

# Global Value Chains in ASEAN

## Singapore

PAPER 9

AUGUST

2018



ASEAN-JAPAN  
CENTRE

国際機関 日本アセアンセンター

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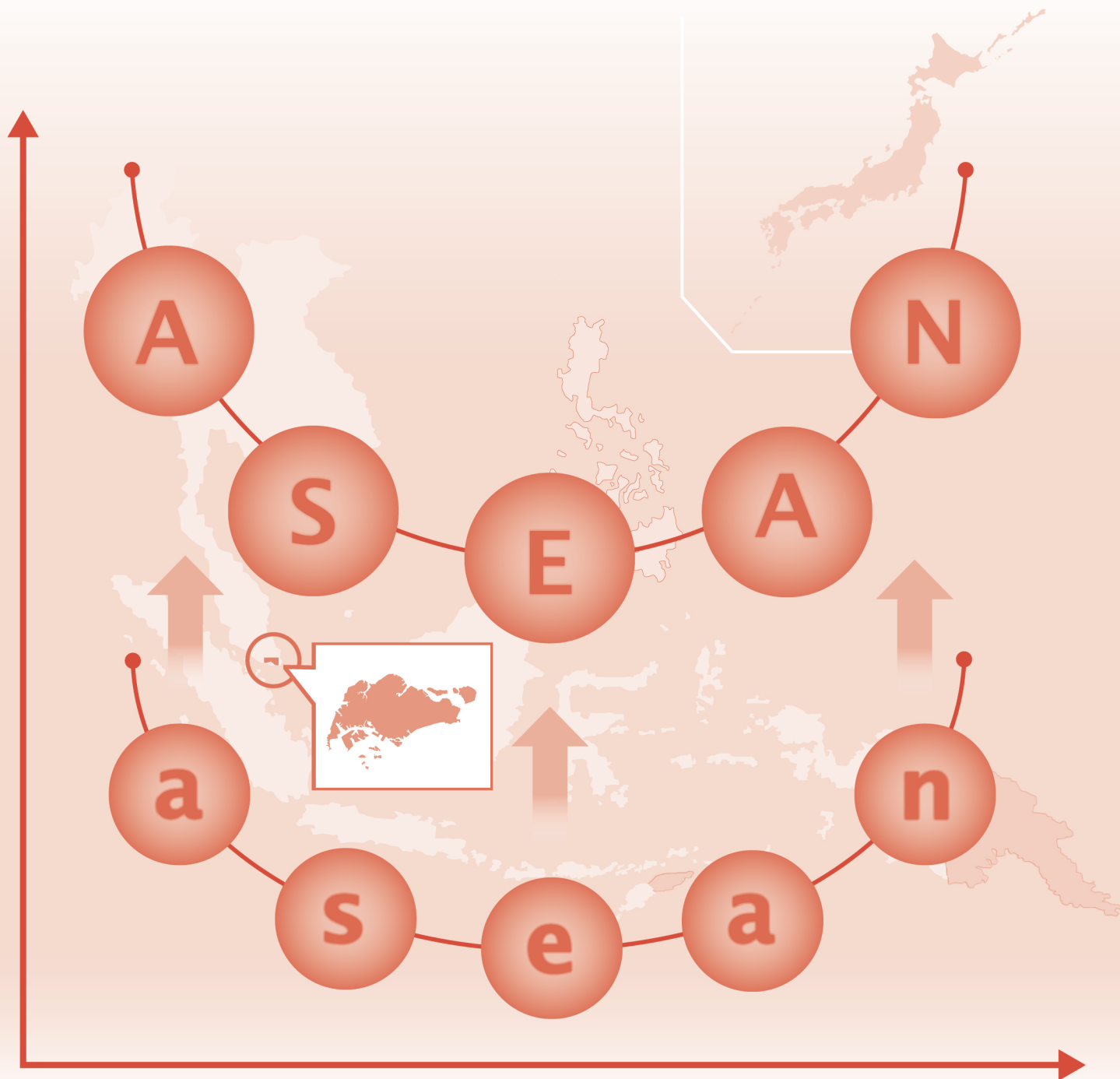
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## NOTES

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 ninth of a 16-paper series on ASEAN global value chains. Papers 1, 2, 8 and 16 have already been published. The other 11 papers will be produced subsequently.

