production in Cambodia, the Lao People's Democratic Republic and Myanmar does not exhibit the extensive use of foreign inputs in exports (see Cambodia and Myanmar in figure 15). Value added created in this industry is not large and typically is dominated by domestic firms (table 5). In Myanmar virtually no inputs have been imported from foreign countries and used in exports since 2000 (because of limited international transactions), other than those which are owned by foreign firms but processed in Myanmar. By contrast, in Cambodia the use of foreign inputs to textile and clothing exports is growing (figure 15), raising value added exports by three times between 2001 and 2015, with eight times larger FDI stock in this industry (figure 16). ASEAN and China account for half of Cambodia's foreign inputs. Viet Nam provides a dynamic case of the industry evolution, particularly in the 2000s. As much as two thirds of value added exports were once attributed to foreign countries but its share declined to just more than half in 2015, with the remaining from domestic entities including both local and foreign firms. Major brands such as Nike, Adidas and H&M do not own factories in the region but are involved in NEM with contract manufacturing directly or through a third party.

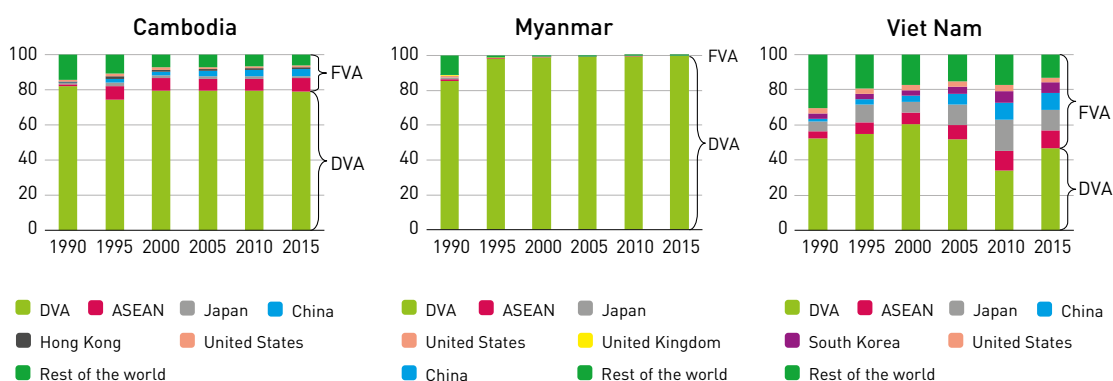
Table 5. Value added exports in textiles and clothing from Cambodia, Myanmar and Viet Nam, 1990–2015 (Millions of dollars)

Year	Cambodia			Myanmar			Viet Nam		
	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added
1990	5	1	4	35	5	30	598	286	312
1995	82	21	61	140	2	138	1 737	780	957
2000	394	81	313	254	2	251	2 907	1 150	1 757
2005	715	148	567	158	1	158	4 596	2 221	2 375
2010	1 244	256	988	286	1	285	4 929	3 249	1 680
2015	1 435	299	1 136	368	1	368	5 952	3 158	2 794

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

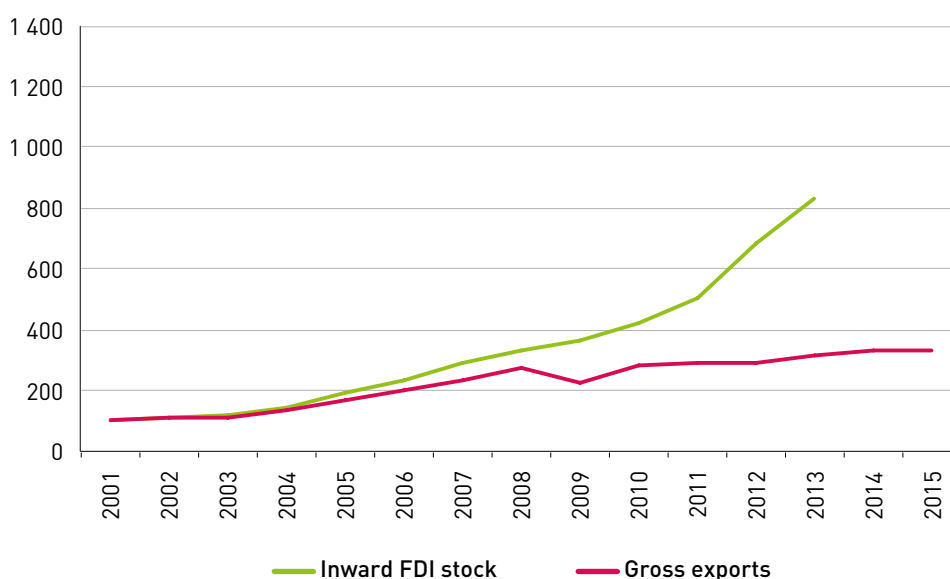
⁶ The value of merchandise exports in this sector was recorded as \$6.2 billion. The difference between this merchandise trade data and value added trade data is due mainly to the materials imported and exported under processing trade. The domestic value added that constitutes the GDP of Cambodia was only \$1.1 billion in 2015 (table 5).

Figure 15. Distribution of value added exports in textiles and clothing from Cambodia, Myanmar and Viet Nam, by value added creators, 1990-2015 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 16. Cambodia's inward FDI stock in and value added exports of textiles and clothing, 2001-2015 (2001 = 100)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs (for gross exports) and UNCTAD FDI/TNC database (for stock).

4. Agribusiness

Agricultural production and processing activities can exploit the comparative advantages of the region. Because access to, and availability and affordability of foods lay the foundations of inclusive growth, the agribusiness industry is expected to play an important role in driving sustainable development. ASEAN firms can contribute to this process and indeed have established their own regional networks.

Investment promotion agencies in developing and transition economies consider the best targets in their countries to be in the agricultural and agribusiness industry (UNCTAD 2015, p. 25). Investment in agriculture-related businesses not only increases agricultural production, which is an important consideration for many poor developing countries, including least developed countries in ASEAN, but also provides opportunities to join in foods value chains to enable them to secure supply markets and improve productivity. Agricultural products can be exported raw or as processed foods. However, primary production of agriculture (in the primary sector) and processed foods and beverages (in the manufacturing sector) have different value chains, with the foreign value added share in the latter (24 per cent) being twice as big as that in the former (12 per cent) (figure 8). The more processed the food is, the broader and deeper the value chains tend to be, though these two agribusiness industries cannot be separated.

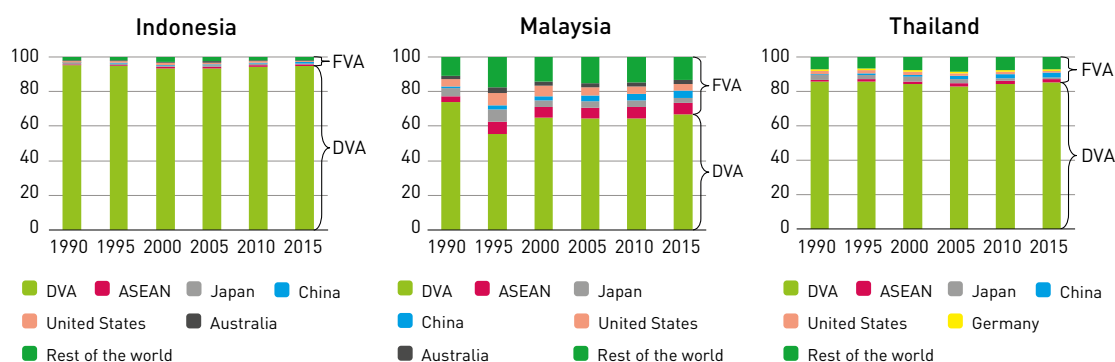
Three large agribusiness-exporting countries in ASEAN – Indonesia, Malaysia and Thailand – show some differences in the role of foreign inputs to their respective exports. Value added exports are largest in Thailand, though those from Indonesia and Malaysia are not so different (table 6). However, in Indonesia, foreign inputs (the share of foreign value added in the total exports) were only 5 per cent in 2015 as compared with 33 per cent for Malaysia (figure 17). In Indonesia, restricted agribusiness markets may explain the smaller role played by foreign countries. Thailand's case is in between; 15 per cent of total value added exports was of foreign origin.

Table 6. Value added exports in agribusiness from Indonesia, Malaysia and Thailand, 1990–2015 (Millions of dollars)

Year	Indonesia			Malaysia			Thailand		
	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added
1990	1 842	93	1 749	2 401	630	1 772	5 193	747	4 446
1995	4 508	244	4 264	4 849	2 155	2 694	9 649	1 399	8 250
2000	5 778	405	5 374	6 034	2 108	3 926	9 827	1 579	8 247
2005	9 593	663	8 930	10 120	3 604	6 516	17 339	2 966	14 373
2010	19 374	1 109	18 265	18 228	6 509	11 719	27 007	4 305	22 703
2015	23 782	1 266	22 516	20 832	6 923	13 909	32 560	4 905	27 654

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Figure 17. Distribution of value added exports in agribusiness from Indonesia, Malaysia and Thailand, by value added creators, 1990–2015 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

5. Tourism

Tourism is a set of integrated activities such as transportation to, from and within a country; hotels and restaurants; tour operators, travel agents and guides; supply of goods and services used by tourists (souvenirs or financial services); and marketing. Some of these activities are relatively capital-intensive (air transportation, hotel construction, car rentals), and many are increasingly knowledge-intensive. For these reasons, some ASEAN countries that lack capital, knowledge or access to consumers or marketing networks have traditionally relied in part on FDI in tourism development. This is where value chains are formed internationally.

Value chains in this industry are complex, but because of tourism’s connectivity with other industries, its value chain can affect others. Inbound tourism (exports of services) and outbound tourism (imports of services) interplay through GVCs. Value added trade in tourism in ASEAN is largest in Thailand, followed by Singapore (table 7). The Philippines’ trade is about half that of Singapore.

Generally speaking, the foreign value added share is smaller in this sector than in automobiles or electronics. Tourism is location-bound and not transportable across borders. This limits internationally created value chains, though tourism has strong and broad connections with local industries and firms. Among the three countries, Singapore exhibits a somewhat different picture in which Singaporean tourism uses foreign inputs as shown for a higher foreign value added share (figure 18).