Paper 1. A regional perspective (issued in September 2017)

Paper 2. Brunei Darussalam (issued 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 (issued in July 2017)

#### **Paper 9. Singapore**

Paper 10. Thailand

Paper 11. Viet Nam

Paper 12. Automobiles

Paper 13. Electronics

Paper 14. Textiles and clothing

Paper 15. Agribusiness

Paper 16. Tourism (issued in March 2018)

Prepared by Masataka Fujita (ASEAN-Japan Centre). The author wishes to thank the staff members of the AJC for their comments. The manuscript was edited by Lise Lingo and typeset by Laurence Duchemin. Errors and omissions are only those of the author and should not be attributed to his organization.

## KEY MESSAGES

Singapore, a small city-state that had no major economic assets at the time of its establishment, has become a large, services-oriented economy and the largest exporter among ASEAN countries. However, it has the largest share of value added trade that does not derive from the local economy but from other foreign countries.

The share of foreign value added in gross exports varies by industry, with an all-industry average of 62 per cent, and with the evolution of countries participating in Singapore global value chains (GVCs). The top two foreign countries providing inputs to Singapore – Japan and the United States – had lost the lead to ASEAN by 2005, but their loss of home-country exports was compensated to a certain extent by international production.

Japan–Singapore relations in GVCs incorporate many products, resulting in Japanese products contributing to 6 per cent of Singapore's exports.

As much as 80 per cent of the value added exports of Singapore are estimated to be of foreign origin.

The downstream part of Singapore's GVCs are the shortest among ASEAN member states because Singapore's exported products are mainly for final demand and high-tech products that are embedded in final products.

As Singapore's export products have a global market, the country's GVCs extend more than usually outside ASEAN.

In order to maintain the benefits from GVCs for the economy, Singapore should take steps to upgrade its capacity to provide various functions by maintaining high levels of foreign direct investment (FDI) and distributing the benefits deriving from innovation.



In economic and social achievements, Singapore far exceeds other ASEAN member states and many developed countries as well. This has been demonstrated by distinguished performance in various economic and social indicators, including not only macroeconomic variables such as GDP per capita, trade and FDI but also performance indicators such as competitiveness (e.g. the Global Competitiveness Index), innovation (e.g. the Global Innovation Index), infrastructure (e.g. the Logistics Performance Index), and easiness of doing business (e.g. 2<sup>nd</sup> in the 2017 Doing Business Index ranking), as well as governance (e.g. Corruption Perception Index by Transparency International). For such a country, where both economy and governance seem to work well, any paper attempting to analyse policy and make suggestions about the economy would find difficulties in its positioning and may succumb to irrelevance.

This paper, the ninth of a 16-paper series on global value chains (GVCs) in ASEAN by the ASEAN-Japan Centre (AJC) (box 1) nonetheless shows hard facts and evidence that are not easily depicted but are too important to overlook. On the basis of these facts, it gives some hints about where policymakers need to focus if they are to maximize the benefits from and minimize negative effects associated with GVCs. Singapore is one of the countries that best exhibits how to leverage GVCs for development – and it can do more and better.

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

This paper is part of a multiyear and first-phase research effort, producing every year value chain data for individual countries of ASEAN and analytical papers based on these data. The first year (FY2016) generated basic data sets for ASEAN as a group and for individual member states, which are used in the present paper. In the second year (FY 2017), four papers were produced – on Brunei Darussalam (Paper 2) and the Philippines (Paper 8), an industry paper on tourism (Paper 16), and a regional paper (Paper 1). In the remaining years, the AJC will continue to 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 and investment by identifying which sectors to target for promotional activities in terms 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 efforts and its analytical contributions.

#### Output 1: Creation of the database on ASEAN GVCs

On the basis of the UNCTAD-Eora GVC database and additional data construction for ASEAN countries, a unique database on GVCs was established for 10 ASEAN member countries, with a 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 data on value added trade derived from the Eora global, multiregional input-output (MRIO) table ([www.worldmrio.com](http://www.worldmrio.com)). The Centre's database is called the AJC-UNCTAD-Eora database on ASEAN GVCs. It has been made public gradually as the estimated data on GVCs is validated.

Statistics on value added trade 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.

.../

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

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, 113 industries in Viet Nam, 154 industries in Singapore, 180 industries in Thailand, 298 industries in Malaysia and 462 industries in Japan, covering initially the period 1990–2013. These data are updated regularly. As of August 2018, the period covering industry data has been updated through 2015. For the bilateral country data, the data have been projected until 2018 by UNCTAD and Eora. Data are collected and estimated in a systematic manner. They are 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 are being 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 – and strategically important – economic activities of many ASEAN member countries, but also develop significant global as well as regional value chains.