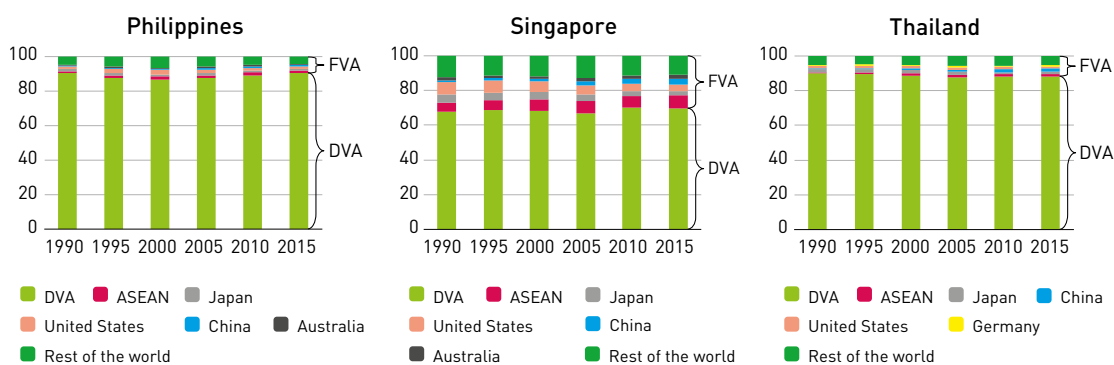
Table 7. Value added exports in tourism from the Philippines, Singapore and Thailand, 1990–2015 (Millions of dollars)

Year	Philippines			Singapore			Thailand		
	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added	Total	Foreign value added	Domestic value added
1990	527	50	477	536	174	362	1 639	167	1 472
1995	959	122	837	1 219	384	835	2 820	300	2 521
2000	882	120	762	1 241	394	847	2 179	250	1 929
2005	1 517	191	1 325	2 504	835	1 668	4 105	506	3 600
2010	2 786	306	2 481	5 718	1 712	4 006	6 519	794	5 724
2015	3 190	304	2 886	6 297	1 904	4 392	8 006	951	7 055

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: Mainly hotels and restaurants because of unavailability of data of other tourism-related industries.

Figure 18. Distribution of value added exports in tourism from the Philippines, Singapore and Thailand, by value added creators, 1990–2015 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: Mainly hotels and restaurants because of unavailability of data of other tourism-related industries.

III. IMPACTS OF GVCs ON ASEAN ECONOMY

GVCs can make a contribution to development through direct GDP and through employment gains and by providing opportunities for industrial upgrading, but these benefits are not automatic and GVC participation involves risks. GVCs can contribute to domestic value added creation even where participation requires higher imported content of exports. In terms of export share, the foreign value added share and the domestic value added share should move in opposite directions, but in the value amount, foreign value added and domestic value added can increase or decrease together, and do not necessarily move in the opposite direction.

As shown, GVC participation can generate value added in domestic economies (e.g. figure 2) and can contribute to faster GDP growth through domestic value added in exports. In addition to contributing to GDP, GVCs generate employment and enhance skill development through technology transfer. At the same time, negative impacts regarding possible lock-in to low value added activity and potential social and environmental damage need to be minimized. Technical dissemination, corporate social responsibility (CSR) practices, reduction of gas emissions, and upgrading of long-term productive capabilities are required policies (see section IV).

The size, content, volume and direction of trade of goods and services is increasingly determined by where to locate FDI as well as by NEMs of operations. The latter mode has been growing along with the growth of value chains and forms special trade relationships between clients and contract holders. Because of the absence of data on NEMs, this paper looks at an analysis of FDI and trade.⁷ Value-chain-based analysis overhauls the traditional interpretation of both trade and FDI patterns. ASEAN needs to examine the implications for welfare gains from international production networks. Value created by domestic entities constitutes 60–70 per cent of total value added exports from ASEAN, and the remaining share is accounted for by foreign companies through their inputs to ASEAN products (figure 5). In the domestic value, a considerable share is generated by foreign affiliates operating in ASEAN. Thus, the overall contribution by foreign companies to ASEAN trade is significant. For example, exports by just Japanese and United States affiliates operating in ASEAN accounted for some 49 per cent of total exports from ASEAN in 2016.⁸

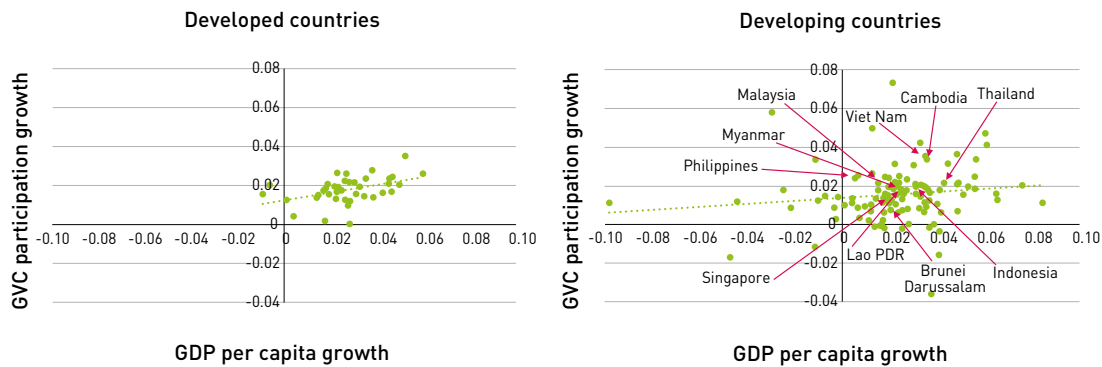
Generally speaking, the positive relationship between economic growth and GVC participation is confirmed by data in both developed and developing countries (UNCTAD 2013). This relationship seems to also apply to ASEAN. The more the ASEAN countries have been involved in GVC participation, the greater the real GDP per capita attained (figure 19). This greater GVC participation is closely related to the degree of presence of FDI (figure 20).

TNCs tend to integrate FDI and trade in their operations, whereas national governments tend to think separate trade and FDI policies. There is no NEM-specific policy. Because of close interlinking, those policies should be coordinated in order to avoid any counterproductive results. This has implications for the nature of institutions and of international investment and trade treaties (see section IV).

⁷ The AJC has started to work on NEMs in each ASEAN member state to measure the importance of such operations in the economy and to provide policy suggestions for maximizing benefits from NEMs while minimizing downside effects associated with them.

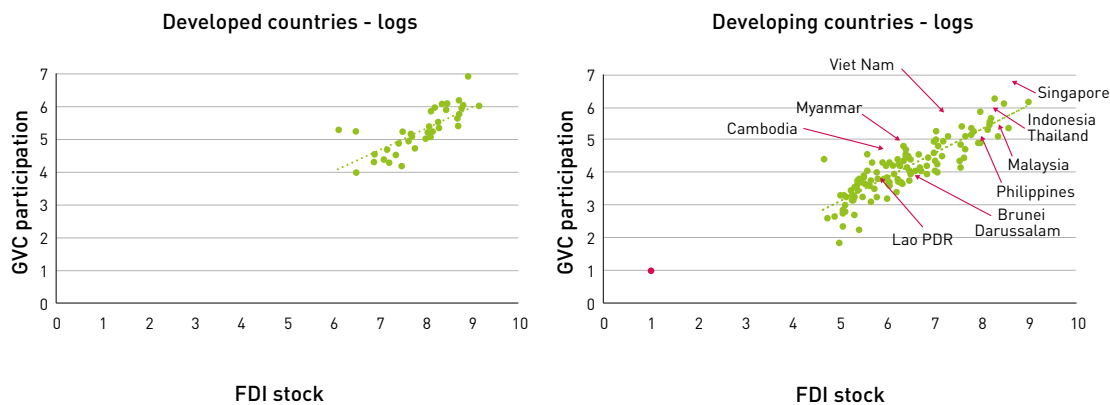
⁸ Exports from Japanese and United States foreign affiliates in ASEAN reached \$248 billion and \$458 billion in 2016, respectively, the sum of which accounted for 49 per cent of all ASEAN exports of goods and services (\$1.4 trillion in 2016; table 1).

Figure 19. Relationship between GVC participation and GDP per capita, 2017



Source: AJC-UNCTAD-Eora database on ASEAN GVCs (for GVC participation); GDP data from UNCTAD GlobStat.
 Note: For GVC participation, yearly differences in the log value of the sum of foreign value added (FVA) and domestic value added incorporated in other countries (DVX), both of which are in millions of dollars, are used, while, for GDP per capita, yearly differences in its log in dollars are used. Differences between 2016 and 2017 in logs of GVC participation and GDP per capita growth are used.

Figure 20. Relationship between GVC participation and FDI presence, 2017



Source: AJC-UNCTAD-Eora database on ASEAN GVCs (for GVC participation) and UNCTAD FDI/TNC database (for FDI stock).
 Note: For GVC participation, the log of the sum of foreign value added (FVA) and domestic value added incorporated in other countries (DVX), both of which are in millions of dollars, is used, while, for inward FDI stock, its log in millions of dollars is used.

Because in NEMs the client firms normally do not own or control their local contracted firms, labour conditions in these local firms may worsen unexpectedly due to overcompetition among similar companies in order to obtain orders. They may also lose contracts as client firms tend to be footloose, more so than firms with equity relationships, because client firms do not invest. Moreover, local contractual firms may not enforce strict corporate governance. NEM relationships tend to face more challenges than those firms with equity relationships with clients.

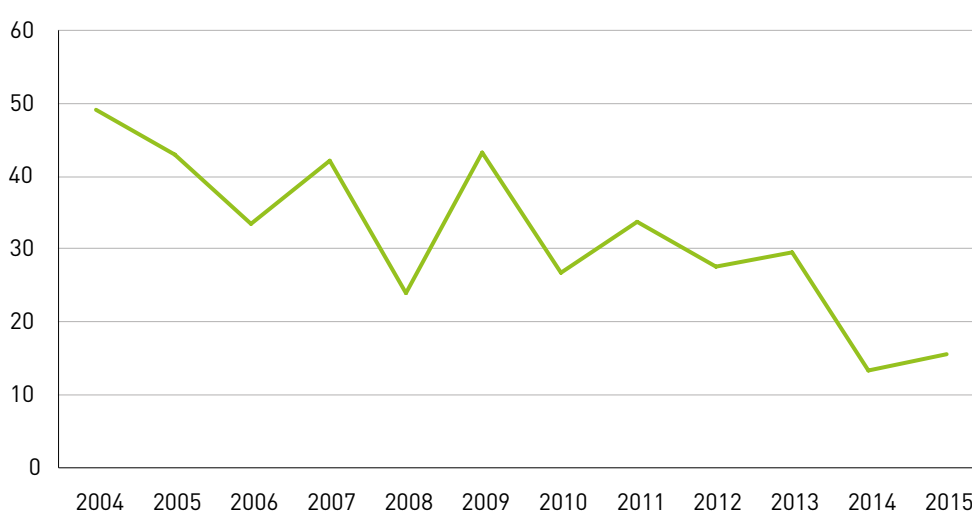
According to UNCTAD, there is also a positive relationship between GVCs and FDI income. The more foreign firms are engaged in GVCs, the greater the income associated with FDI that they generate (UNCTAD 2013). Because of this, foreign firms can reinvest or repatriate income to their

shareholders in home and other countries. In ASEAN, foreign firms are free to do with this income and no regulations are imposed on the remittance of income. Although host-country governments expect that foreign firms operating locally will reinvest, foreign firms tend to repatriate the majority of such income to their home countries or third countries. During 2014–2015, the share of reinvested earnings in total FDI inflows was less than one fifth, and this share has declined over the past decade (figure 21). This share is low compared with that in other regions, both developed and developing, where reinvested earnings reach about half of FDI flows. In FY2015, Japanese affiliates in ASEAN generated net income of ¥1.9 trillion (\$15.8 billion), of which as much as ¥1.4 trillion (\$11.6 billion) was paid as dividends to shareholders in Japan and third countries (Japan METI 2017). There is a need for policy to encourage foreign companies to reinvest from their earnings.

A country's GVC participation, measured as a share of exports, effectively assesses the reliance of exports on GVCs both upstream and downstream. In this sense, it is also an indicator of how much damage to GVCs – and the local economy – would occur if a country's exports would be blocked. For example, ASEAN's clothing industry, which was already well integrated into GVCs, was affected by the economic crisis in 2008. The number of job losses in the first quarter of 2010 was 100,000 in Indonesia, 75,000 in Cambodia and 30,000 in Viet Nam (Staritz 2011). ASEAN's high GVC participation may represent a vulnerability to external shocks.

In order to maximize positive impacts and minimize associated negative impacts, policy actions are called for. Support firms, including parts and component firms and their related industries, should be more created in the ASEAN countries and at the regional level through, for example, industry policies. Strong and growth-oriented small and medium-size enterprises (SMEs) are required. At the same time, there should be recognition that value chain participation by countries outside ASEAN also contributes to economic growth in ASEAN by improving the productivity and competitiveness of member countries' export products. Maximizing the benefits of GVCs requires a proper balance between domestic value added and foreign value added, and among various countries providing inputs to ASEAN.

Figure 21. Reinvested earnings as a share of total FDI inflows to ASEAN, 2003-2015 (Per cent)



Source: UNCTAD FDI/TNC database.

Note: Includes only Brunei Darussalam, Cambodia, the Philippines, Singapore and Thailand for which components of FDI inflows are available - equity capital, reinvested earnings and intracompany loans.

IV. A POLICY FRAMEWORK FOR ASEAN GVCs

Specific country or industry policy measures are the subject of the country and industry papers of this series (Papers 2–16). Each ASEAN country or industry has its own specific policy framework. This general paper touches upon a general policy framework required for ASEAN GVCs; gaining access to GVCs, benefiting from GVC participation and realizing opportunities to upgrade in GVCs all require a structured approach. The general framework consists of the following elements:

- Embedding GVCs in overall development strategies and industrial development policies
- Enabling GVC growth by maintaining a conducive trade and investment environment and by putting in place infrastructural prerequisites
- Building productive capacities in local firms
- Mitigating the risks involved in GVC participation, which requires a strong environmental, social and governance framework
- Aligning trade and investment policies, which implies the identification of synergies between the two policy areas and in relevant institutions

For each of these elements, specific policies are required.⁹

1. Embedding GVCs in development strategy

Mainstreaming GVCs in development strategy is the basic principle for ASEAN as a region and its individual member states to follow as an important development tool. In its AEC Blueprint 2025, ASEAN proclaims that “[T]he broader objective of becoming a highly integrated and cohesive economy is to enhance the region’s participation in global value chains (GVCs)” (para. 22). Although ASEAN supports the enhancement of participation in GVCs, the question is whether its individual member states recognize the importance of GVCs, incorporate GVCs in industrial development policies and set policy objectives along GVC development paths.

Embedding GVCs in development strategy can be put in place in the overall sustainable development framework that virtually all member states have already adopted to pursue the Sustainable Development Goals (SDGs). Along GVC paths, governments, firms, consumers and all other stakeholders can strengthen and maintain enforcement of environment, social and governance (ESG) issues, as GVCs provide such occasions for host ASEAN countries through partner firms or owners (e.g. TNCs).

2. Enabling participation in GVCs

This policy element has two dimensions: creating and maintaining an environment conducive for trade and investment, and putting in place infrastructural prerequisites for GVC participation.

A conducive environment for trade and investment refers first and foremost to the overall policy environment for business, including trade and investment policies, but also competition policy, labour market regulation, intellectual property rights, and a range of other policy areas.

⁹ For GVCs in general, see for example UNCTAD (2013).

Both **trade and investment policies** have been liberalized in accordance with the liberalization mechanism under the ASEAN Free Trade Area (AFTA) and the ASEAN Trade in Goods Agreement (ATIGA) for the former, and the ASEAN Comprehensive Investment Agreement (ACIA) for the latter. For the services trade, the ninth package of the ASEAN Framework Agreement on Services (AFAS) is now in effect, and the tenth package, or the last package was concluded in 2018 before ASEAN moves to ASEAN Trade in Services Agreement (ATISA). Although services trade still encounters hindrances to further liberalization, trade in goods and investment enjoy an almost free flow system. However, trade and investment policies often work in silos. In the context of GVCs they can even have unintended and counterproductive reciprocal effects.

In **labour markets**, the movement of professionals is guaranteed through the Mutual Recognition Agreement (MRA) in at least eight areas (architectural services, surveying, medical practitioners, dental practitioners, engineering services, nursing services, and accounting services, and tourism professionals), but there is plenty of room for ASEAN to make further efforts to enforce the agreement.

Competition policies take on a crucial role as firms in countries expand their GVC participation. Value capture for the domestic economy in GVCs is often determined by power relationships in GVCs. Such relationships may involve both equity arrangements between parents and affiliates and between affiliates, and contractual arrangements between independent operators in GVCs. The former relationships may create unfair competition through monopolistic or oligopolistic behaviours. The latter arrangement can restrict competition by fixing purchase or selling prices or other trading conditions. To a certain extent, in the case of the parent–affiliate relationships of GVCs, CSR may well work to minimize the damage of local competition. However, it barely works in the case of the contractual relationships, as there is no inherent mechanism to exercise CSR. When CSR principles are not adhered to, external force becomes important. Thus, competition policies can play a crucial role in preventing or sanctioning such anti-competitive behaviours. GVCs thus require enhanced competition-law enforcement.

In **intellectual property rights** (IPRs), the AEC Blueprint 2025 confirms IPR cooperation (paras. 30–31). Almost all countries (except Myanmar) have already promulgated domestic laws relevant for IPR. Efforts have been made to accede to international conventions and treaties. The Blueprint recognizes the need for training on trademarks, patents and industrial designs for Cambodia, the Lao People’s Democratic Republic and Myanmar (i.e. para. 31). It is implementation and enforcement of such regulation that is an issue in ASEAN. In order to move the region upstream in GVCs, into higher-technology and more knowledge-intensive manufacturing and service industries, ASEAN needs to gain a competitive edge and foster robust productivity growth through innovation (AEC Blueprint 2025, para. 6.III). There will be no innovation without IPR enforcement.

Sound and efficient **infrastructure** is required in order for foreign firms to establish GVCs and for local firms to participate in GVCs effectively. Under the concept of connectivity, ASEAN has forged and invited infrastructure businesses. With extensive cooperation from multilateral financial institutions, ASEAN has embarked upon physical connectivity, particularly in road and rail. The Philippines, for example, enters the infrastructure boom period that runs several years to come. There is still a lack of finance to build infrastructure within countries, as neighbouring countries start to be connected through region-wide projects. GVC-enabling infrastructure encourages the creation of cross-border industrial clusters, facilitating GVC functions.

3. Building domestic productive capacity

Although infrastructure is a prerequisite, it is not enough for local firms to take part in GVCs. There is a need to support enterprise development and enhance the bargaining power of local firms to

deal with foreign firms. Building productive capacity in local firms includes such key aspects as development of linkages between local firms and foreign firms, science and technology support and an effective IPR framework, access to SME finance, and entrepreneurship promotion and development.

ASEAN country governments encourage foreign funds as well as domestic funds to be accessible to SMEs. Private equity funds that start to look at ASEAN for investment locations, foreign funds created for SMEs (e.g. Japan-ASEAN Women Empowerment Fund) and the like may be accessible after finance conditions are met. In Viet Nam, the Philippines and Indonesia, more than 60 per cent of adults over the age of 25 do not have a bank account, compared with about 20 per cent in Thailand and Malaysia (World Bank). This implies that start-up firms have difficulties accessing finance. With technology emerging related to raising finance and providing financial services, such as cloud funding for the former and fintech for the latter, financial conditions for SMEs are improving. However, they should know how to utilize the emerging finance technologies that many ASEAN SMEs lack.

4. Providing a strong environmental, social and governance framework

Sustainability is becoming an important factor for attracting and being engaged in GVC activities. Negative effects and risks associated with GVC participation can be minimized through regulation, and public and private standards on ESG. At the same time, GVCs may support local firms in complying with international standards.

Minimizing social and environmental impacts means mainstreaming sustainable development in GVC policies and maximizing the use of CSR. Capturing greenhouse gas emissions distributed along the value chains throughout the region and reducing the emissions requires a coordinated regional approach to find a collective solution.

In this respect, economic processing zones (EPZs) may become significant GVC hubs by offering benefits to TNCs and suppliers in GVCs. ASEAN member states have established many EPZs and special economic zones. They could also offer support services for CSR efforts, becoming catalysts for CSR implementation. Policymakers could consider setting up relevant services, including technical assistance for certification and reporting, support on occupational safety and health issues, and recycling or alternative energy facilities, and transforming EPZs into centres of excellence for sustainable business.

5. Synergizing trade and investment policies and institutions

TNCs utilize and integrate both FDI and trade into their operations, whereas national governments tend to think about trade and FDI policies separately. ASEAN governments also tend to formulate trade and FDI policies, and trade and FDI promotion measures separately. Different ministries and agencies look after the respective policies without particular coordination. Because of their close interlinkages, those policies should be coordinated in order to avoid counterproductive results. Such coordination has implications for the nature of institutions and for international investment and trade treaties.

Therefore, in many ASEAN countries, investment promotion agencies and trade promotion agencies are separate organizations (except in Singapore and, to a lesser extent, Brunei Darussalam). And their objectives are not necessarily the same (table 8). At the institutional level, the trade and investment links in GVCs call for closer coordination and collaboration between trade and investment promotion agencies. Where the trade institution may want to foster local products and even export them, the

investment institution may want to promote foreign investment in these products. If foreign affiliates need services from abroad in their production and these services are difficult to import, GVCs do not work effectively. To avoid this, policymakers should carefully review those policy instruments that simultaneously affect investment and trade in GVCs; i.e. trade measures affecting investment and investment measures affecting trade. There may be a lack of synergies in trade and development policies and institutions. ASEAN member states should ensure coherence between trade and investment policies.

Each of these five elements for a GVC policy framework requires specific policy measures. International organizations including the AJC can help through the establishment of benchmarks, exchanges of best practices and capacity-building programmes.