## Singapore, a small city-state that had no major economic assets at the time of its establishment ...

Singapore has been a proactive nation in ASEAN and a founding member. It was the venue where negotiations began for the ASEAN Free Trade Area in 1992, and it is part of the backbone of the current ASEAN Economic Community. As Singapore had no major assets initially, the free trade system has created assets to protect and preserve. For such a country, economic freedom and liberalization are important.

Singapore had to resort foreign capital since its establishment as in 1965 there were no means to help the country develop such as entrepreneurs, financiers, and investors. The absence of natural resources and a manufacturing base made Singapore open to foreign investment. It was the only development choice, and a reasonable one as there were no domestic firms, no domestic market, and no major industries (except some small services) to protect. Singapore has adopted a strategy of export-oriented industrial development since its inception.

FDI does not come if political stability is not guaranteed. Singapore has been led by a strong government regime. The country was born of globalization, leveraging FDI for development, with efficient government support.



Already in the 1970s, Singapore had reached full employment and experienced a labour shortage. It pushed the country towards more capital- and technology-intensive industries. In the 1980s, financial services, logistics services and business services together became another pillar of development, along with manufacturing. There are no primary industries. The effects of the 1977 financial crisis were minimal because of the government's good handling (e.g. cost reductions through lowering wage rates).

### **... has become a large services-oriented economy...**

In terms of GDP, Singapore is almost the same size as Malaysia or the Philippines, at some \$300 billion in 2016. GDP is value added, and according to the Organization for Economic Co-operation and Development (OECD), in 2011 the total value added of the economy was \$250 billion and only one third of total outputs (table 1). The services industries, with which Singapore began still hold sway. The country is very much services oriented, and four fifths of value added derive from the services sector, though the composition of that value added now is broad and advanced. Wholesale and retail trade, financial intermediation, transport and storage, and real estate are the four largest industries, all of which are in the services sector. In the manufacturing sector, the computer, electronic and optical equipment industry is the largest, but smaller than the real estate industry (see table 1).

When the economic structure is seen in terms of outputs (or "sales"), value added produces a different picture. The computer, electronic and optical equipment industry becomes the largest output industry. The ratio of value added to output indicates the extent to which productivity is high. Generally speaking, this ratio is high in primary and services sectors, and low in the manufacturing sector. In the coke, refined petroleum products and nuclear fuel industry, the large amounts of imported materials required for production (in this case, oil), mean that value added accounts for less than 5 per cent of total outputs. Petroleum refining does not generate much value added per unit of production because of the national nature of the industry, which relies on foreign oil. The value added-output ratio of the largest output industry – computer and electronics – is also low. This more typical industry uses various inputs and materials from other industries and from abroad as well. Singapore's ratio of value added to output in all industries (0.36) is lower than that of the Philippines (0.48), but almost the same as that of Malaysia (0.34).<sup>1</sup> Countries that rely on foreign inputs in their production tend to generate low value added per unit of production that accrues to their economies. Although this is characteristic of industry in Singapore, it calls for a policy directive on how the country can increase the value of its products.

The Government of Singapore recognized that research and development (R&D) is the key to increasing value added. Therefore, it introduced a series of research, innovation and enterprise (RIE) plans. The current RIE2020, with a commitment of S\$19 billion over 2016–2020, focuses on health and biomedical science, services and the digital economy, research manpower, advanced manufacturing and engineering, urban solutions and sustainability, and academic efforts. Fintech and smart cities are examples of the results of such efforts.

Among the industries identified by the Government of Singapore as innovative and prioritized over the years to come, two – computer, electronic and optical equipment in the manufacturing sector and computer and related activities in the services sector – exhibit the highest linkage effects among 34 industries available in the OECD input-output tables (figure 1). Both industries have large production sectors in Singapore (see table 1). However, among the prioritized industries, these two

<sup>1</sup> OECD, Input-Output Table database (<http://www.oecd.org/trade/input-outputtables.htm>).

are not the ones that most affect other industries or have the highest linkage effects (see figure 1). Industries with higher linkage effects on other industries could be targeted as prioritized industries for government policy.

The lower dissemination effects of R&D in the economy are partly due to the low involvement of this activity in GVCs (table 2). It is important for the government to create an environment in which R&D activities can exert a more widespread impact on other industries.