CONCLUDING REMARKS: TOWARDS AN INTENSIFIED RELATIONSHIP BETWEEN REGIONAL INTEGRATION AND GVCs

Both trade and FDI play an interactive role in advancing value chains, and regional factors are becoming more prominent trade and FDI determinants. Regional integration is beginning to assert more significant influence in trade and FDI patterns and decision making, and is increasingly being referred in corporate investment plans. ASEAN integration frameworks such as the AEC and its regional policy mechanisms and measures (e.g. ATIGA (ASEAN Trade in Goods Agreement), AFAS, ACIA (ASEAN Comprehensive Investment Agreement), MRA (Mutual Recognition Arrangement)) are encouraging the growth of regional production networks and of global and regional value chains by TNCs. ASEAN's integration offers significant opportunities for TNCs to further engage in the region, subregions such as the Mekong, and individual member states through measures related to trade, investment and movement of people, which in turn furthers regional integration. Liberalization, facilitation, promotion and cooperation measures help shape the current economic landscape and considerably improve the overall environment for GVCs.

The ASEAN experience reveals a number of issues concerning the relationship between regional integration and trade and FDI flows. First, without appropriate economic conditions and an enabling policy framework, joining a large (and potentially more prosperous) economic grouping may not

Table 8. Key operational differences between investment promotion agencies and trade promotion offices

Operational items	Trade promotion	Investment promotion
Clients	In-country exporters (SMEs)	Overseas TNCs
Targeting	Purchasing director	CEO, CFO, COO
Cycle	Purchase (routine decisions)	Strategic decision (years)
Business information	Country production and exporters	Investment climate and cost of operations
Staff skills	Sales and marketing	Location consultant
Performance indicators	Exports, jobs	FDI projects, jobs
Support	Full support from local industry	Partial support – pressure by local industry fearing competition

Source: UNCTAD (2013), p. 193.

necessarily bring benefits in terms of attracting FDI and could even result in FDI decreases in certain member states. A second issue concerns the importance of ensuring consistency in and coordination of investment policies among member states, as well as between trade and investment policies, and the harmonization of policies and institutions within a country. This requires considerable efforts and resources, and can lead to unnecessary bureaucratization and over-regulation. Yet, such harmonization also offers opportunities for increasing transparency and reducing administrative burdens, which could reap large rewards in terms of attracting foreign investors. Third, there is also the question of whether membership and further integration through the establishment of the AEC positively affects FDI through a perceived reduction of risks. So far, there are increased investment flows and no major incidence of relocation of investment among member states. What is taking place instead is additional location of foreign facilities, often characterized as “Thailand plus one”.

This general paper does not discuss the usefulness and importance of GVCs in individual member states and different industries, or specific policy considerations related to each of them. However, the overall understanding of the issues related to GVCs in ASEAN within this paper will lead ASEAN policymakers and readers to a better understanding and use of GVCs in individual country and industry settings.

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ANNEX TABLES

Annex table 1. Value added exports of goods and services from ASEAN, by value added creator, 1990–2018 (Millions of dollars)

Value added creator	Exports from ASEAN						
	1990	1995	2000	2005	2010	2015	2018
World	51 720	124 944	153 302	258 835	433 402	479 504	530 943
Developed countries	33 270	81 717	91 440	140 819	214 335	213 813	229 757
Europe	10 791	26 268	28 186	52 857	83 475	85 370	91 687
European Union	9 873	23 673	25 767	48 574	75 479	76 550	82 347
Austria	254	627	667	1 358	2 125	2 292	2 466
Belgium	550	1 477	1 422	2 872	4 029	4 477	4 778
Finland	259	581	613	1 192	1 774	1 919	2 084
France	1 176	2 935	3 009	5 943	9 056	8 989	9 610
Germany	2 794	6 473	6 839	13 066	21 656	18 899	20 284
Italy	1 070	2 255	2 383	4 612	6 914	7 073	7 502
Netherlands	798	2 161	2 207	3 649	5 977	6 198	6 775
Spain	287	771	773	1 974	2 887	3 162	3 453
Sweden	502	922	797	1 550	2 538	2 750	2 995
United Kingdom	1 633	4 098	5 287	8 652	12 355	14 242	15 184
Other developed Europe	918	2 595	2 419	4 283	7 996	8 820	9 340
Norway	219	594	748	1 276	2 297	2 204	2 342
Switzerland	689	1 983	1 650	2 968	5 630	6 553	6 928
North America	8 421	20 187	26 637	35 431	55 059	56 040	60 601
Canada	500	1 150	2 200	3 402	5 754	6 135	6 658
United States	7 921	19 037	24 437	32 029	49 305	49 905	53 943
Other developed countries	14 058	35 262	36 616	52 530	75 800	72 403	77 470
Australia	1 622	3 490	3 830	7 413	13 030	15 076	16 360
Japan	12 147	31 059	31 862	43 524	59 810	53 995	57 434
New Zealand	145	383	471	866	1 566	1 760	1 940
Developing countries	17 981	42 384	60 799	115 216	213 359	259 148	294 119
Africa	410	1 274	2 270	4 435	7 583	7 582	8 297
South Africa	155	696	761	1 567	2 660	2 631	2 761
Latin America and the Caribbean	641	1 682	2 360	4 115	9 264	9 621	9 695
Brazil	169	398	486	1 036	2 271	2 265	2 391
Venezuela	150	382	513	817	2 709	2 702	2 302
Mexico	121	330	526	892	1 561	1 791	1 925
Asia	16 912	39 385	56 108	106 577	196 337	241 770	275 933
West Asia	1 540	2 882	4 137	8 467	13 635	16 999	18 111
Kuwait	153	411	618	1 603	2 468	3 212	3 373
Saudi Arabia	812	1 332	1 617	2 711	4 335	5 225	5 447
United Arab Emirates	313	543	837	1 973	2 675	3 739	4 055
South, East and South-east Asia	15 371	36 503	51 971	98 111	182 702	224 771	257 822
East Asia	9 539	18 626	26 832	48 602	85 116	109 102	126 051
China	1 397	4 724	8 852	22 642	51 513	70 166	82 761
Hong Kong, China	966	2 584	3 083	4 439	5 659	8 086	8 964
Korea, Republic of	1 483	4 911	6 186	12 053	17 585	21 500	23 767
Taiwan Province of China	5 681	6 390	8 670	9 393	10 230	9 211	10 399
South Asia	659	1 816	2 586	5 885	12 398	14 687	17 116
India	370	1 066	1 614	3 945	8 889	10 365	12 266
Iran, Islamic Republic of	232	594	727	1 557	2 824	3 571	3 978
ASEAN	5 173	16 062	22 553	43 623	85 188	100 982	114 655
Brunei Darussalam	37	73	111	256	410	495	507
Cambodia	3	24	43	65	120	121	146
Indonesia	1 346	5 142	6 124	11 692	24 975	30 400	34 792
Lao People's Democratic Republic	10	27	43	94	192	230	273
Malaysia	1 683	4 345	7 568	14 897	27 854	32 898	37 404
Myanmar	54	114	498	481	999	1 278	1 519
Philippines	287	877	1 198	2 766	7 026	8 601	10 079
Singapore	954	2 894	3 455	6 417	12 853	14 031	15 429
Thailand	725	2 296	2 929	6 008	9 877	11 877	13 288
Viet Nam	73	270	585	948	882	1 052	1 220
Oceania	19	43	61	90	176	175	194
Transition economies	469	842	1 062	2 800	5 708	6 543	7 067
Russian Federation	381	671	831	2 185	4 499	5 317	5 715
Domestic value added (DVA)	85 713	172 393	220 491	380 328	696 729	843 524	952 963
Gross exports	137 433	297 337	373 792	639 163	1 130 127	1 323 027	1 483 906

Source: AJC-UNCTAD-Eora database on ASEAN GVCs. Data for 2016–2018 are projected by UNCTAD and Eora.

Note: All values are estimated. Regions and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2-1. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

		Exports from ASEAN by sector/industry					
		Primary			Manufacturing		
Value added creator	Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
		World	1 666		554	1 112	42 644
Developed countries	1 036	329	707	27 293	1 073	1 281	4 335
Europe	321	115	206	9 056	387	500	1 731
European Union	297	106	191	8 287	350	469	1 590
Austria	6	2	4	220	6	8	22
Belgium	16	7	9	470	21	38	97
Finland	6	2	4	223	7	7	24
France	34	13	21	976	48	68	190
Germany	83	28	56	2 360	89	121	347
Italy	31	10	21	902	36	67	194
Netherlands	24	10	13	676	36	41	158
Spain	9	4	6	237	12	14	42
Sweden	19	6	13	409	20	22	62
United Kingdom	49	16	32	1 371	44	56	379
Other developed Europe	24	10	14	769	38	31	142
Norway	7	4	4	183	14	8	65
Switzerland	16	6	10	578	21	22	75
North America	285	91	193	6 527	265	263	1 349
Canada	16	7	9	411	31	24	139
United States	269	85	184	6 115	234	239	1 210
Other developed countries	431	122	308	11 710	421	518	1 255
Australia	62	26	36	1 328	100	85	360
Japan	357	92	265	10 152	291	422	867
New Zealand	7	3	4	112	24	8	14
Developing countries	610	215	395	14 962	642	1 146	2 622
Africa	20	8	11	326	22	25	87
South Africa	5	2	4	126	7	7	17
Latin America and the Caribbean	26	11	15	516	33	29	148
Brazil	6	2	4	140	7	9	20
Venezuela	4	2	2	122	4	4	78
Mexico	3	1	2	102	3	5	20
Asia	563	195	368	14 105	585	1 091	2 385
West Asia	75	24	51	1 142	70	79	578
Kuwait	5	2	3	121	5	8	64
Saudi Arabia	47	11	37	611	27	34	361
United Arab Emirates	11	5	5	220	20	16	93
South, East and South-east Asia	488	171	317	12 963	515	1 012	1 807
East Asia	254	88	166	8 252	263	772	731
China	62	32	30	1 130	73	105	241
Hong Kong, China	19	5	14	866	16	60	42
Korea, Republic of	40	14	26	1 259	41	142	131
Taiwan Province of China	133	37	96	4 988	132	465	315
South Asia	22	10	13	533	32	56	147
India	11	5	6	317	20	29	60
Iran, Islamic Republic of	9	3	6	170	10	11	81
ASEAN	212	73	139	4 177	220	185	929
Brunei Darussalam	1	1	1	25	4	3	10
Cambodia	0	0	0	2	0	0	1
Indonesia	40	20	20	1 107	56	46	441
Lao People's Democratic Republic	0	0	0	8	1	1	6
Malaysia	38	12	27	1 449	73	39	259
Myanmar	3	3	1	43	9	2	21
Philippines	12	5	7	211	8	6	24
Singapore	78	18	60	715	32	39	73
Thailand	32	12	20	567	27	43	83
Viet Nam	5	3	2	51	10	5	11
Oceania	1	1	1	15	1	1	2
Transition economies	20	10	10	390	27	25	78
Russian Federation	13	7	6	327	22	19	69
Domestic value added (DVA)	14 503	4 237	10 265	44 951	6 159	5 975	7 271
Gross exports	16 169	4 792	11 377	87 595	7 901	8 427	14 306

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

1990 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Services					
			Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
1 394	22 658	2 597	7 363	179	818	573	2 679	1 923
924	14 513	1 943	4 909	110	528	353	1 777	1 320
319	4 268	589	1 402	39	140	131	441	388
297	3 955	549	1 278	36	130	121	393	357
7	130	14	28	1	3	2	8	8
19	179	25	64	2	6	7	18	17
7	99	51	30	1	3	2	8	8
33	449	59	165	4	16	20	52	42
83	1 257	170	348	10	36	29	103	103
33	405	47	136	5	14	12	43	37
21	298	41	98	2	10	11	32	26
10	113	14	40	2	4	4	11	11
21	189	27	74	2	8	5	22	23
45	628	73	211	5	21	19	71	60
23	313	39	125	3	11	10	48	31
6	62	8	28	1	3	3	10	7
16	249	31	95	2	8	6	37	23
167	3 414	330	1 599	23	180	93	631	476
12	130	16	73	2	8	8	30	15
154	3 285	315	1 526	21	172	85	601	461
438	6 831	1 024	1 908	49	207	129	705	457
68	435	50	230	6	25	33	76	51
365	6 287	961	1 631	42	178	88	617	392
3	38	3	25	0	3	7	5	6
431	7 993	637	2 396	66	284	214	884	591
14	112	13	63	2	6	6	23	13
8	56	6	23	1	2	2	7	6
22	198	18	96	2	10	9	37	22
9	62	5	23	1	3	2	7	6
2	24	2	24	0	2	1	13	4
2	57	5	16	0	2	1	6	4
394	7 679	605	2 234	62	268	198	823	555
33	258	26	322	5	31	22	181	53
3	30	3	28	1	3	2	14	6
14	118	11	154	3	16	9	88	25
8	54	6	83	1	7	6	49	11
362	7 421	580	1 912	57	237	176	642	503
223	5 150	357	1 028	34	141	92	341	239
40	469	61	205	6	23	24	72	48
17	540	39	82	2	10	6	29	20
49	723	60	183	6	24	14	64	44
118	3 415	196	557	20	85	48	176	126
18	156	13	103	2	10	11	43	23
13	99	8	42	2	4	6	11	12
4	47	4	53	1	5	4	29	9
120	2 114	210	781	20	86	73	258	241
1	5	1	11	0	1	1	7	1
0	0	0	1	0	0	0	0	0
43	370	30	197	6	20	17	65	64
0	0	0	1	0	0	0	0	0
33	822	124	196	6	20	22	60	59
1	4	1	8	0	1	2	2	1
7	135	7	64	1	7	3	22	26
18	426	40	160	3	19	14	53	45
17	335	7	125	4	17	12	43	38
1	16	1	17	0	2	3	5	6
1	5	1	3	0	0	0	1	1
39	151	17	58	3	6	6	18	12
32	126	14	41	2	4	4	13	8
2 066	13 449	1 472	26 232	370	5 327	3 558	6 308	6 705
3 461	36 107	4 069	33 595	549	6 145	4 130	8 987	8 629

Annex table 2-2. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

		Exports from ASEAN by sector/industry					
		Primary			Manufacturing		
Value added creator	Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
		World	3 294		1 285	2 009	105 293
Developed countries	2 061	733	1 328	68 626	2 658	2 977	10 238
Europe	650	257	393	22 489	948	1 139	4 406
European Union	594	234	360	20 252	849	1 060	4 011
Austria	13	4	9	552	14	20	54
Belgium	35	16	18	1 284	56	80	324
Finland	11	4	7	508	15	15	53
France	73	31	42	2 479	118	141	513
Germany	168	61	107	5 545	209	271	855
Italy	56	20	37	1 931	82	128	357
Netherlands	56	27	29	1 856	104	125	462
Spain	21	9	12	658	33	37	108
Sweden	28	10	19	770	36	41	109
United Kingdom	94	37	57	3 517	116	140	993
Other developed Europe	57	24	33	2 237	99	79	395
Norway	15	9	7	510	41	19	199
Switzerland	40	15	25	1 713	54	59	194
North America	577	207	370	15 877	712	622	2 958
Canada	32	15	17	959	69	46	303
United States	545	193	353	14 918	643	576	2 654
Other developed countries	834	268	566	30 261	998	1 216	2 874
Australia	116	54	62	2 882	268	169	629
Japan	695	204	491	26 800	655	1 020	2 166
New Zealand	13	5	8	307	63	19	47
Developing countries	1 205	537	668	35 941	1 580	2 472	6 224
Africa	39	17	22	1 083	60	56	330
South Africa	16	7	8	602	29	23	166
Latin America and the Caribbean	50	23	27	1 404	104	68	361
Brazil	10	4	6	339	19	21	45
Venezuela	10	5	5	312	12	11	182
Mexico	7	3	4	282	10	11	51
Asia	1 114	496	618	33 419	1 412	2 344	5 529
West Asia	109	43	66	2 188	135	137	1 004
Kuwait	12	5	7	320	17	19	164
Saudi Arabia	59	17	42	1 013	44	54	542
United Arab Emirates	16	8	8	396	30	23	150
South, East and South-east Asia	1 005	453	552	31 231	1 277	2 206	4 525
East Asia	465	223	243	16 364	534	1 444	1 552
China	220	144	76	3 934	261	381	617
Hong Kong, China	44	14	30	2 311	50	177	126
Korea, Republic of	86	29	57	4 378	90	335	434
Taiwan Province of China	115	36	79	5 727	132	550	373
South Asia	55	29	26	1 477	106	144	424
India	32	19	13	909	74	83	187
Iran, Islamic Republic of	18	8	10	438	22	21	217
ASEAN	484	201	283	13 390	637	618	2 549
Brunei Darussalam	2	1	1	52	5	6	23
Cambodia	2	2	0	19	4	4	7
Indonesia	119	68	51	4 401	222	186	1 105
Lao People's Democratic Republic	1	0	0	24	2	2	17
Malaysia	62	22	39	3 780	131	92	646
Myanmar	5	4	1	89	17	5	38
Philippines	30	14	16	668	30	21	72
Singapore	158	45	113	2 287	102	126	245
Thailand	84	37	47	1 858	99	164	307
Viet Nam	21	6	15	209	24	13	88
Oceania	2	1	1	36	4	4	4
Transition economies	27	15	12	725	39	38	142
Russian Federation	20	12	8	587	32	29	124
Domestic value added (DVA)	24 816	7 543	17 273	97 028	11 996	11 965	16 317
Gross exports	28 110	8 828	19 282	202 321	16 274	17 452	32 920

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

1995 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Services					
			Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
3 619	57 447	6 814	16 341	283	1 646	1 319	6 029	4 438
2 372	38 033	4 937	11 021	182	1 092	839	4 054	3 041
836	10 806	1 585	3 125	66	289	298	1 026	857
764	9 704	1 465	2 824	61	264	273	917	782
21	333	38	61	1	6	5	17	17
51	504	94	158	4	14	18	49	41
17	243	98	62	1	7	4	16	18
86	1 165	159	383	7	34	45	126	100
220	2 938	409	759	17	72	62	238	224
77	917	115	267	7	26	26	85	73
57	802	103	248	4	24	30	83	67
30	310	62	92	3	9	10	27	25
41	364	53	124	3	12	9	41	37
119	1 546	260	486	10	44	41	174	131
72	1 102	119	301	5	25	24	109	75
16	164	21	69	2	6	7	27	16
55	934	97	230	3	19	16	81	58
453	8 281	957	3 731	40	394	239	1 440	1 144
31	331	40	159	3	16	18	66	34
422	7 950	917	3 572	37	379	221	1 374	1 110
1 084	18 945	2 395	4 165	76	409	302	1 588	1 041
154	1 130	124	491	9	47	88	153	109
913	17 550	2 242	3 562	66	351	192	1 408	901
9	100	8	63	1	6	19	12	14
1 170	19 108	1 843	5 232	98	545	472	1 946	1 377
51	408	43	151	4	13	15	57	32
36	240	27	78	2	6	7	26	18
59	583	62	227	4	22	23	89	53
22	159	14	48	1	5	5	15	13
7	70	8	60	1	6	3	34	11
7	159	19	42	1	4	3	16	12
1 058	18 105	1 736	4 849	90	509	433	1 798	1 290
69	564	60	585	7	54	40	332	98
8	78	8	78	1	8	5	43	14
26	234	23	259	3	26	14	148	45
14	111	12	131	1	10	9	80	18
990	17 541	1 676	4 264	83	455	394	1 466	1 192
503	9 902	884	1 795	38	204	162	596	463
170	1 749	282	569	13	57	72	182	144
51	1 479	108	229	4	23	17	83	61
131	2 806	257	447	10	56	31	152	116
150	3 862	235	548	12	68	41	178	141
53	491	45	283	5	27	35	119	61
38	337	30	124	3	11	22	36	32
11	122	10	138	1	13	9	78	25
434	7 148	747	2 187	40	224	197	750	668
2	10	2	18	0	1	1	12	3
0	2	0	3	0	0	1	1	1
157	2 099	203	621	12	58	59	201	191
0	1	0	2	0	0	1	1	0
99	2 216	353	503	12	54	37	172	154
2	13	2	20	0	1	4	9	2
23	432	25	178	2	18	12	58	72
64	1 354	124	448	5	47	33	160	131
81	969	33	353	8	40	42	123	105
5	50	5	39	0	4	7	14	9
2	12	1	5	0	0	1	2	1
77	307	35	89	4	9	8	29	20
60	244	27	64	3	6	6	22	14
4 474	29 604	3 977	50 540	516	10 741	6 648	11 670	13 424
8 094	87 052	10 792	66 881	799	12 386	7 967	17 700	17 862

Annex table 2-3. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

Value added creator		Exports from ASEAN by sector/industry						
		Primary			Manufacturing			
		Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
Foreign value added (FVA)	World	2 899	1 386	1 514	131 048	4 737	8 477	22 401
	Developed countries	1 579	753	826	78 104	2 729	4 167	12 683
	Europe	524	267	257	24 199	958	1 563	4 732
	European Union	480	243	237	22 122	866	1 468	4 298
	Austria	10	4	6	588	14	29	61
	Belgium	26	15	11	1 235	51	92	283
	Finland	9	4	5	532	16	22	62
	France	58	31	27	2 545	116	174	502
	Germany	128	62	67	5 895	207	377	914
	Italy	42	19	23	2 055	84	161	337
	Netherlands	44	26	18	1 902	98	176	428
	Spain	16	8	7	663	31	49	108
	Sweden	16	7	9	673	28	56	93
	United Kingdom	93	47	46	4 542	146	231	1 272
	Other developed Europe	44	24	20	2 077	91	94	434
	Norway	17	11	6	642	44	30	258
	Switzerland	26	13	13	1 417	44	62	173
	North America	493	237	255	22 035	821	971	4 765
	Canada	43	23	20	1 890	98	87	679
	United States	450	214	236	20 145	723	884	4 086
	Other developed countries	562	248	314	31 869	950	1 633	3 185
	Australia	99	57	42	3 170	274	231	692
	Japan	441	179	262	27 944	596	1 353	2 383
	New Zealand	11	6	5	382	66	33	68
	Developing countries	1 288	614	674	52 033	1 967	4 249	9 539
	Africa	48	22	25	2 007	70	92	468
	South Africa	14	8	6	658	28	34	180
	Latin America and the Caribbean	54	30	24	2 001	126	117	566
	Brazil	9	4	5	421	22	31	55
	Venezuela	10	6	4	432	14	19	260
	Mexico	8	4	4	452	15	21	93
	Asia	1 185	561	624	47 971	1 767	4 036	8 500
	West Asia	140	61	79	3 200	161	217	1 428
	Kuwait	17	9	9	485	23	36	241
	Saudi Arabia	67	21	47	1 248	47	78	638
	United Arab Emirates	21	12	9	645	33	35	225
	South, East and South-east Asia	1 045	499	545	44 771	1 606	3 819	7 072
	East Asia	458	225	232	23 648	685	2 503	2 431
	China	183	108	75	7 734	310	902	915
	Hong Kong, China	37	16	21	2 750	58	285	146
	Korea, Republic of	93	42	51	5 437	120	502	694
	Taiwan Province of China	144	59	85	7 692	195	810	671
	South Asia	65	40	25	2 156	136	247	591
	India	38	26	12	1 387	101	137	279
	Iran, Islamic Republic of	21	11	10	557	24	29	283
ASEAN	522	234	288	18 967	785	1 069	4 051	
Brunei Darussalam	4	2	2	82	6	9	40	
Cambodia	3	2	0	35	5	7	14	
Indonesia	88	59	30	5 343	233	305	1 394	
Lao People's Democratic Republic	1	1	0	39	3	3	27	
Malaysia	121	38	83	6 488	186	194	1 329	
Myanmar	19	12	6	369	46	25	211	
Philippines	21	11	10	986	31	45	74	
Singapore	132	49	82	2 758	117	198	276	
Thailand	94	48	46	2 397	116	250	460	
Viet Nam	40	12	28	470	41	33	226	
Oceania	2	1	1	53	4	4	5	
Transition economies	32	19	13	912	41	62	179	
Russian Federation	23	14	9	721	32	45	152	
Domestic value added (DVA)	31 546	9 407	22 140	130 844	14 242	16 366	22 816	
Gross exports	34 446	10 792	23 653	261 892	18 979	24 844	45 217	

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

2000 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Services					
			Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
4 090	69 190	7 891	19 300	294	1 692	1 367	7 091	5 351
2 495	42 373	4 810	11 725	174	995	796	4 206	3 368
838	11 371	1 497	3 451	60	282	274	1 193	951
777	10 454	1 407	3 153	56	258	253	1 079	874
21	344	35	68	1	6	4	20	20
46	481	79	161	3	13	15	51	42
17	257	83	72	1	6	4	19	21
82	1 191	148	405	6	32	40	139	107
210	3 073	386	813	15	67	55	273	238
77	974	110	284	6	24	23	93	80
57	816	94	260	4	22	27	90	70
29	313	51	93	2	8	9	28	25
35	308	43	108	2	9	7	36	33
150	1 963	290	650	11	52	46	247	170
61	917	90	297	4	24	21	114	77
19	200	25	89	2	7	8	38	20
42	712	64	206	3	16	13	75	57
578	11 367	1 064	4 102	45	357	248	1 561	1 296
58	635	80	267	4	22	23	117	56
520	10 732	984	3 835	41	335	226	1 443	1 240
1 078	19 635	2 250	4 172	68	355	274	1 453	1 120
169	1 142	133	559	9	44	91	193	123
890	18 145	2 083	3 466	58	299	159	1 221	954
11	121	10	78	1	6	20	17	19
1 510	26 442	3 037	7 458	117	687	563	2 841	1 959
69	1 025	59	214	4	17	17	84	48
38	233	27	89	2	6	7	32	20
80	783	79	303	5	25	27	122	71
25	190	16	56	1	5	6	18	16
9	89	10	71	1	6	4	40	12
12	243	25	66	1	5	5	25	18
1 358	24 620	2 898	6 936	107	644	518	2 633	1 838
85	836	86	796	7	72	45	443	142
11	121	12	115	1	11	6	65	20
30	317	29	301	3	31	14	167	56
15	161	17	170	1	14	10	99	25
1 272	23 784	2 812	6 139	100	572	474	2 190	1 697
703	13 100	1 758	2 717	48	264	206	862	717
248	3 669	864	931	17	73	97	279	235
54	1 628	109	295	4	26	19	111	85
175	3 124	366	654	11	71	35	230	164
224	4 667	414	832	15	94	55	241	232
66	674	65	364	6	32	45	147	80
51	475	45	188	4	14	31	59	47
11	153	14	149	2	15	9	80	27
503	10 010	989	3 058	47	277	223	1 180	899
2	16	2	25	0	2	1	15	4
0	6	1	5	0	0	1	1	1
152	2 578	280	692	15	58	59	251	206
0	3	1	3	0	0	1	1	0
140	3 751	466	958	14	107	47	367	283
6	45	10	110	0	4	10	68	11
20	704	35	190	2	16	9	72	68
77	1 633	135	563	6	42	37	207	174
94	1 175	48	438	8	40	46	167	134
12	99	12	75	1	6	11	30	18
3	15	2	6	0	0	1	2	1
86	375	44	118	4	10	8	43	24
66	292	33	86	3	8	6	33	17
5 008	46 111	4 649	58 003	524	10 703	6 337	13 720	16 962
9 098	115 302	12 541	77 303	818	12 395	7 704	20 810	22 313

Annex table 2-4. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

		Exports from ASEAN by sector/industry					
		Primary			Manufacturing		
Value added creator	Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
		World	4 852		2 383	2 470	217 053
Developed countries	2 469	1 201	1 268	117 233	4 675	6 793	19 648
Europe	910	466	444	44 902	1 816	2 761	8 889
European Union	837	426	411	41 254	1 651	2 599	8 124
Austria	19	9	10	1 185	31	58	127
Belgium	48	28	20	2 480	104	170	582
Finland	16	7	8	1 029	31	41	120
France	105	57	48	4 989	227	326	1 006
Germany	228	112	117	11 084	411	698	1 788
Italy	77	36	41	3 934	159	302	701
Netherlands	66	39	27	3 112	165	215	795
Spain	35	19	16	1 690	74	112	268
Sweden	29	14	15	1 294	54	110	189
United Kingdom	141	70	71	7 363	239	368	2 030
Other developed Europe	73	40	33	3 648	166	161	765
Norway	26	17	9	1 091	78	49	439
Switzerland	45	22	23	2 525	81	110	322
North America	688	332	356	27 759	1 179	1 325	6 090
Canada	59	34	24	2 896	168	133	884
United States	630	297	332	24 863	1 011	1 192	5 206
Other developed countries	870	403	467	44 572	1 680	2 707	4 670
Australia	166	94	72	6 098	509	393	1 247
Japan	668	289	379	37 199	1 021	2 255	3 236
New Zealand	19	10	9	684	127	38	117
Developing countries	2 308	1 133	1 175	97 417	3 862	6 713	18 786
Africa	87	39	48	3 877	138	165	997
South Africa	25	14	11	1 346	57	61	382
Latin America and the Caribbean	87	48	40	3 451	218	194	931
Brazil	18	9	9	884	47	66	125
Venezuela	15	9	7	681	24	26	413
Mexico	13	7	6	756	25	35	148
Asia	2 131	1 045	1 086	90 012	3 499	6 347	16 850
West Asia	239	116	123	6 407	361	398	2 817
Kuwait	40	20	20	1 235	66	78	622
Saudi Arabia	91	32	59	2 049	84	115	1 040
United Arab Emirates	45	26	20	1 488	89	77	518
South, East and South-east Asia	1 892	929	963	83 605	3 138	5 948	14 033
East Asia	818	436	382	42 441	1 348	3 731	4 491
China	464	281	184	19 566	821	1 876	2 412
Hong Kong, China	51	21	30	3 939	82	371	219
Korea, Republic of	177	83	94	10 434	246	793	1 215
Taiwan Province of China	124	50	74	8 439	197	684	636
South Asia	122	76	46	4 893	304	461	1 363
India	79	51	27	3 371	237	292	694
Iran, Islamic Republic of	36	20	16	1 197	48	55	630
ASEAN	952	418	534	36 271	1 486	1 756	8 179
Brunei Darussalam	8	4	4	183	16	20	85
Cambodia	5	4	1	51	6	14	14
Indonesia	161	104	57	10 078	448	420	2 981
Lao People's Democratic Republic	2	1	1	85	5	6	61
Malaysia	222	72	150	12 601	362	348	2 795
Myanmar	16	11	6	351	45	24	185
Philippines	44	23	21	2 261	72	103	181
Singapore	247	88	159	5 068	234	375	540
Thailand	187	94	92	4 830	233	403	958
Viet Nam	60	17	43	763	65	44	378
Oceania	3	1	1	76	6	7	8
Transition economies	76	48	27	2 404	110	148	474
Russian Federation	55	38	17	1 899	88	110	399
Domestic value added (DVA)	50 156	14 824	35 332	223 373	24 378	25 308	40 912
Gross exports	55 008	17 206	37 802	440 425	33 025	38 961	79 819

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

2005 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Services					
			Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
7 960	108 214	14 933	36 907	719	3 269	2 587	13 717	10 460
4 449	59 362	8 017	21 105	393	1 861	1 435	7 604	6 212
1 761	20 378	3 160	7 039	159	577	546	2 421	2 000
1 636	18 836	2 979	6 478	148	532	507	2 208	1 845
46	662	82	154	4	14	9	47	47
104	925	174	344	9	27	31	109	93
36	471	185	147	3	13	8	41	45
188	2 247	338	848	17	68	82	290	229
452	5 490	833	1 752	41	145	115	598	523
166	1 744	246	601	17	51	46	200	170
106	1 282	177	471	9	39	47	164	130
80	790	161	249	8	20	22	75	69
70	568	92	226	6	18	14	79	69
263	3 165	483	1 147	24	93	81	421	321
125	1 541	181	561	11	45	39	212	155
38	329	51	159	4	12	14	66	37
86	1 203	128	397	7	32	24	144	117
873	13 482	1 469	6 981	85	649	386	2 554	2 379
108	1 012	158	447	8	37	40	182	104
765	12 469	1 311	6 533	77	612	346	2 372	2 275
1 815	25 503	3 388	7 086	149	635	503	2 629	1 833
359	2 219	292	1 148	24	91	179	387	265
1 419	22 705	3 034	5 654	121	522	275	2 168	1 486
23	224	21	163	2	12	44	34	40
3 267	47 889	6 783	15 482	311	1 381	1 129	6 005	4 174
153	1 857	136	469	12	37	36	185	111
91	480	65	196	7	14	15	70	46
156	1 350	162	574	12	48	50	224	145
52	389	40	134	4	12	13	43	38
16	138	17	121	2	10	6	66	23
24	402	51	124	2	10	8	46	37
2 953	44 658	6 481	14 429	287	1 295	1 042	5 593	3 916
224	1 613	207	1 820	21	153	97	1 039	320
37	299	37	327	4	29	18	184	58
60	513	55	571	7	56	24	321	109
50	351	49	439	4	33	24	266	64
2 729	43 045	6 274	12 609	266	1 142	945	4 553	3 596
1 413	22 968	4 034	5 341	121	482	403	1 802	1 415
712	9 051	2 545	2 611	62	213	249	804	700
86	2 253	195	449	8	39	28	171	125
385	5 977	931	1 442	31	144	72	558	359
227	5 663	352	830	19	86	53	266	228
182	1 490	157	870	19	72	99	356	199
145	1 104	112	495	14	38	74	157	130
28	313	34	324	4	30	16	183	57
1 135	18 587	2 083	6 398	126	588	443	2 395	1 982
7	35	7	65	1	4	4	41	9
1	11	1	10	0	1	1	3	2
341	4 605	537	1 452	38	123	115	528	447
1	6	2	6	0	1	2	1	1
320	6 846	1 061	2 074	37	225	103	762	660
13	46	14	113	1	4	11	71	11
53	1 576	85	460	5	42	22	169	171
159	2 890	255	1 102	16	85	73	406	336
218	2 413	98	990	26	92	97	364	314
22	158	23	125	2	10	17	49	31
5	24	3	11	0	1	1	4	2
243	963	133	320	15	27	23	108	74
187	744	102	231	11	20	17	80	53
9 485	80 332	8 462	106 787	1 128	19 513	11 187	25 573	31 416
17 444	188 547	23 395	143 694	1 847	22 782	13 775	39 290	41 876

Annex table 2-5. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

		Exports from ASEAN by sector/industry					
		Primary			Manufacturing		
Value added creator	Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
		World	7 758		3 865	3 893	357 623
Developed countries	3 653	1 790	1 863	175 101	7 504	9 820	35 503
Europe	1 335	690	645	69 892	2 859	3 953	14 977
European Union	1 205	618	588	63 210	2 542	3 665	13 432
Austria	27	13	14	1 832	48	87	210
Belgium	66	38	27	3 423	149	210	897
Finland	21	10	11	1 515	45	59	190
France	148	83	66	7 513	353	464	1 578
Germany	347	173	174	18 152	660	1 086	3 196
Italy	109	51	58	5 786	239	430	1 146
Netherlands	96	57	39	5 065	267	261	1 460
Spain	48	25	23	2 433	107	151	431
Sweden	44	21	23	2 098	87	162	330
United Kingdom	190	92	98	10 321	338	445	3 086
Other developed Europe	130	72	58	6 682	317	287	1 545
Norway	43	29	14	1 957	146	78	826
Switzerland	83	42	42	4 671	159	206	711
North America	995	482	512	42 483	1 863	1 801	12 362
Canada	90	53	37	4 852	269	187	1 904
United States	905	430	475	37 630	1 594	1 614	10 458
Other developed countries	1 323	617	706	62 727	2 781	4 067	8 164
Australia	278	154	124	10 531	907	639	2 391
Japan	983	429	554	49 861	1 601	3 331	5 435
New Zealand	33	17	16	1 219	232	61	189
Developing countries	3 949	1 972	1 977	177 687	7 001	10 692	38 025
Africa	141	69	72	6 482	252	282	2 116
South Africa	40	22	19	2 256	94	94	743
Latin America and the Caribbean	169	93	76	7 721	442	361	2 877
Brazil	37	19	18	1 910	100	142	298
Venezuela	39	22	17	2 275	67	56	1 622
Mexico	20	11	10	1 302	42	51	324
Asia	3 633	1 807	1 825	163 339	6 294	10 035	33 013
West Asia	336	160	176	10 134	506	549	4 844
Kuwait	48	24	25	1 933	69	94	1 044
Saudi Arabia	125	44	81	3 217	122	153	1 716
United Arab Emirates	59	32	27	1 928	115	93	812
South, East and South-east Asia	3 297	1 647	1 650	153 204	5 787	9 487	28 169
East Asia	1 425	775	650	73 014	2 377	5 749	8 364
China	975	586	389	43 922	1 678	3 626	5 657
Hong Kong, China	62	25	36	4 934	102	396	320
Korea, Republic of	256	111	145	14 931	386	1 045	1 617
Taiwan Province of China	129	52	78	9 121	208	672	756
South Asia	229	141	88	10 201	640	833	3 152
India	164	104	61	7 469	525	575	1 887
Iran, Islamic Republic of	51	29	22	2 171	76	80	1 185
ASEAN	1 643	732	912	69 990	2 770	2 905	16 652
Brunei Darussalam	11	5	6	284	22	26	142
Cambodia	9	8	1	89	9	22	26
Indonesia	307	195	112	21 304	918	724	6 939
Lao People's Democratic Republic	4	3	2	173	11	9	127
Malaysia	356	115	242	23 147	608	554	5 380
Myanmar	34	21	13	699	88	44	401
Philippines	89	47	41	5 806	153	215	432
Singapore	511	182	330	9 943	525	731	1 213
Thailand	275	145	130	7 832	390	542	1 612
Viet Nam	47	12	35	714	47	37	378
Oceania	5	3	3	145	14	14	19
Transition economies	156	103	53	4 835	233	279	1 087
Russian Federation	117	83	34	3 857	189	209	915
Domestic value added (DVA)	85 126	25 011	60 115	408 823	42 035	40 591	79 894
Gross exports	92 884	28 876	64 008	766 447	56 772	61 382	154 509

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

2010 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
15 934	175 102	22 129	67 974	1 725	5 800	4 332	25 282	19 779
7 802	86 171	10 170	35 557	843	3 063	2 262	13 007	10 578
3 147	32 963	4 309	12 238	343	982	856	4 186	3 600
2 881	29 940	3 992	11 055	316	889	781	3 744	3 257
86	1 064	116	266	8	22	15	81	84
171	1 390	189	539	18	42	43	174	151
61	729	232	238	6	20	12	65	74
327	3 502	486	1 393	36	105	128	480	373
833	9 226	1 236	3 156	93	256	186	1 057	977
285	2 644	350	1 018	36	85	70	338	293
193	2 143	261	816	21	66	73	288	227
136	1 186	162	405	16	33	32	121	120
128	951	138	396	13	31	23	134	125
424	4 584	510	1 842	47	152	121	663	548
266	3 023	317	1 183	27	93	74	441	343
74	595	84	297	9	22	26	119	73
190	2 412	230	875	18	70	47	319	267
1 525	18 774	1 874	11 575	185	1 067	595	4 332	3 893
191	1 544	223	811	19	64	64	348	187
1 334	17 230	1 651	10 764	166	1 003	530	3 984	3 706
3 130	34 434	3 987	11 744	315	1 014	812	4 489	3 085
698	4 043	475	2 219	60	171	317	754	550
2 354	29 280	3 411	8 963	247	798	408	3 581	2 365
46	420	37	314	4	22	76	70	81
7 622	86 960	11 697	31 703	847	2 680	2 024	12 032	9 024
312	2 706	219	955	32	74	68	387	229
179	796	98	363	17	26	26	131	91
379	2 646	298	1 370	38	110	102	575	339
143	860	91	324	13	28	27	104	94
47	336	40	394	9	30	18	227	70
45	669	73	238	5	20	14	91	71
6 918	81 557	11 173	29 353	776	2 495	1 851	11 061	8 451
404	2 655	295	3 163	49	264	141	1 789	601
61	475	48	486	9	47	20	259	103
105	800	76	994	14	94	36	559	198
81	513	59	687	9	49	32	419	106
6 514	78 901	10 878	26 190	727	2 231	1 710	9 272	7 850
3 613	38 934	7 282	10 673	363	881	704	3 418	2 986
1 923	21 769	5 523	6 614	202	510	500	2 051	1 845
128	3 103	243	663	14	55	35	259	187
1 283	7 838	1 155	2 398	119	224	111	788	666
274	6 177	346	979	28	90	56	314	284
481	3 432	322	1 967	55	155	197	778	488
404	2 706	248	1 255	43	91	155	408	345
57	577	55	601	10	55	25	333	117
2 420	36 535	3 274	13 550	309	1 195	810	5 076	4 376
13	55	10	115	1	7	5	72	16
2	22	3	22	0	2	2	8	5
829	9 693	815	3 364	97	283	228	1 235	1 087
2	11	4	15	1	1	3	4	2
669	12 796	1 636	4 350	90	462	198	1 574	1 443
27	82	21	266	3	10	22	174	26
148	4 232	175	1 130	14	102	45	413	431
358	5 517	429	2 398	46	163	143	888	755
350	3 977	162	1 769	54	154	150	657	581
24	151	20	121	2	10	12	52	29
12	51	7	25	1	2	3	8	6
511	1 971	263	714	35	58	47	243	177
394	1 553	207	524	26	42	35	181	129
18 132	156 060	13 986	202 707	2 869	35 126	19 417	49 216	60 877
34 066	331 162	36 116	270 681	4 594	40 926	23 749	74 498	80 656

Annex table 2-6. Value added exports of goods and services from ASEAN, by value added creator, and by sector/industry,

		Exports from ASEAN by sector/industry					
		Primary			Manufacturing		
Value added creator	Total	Agriculture, hunting, forestry and fishing	Mining, quarrying and petroleum	Total	Food, beverages and tobacco	Textiles, clothing and leather	Petroleum, chemical and non-metallic mineral products
		World	8 144		4 124	4 020	397 096
Developed countries	3 447	1 715	1 733	174 912	7 620	9 586	36 496
Europe	1 279	669	611	71 663	2 903	3 956	15 548
European Union	1 147	595	552	64 286	2 577	3 650	13 886
Austria	27	13	14	1 984	50	91	218
Belgium	69	41	28	3 818	166	233	1 017
Finland	21	10	11	1 646	47	61	195
France	137	77	60	7 472	352	455	1 528
Germany	290	145	145	15 852	574	939	2 737
Italy	104	50	54	5 935	244	435	1 208
Netherlands	95	57	38	5 261	286	269	1 534
Spain	50	27	23	2 670	118	162	470
Sweden	45	22	23	2 280	93	179	353
United Kingdom	201	99	102	11 978	382	506	3 642
Other developed Europe	133	74	59	7 377	326	306	1 661
Norway	39	27	12	1 885	133	73	835
Switzerland	90	45	45	5 443	181	230	818
North America	969	475	493	43 432	1 915	1 791	12 869
Canada	91	54	37	5 200	293	197	2 038
United States	878	421	457	38 232	1 623	1 594	10 831
Other developed countries	1 200	571	629	59 816	2 801	3 840	8 079
Australia	306	172	135	12 217	1 046	734	2 890
Japan	827	361	465	44 957	1 436	3 000	4 810
New Zealand	35	18	17	1 375	272	67	213
Developing countries	4 526	2 293	2 233	216 607	8 334	12 815	46 196
Africa	134	64	70	6 519	246	252	2 177
South Africa	38	21	18	2 234	93	91	754
Latin America and the Caribbean	164	92	72	8 059	452	369	3 060
Brazil	35	18	17	1 905	101	146	301
Venezuela	36	21	15	2 286	64	54	1 669
Mexico	21	11	10	1 504	47	57	373
Asia	4 224	2 134	2 090	201 884	7 620	12 179	40 940
West Asia	403	192	212	12 630	613	654	6 193
Kuwait	60	29	31	2 521	87	119	1 390
Saudi Arabia	147	50	97	3 884	143	179	2 116
United Arab Emirates	80	43	37	2 708	159	128	1 165
South, East and South-east Asia	3 820	1 942	1 878	189 254	7 008	11 525	34 747
East Asia	1 763	981	782	93 751	3 025	7 252	10 739
China	1 277	775	502	60 024	2 240	4 859	7 694
Hong Kong, China	80	33	47	7 087	137	537	444
Korea, Republic of	291	127	164	18 306	457	1 246	1 922
Taiwan Province of China	113	45	68	8 218	187	600	664
South Asia	255	158	97	12 121	751	964	3 916
India	182	116	66	8 728	615	668	2 264
Iran, Islamic Republic of	59	34	25	2 776	93	97	1 563
ASEAN	1 802	803	999	83 382	3 232	3 309	20 091
Brunei Darussalam	13	6	7	342	26	31	174
Cambodia	9	7	1	90	10	24	27
Indonesia	338	216	121	26 037	1 090	844	8 569
Lao People's Democratic Republic	5	3	2	207	13	11	154
Malaysia	412	132	280	27 385	725	644	6 449
Myanmar	42	26	16	889	112	56	512
Philippines	97	52	44	7 178	175	256	500
Singapore	529	190	339	10 928	570	777	1 304
Thailand	304	156	148	9 474	454	620	1 966
Viet Nam	54	14	41	852	59	46	438
Oceania	5	3	2	145	15	15	20
Transition economies	171	117	54	5 577	269	316	1 298
Russian Federation	134	97	36	4 583	225	245	1 115
Domestic value added (DVA)	102 889	30 441	72 448	499 982	51 663	50 826	96 516
Foreign value added (FVA)	111 034	34 565	76 468	897 078	67 886	73 544	180 506

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

Note: All values are estimated. The region/country refers to that to which the value added is attributed. For the GVC terminology, see box 2.

2015 (Millions of dollars)

Exports from ASEAN by sector/industry

Services

Metal and metal products	Electrical and machinery	Motor vehicles and other transport equipment	Services					
			Total	Construction	Trade	Hotels and restaurants	Transport, storage and communications	Financial Intermediation and business activities
17 643	193 129	25 972	74 206	2 038	6 370	4 661	27 727	21 024
7 775	85 017	10 343	35 426	897	3 089	2 261	12 982	10 304
3 215	33 649	4 523	12 414	372	1 010	863	4 239	3 568
2 924	30 261	4 173	11 106	341	906	786	3 746	3 194
92	1 168	128	280	9	24	15	84	87
193	1 526	216	590	21	47	48	188	160
64	786	278	252	6	21	13	68	76
328	3 502	504	1 380	38	105	127	471	360
722	8 103	1 126	2 755	88	226	160	924	836
291	2 684	365	1 033	39	88	70	342	290
203	2 193	278	843	23	69	76	297	229
151	1 301	182	442	19	36	35	131	128
141	1 032	154	425	15	34	24	143	131
492	5 281	608	2 062	56	171	137	730	600
292	3 388	350	1 309	31	105	77	493	374
69	549	81	280	9	21	23	114	66
220	2 824	267	1 019	22	83	52	376	305
1 567	19 005	1 980	11 631	200	1 091	592	4 383	3 829
208	1 640	248	844	22	68	68	360	188
1 359	17 365	1 732	10 788	179	1 023	524	4 023	3 641
2 993	32 363	3 840	11 380	325	988	806	4 360	2 907
800	4 608	554	2 551	75	202	356	877	614
2 105	26 501	3 170	8 208	241	735	352	3 312	2 110
51	464	41	350	5	25	85	78	88
9 269	105 878	15 326	37 988	1 098	3 218	2 349	14 475	10 531
306	2 745	215	925	34	72	64	378	215
178	773	97	357	18	26	25	129	86
391	2 737	313	1 393	42	114	101	587	336
142	843	90	324	14	29	27	104	92
45	314	39	379	9	30	17	222	64
51	780	87	266	6	22	15	102	78
8 561	100 346	14 791	35 645	1 021	3 030	2 180	13 501	9 975
491	3 222	366	3 964	64	336	171	2 260	732
78	605	62	631	12	62	25	340	130
124	943	93	1 194	18	114	43	673	235
112	702	84	951	13	69	45	581	143
8 070	97 125	14 425	31 681	958	2 694	2 009	11 241	9 243
4 611	49 517	10 056	13 582	501	1 097	871	4 333	3 696
2 637	29 717	7 804	8 861	300	672	647	2 726	2 408
184	4 505	365	919	21	77	45	357	255
1 535	9 661	1 552	2 902	153	267	127	962	779
249	5 584	319	879	27	80	49	283	251
558	4 001	378	2 309	69	188	223	913	568
467	3 124	290	1 455	53	107	175	474	391
69	717	66	735	13	70	30	400	149
2 900	43 606	3 991	15 791	387	1 408	916	5 994	4 979
15	65	12	140	2	9	7	88	19
2	21	3	22	0	2	2	8	5
1 016	11 880	1 017	4 024	124	341	264	1 496	1 272
3	13	4	18	1	1	4	4	2
817	15 023	1 989	5 100	112	545	229	1 870	1 648
33	104	28	347	4	15	29	224	33
180	5 314	218	1 326	17	122	50	490	495
379	6 136	495	2 572	55	175	148	965	785
427	4 865	199	2 098	69	185	167	788	685
28	185	27	145	3	13	14	61	34
12	49	6	24	1	2	3	8	5
598	2 234	303	792	43	63	51	271	189
481	1 812	246	600	33	47	39	207	141
21 983	190 545	17 832	240 605	3 647	42 442	23 267	58 980	69 292
39 626	383 674	43 803	314 811	5 685	48 812	27 928	86 707	90 316

Annex table 3. ASEAN's value added exports incorporated in other countries' exports, by region/country, 1990-2018 (Millions of dollars)

	DVX from ASEAN						
	1990	1995	2000	2005	2010	2015	2018
World	25 565	53 257	76 126	149 401	288 787	327 458	372 286
Developed countries	12 707	25 107	34 824	67 918	124 948	136 885	159 645
Europe	7 954	16 173	22 558	44 563	85 366	90 046	105 507
European Union	7 769	15 785	22 071	43 457	83 171	87 792	102 843
Austria	148	270	388	848	1 652	1 761	2 007
Belgium	845	1 556	1 885	3 729	6 782	7 511	9 125
Finland	84	234	295	613	1 146	1 228	1 426
France	767	1 464	2 226	3 823	6 471	7 171	8 233
Germany	1 832	3 475	5 014	10 541	21 197	20 652	23 941
Italy	504	1 072	1 388	2 655	4 887	5 355	6 345
Netherlands	1 418	2 826	3 543	6 856	13 661	15 341	18 187
Spain	231	570	756	1 579	2 789	3 152	3 792
Sweden	182	335	443	800	1 506	1 629	1 847
United Kingdom	857	1 841	2 541	4 696	8 632	8 133	9 144
Other developed Europe	185	388	486	1 106	2 195	2 255	2 664
Norway	70	141	178	297	581	581	623
Switzerland	109	239	299	793	1 578	1 634	1 993
North America	1 275	3 069	5 123	7 934	12 958	14 205	15 937
Canada	340	886	1 463	2 515	3 958	4 318	4 842
United States	935	2 183	3 660	5 419	9 000	9 887	11 094
Other developed countries	3 477	5 865	7 143	15 421	26 624	32 634	38 201
Australia	355	895	1 088	2 054	3 828	4 546	5 525
Japan	3 010	4 744	5 700	12 737	21 592	26 813	31 271
New Zealand	51	117	163	288	569	615	666
Developing countries	12 753	28 007	41 103	81 077	162 946	189 599	211 529
Africa	136	277	370	697	1 363	1 498	1 702
South Africa	39	111	158	298	603	696	773
Latin America and the Caribbean	167	799	1 693	3 055	5 381	6 174	7 343
Brazil	15	63	115	272	559	733	884
Venezuela	8	16	21	40	73	82	72
Mexico	71	547	1 350	2 335	3 896	4 412	5 308
Asia	12 422	26 899	39 008	77 272	156 086	181 808	202 358
West Asia	226	561	620	1 170	2 419	2 846	3 181
Kuwait	10	20	15	42	91	98	100
Saudi Arabia	89	191	196	272	571	575	638
United Arab Emirates	48	198	183	414	854	1 107	1 244
South, East and South-east Asia	12 197	26 339	38 388	76 102	153 667	178 962	199 177
East Asia	6 865	9 867	15 220	30 963	65 076	73 570	79 311
China	230	1 336	3 636	11 536	29 351	31 647	33 548
Hong Kong, China	667	1 507	1 679	3 710	8 016	9 296	10 123
Korea, Republic of	1 264	2 416	4 736	10 176	21 030	25 814	28 620
Taiwan Province of China	4 694	4 592	5 144	5 496	6 582	6 691	6 905
South Asia	158	410	615	1 516	3 403	4 410	5 211
India	50	222	377	1 084	2 588	3 366	3 995
Iran, Islamic Republic of	34	37	55	127	226	330	429
ASEAN	5 173	16 062	22 553	43 623	85 188	100 982	114 655
Brunei Darussalam	54	62	54	106	255	281	271
Cambodia	0	19	49	87	147	178	240
Indonesia	246	709	1 460	2 568	4 523	5 334	5 761
Lao People's Democratic Republic	3	10	11	25	45	54	63
Malaysia	1 067	4 321	4 756	8 949	18 056	20 146	22 624
Myanmar	4	1	1	1	0	1	1
Philippines	459	1 343	2 001	3 477	5 508	5 950	6 995
Singapore	2 599	7 013	11 035	22 014	46 305	56 880	64 526
Thailand	614	2 232	2 624	5 241	8 382	10 139	11 487
Viet Nam	127	350	561	1 156	1 966	2 021	2 687
Oceania	28	32	32	53	115	120	127
Transition economies	105	142	198	405	894	974	1 112
Russian Federation	47	69	115	213	449	511	586

Source: AJC-UNCTAD-Eora database on ASEAN GVCs. Data for 2016-2018 are projected by UNCTAD and Eora.

Note: All values are estimated. Regions and countries refer to where the value added is attributed. For GVC terminology, see box 2.

ASEAN- Japan Centre

ASEAN Promotion Centre on Trade, Investment and Tourism
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