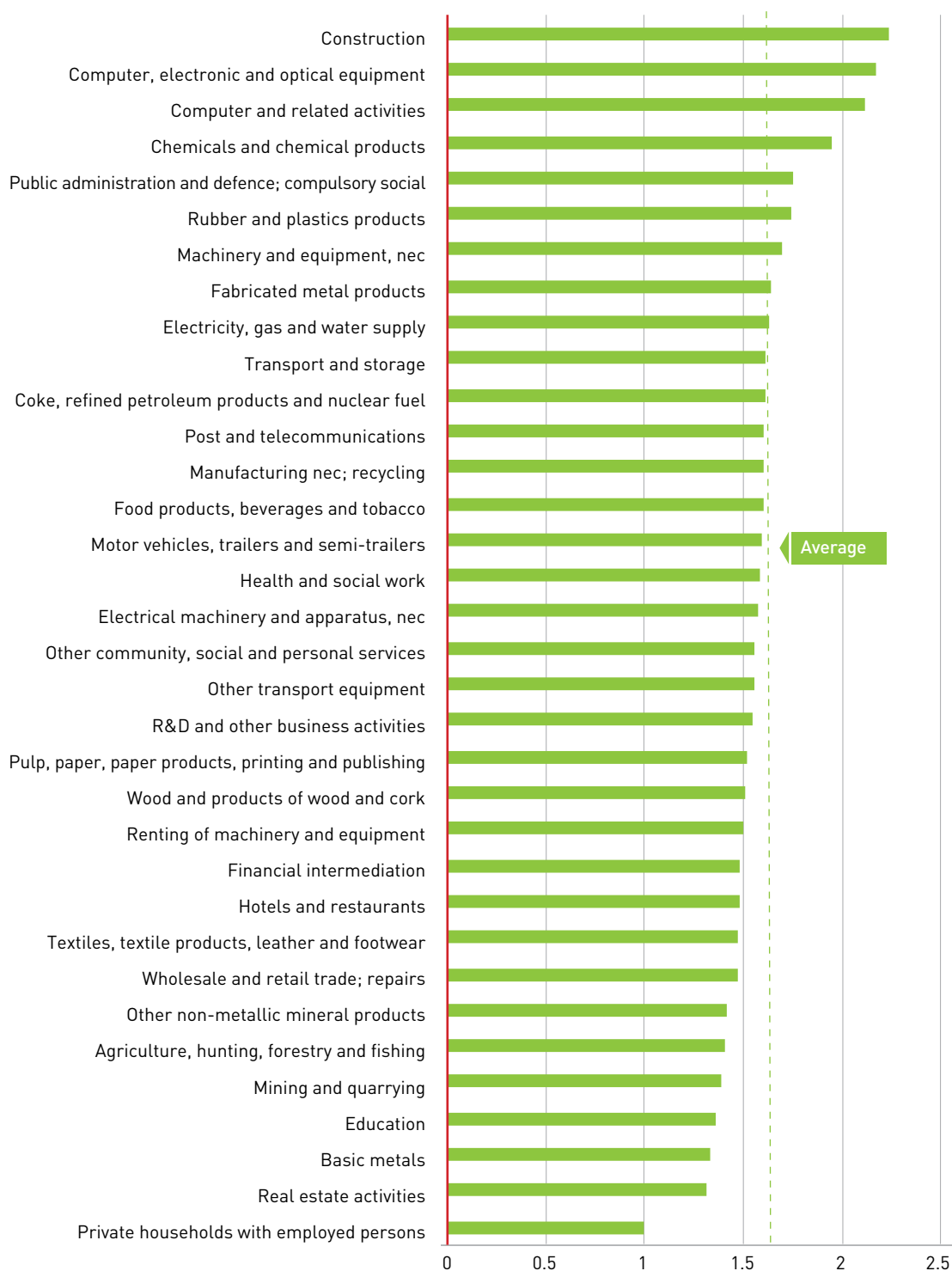
**Table 1. Value added and output of Singapore, by industry, 2011 (Billions of dollars)**

Sector and industry	Value added	Output	(A)/(B)
<b>Primary</b>	<b>0.9</b>	<b>1.8</b>	<b>0.49</b>
Agriculture, hunting, forestry and fishing	0.1	0.2	0.46
Mining and quarrying	0.8	1.6	0.49
<b>Manufacturing</b>	<b>52.5</b>	<b>246.4</b>	<b>0.21</b>
Food products, beverages and tobacco	1.7	6.6	0.26
Textiles, textile products, leather and footwear	0.2	0.7	0.22
Wood and products of wood and cork	0.1	0.2	0.34
Pulp, paper, paper products, printing and publishing	1.5	3.4	0.43
Coke, refined petroleum products and nuclear fuel	1.1	38.2	0.03
Chemicals and chemical products	12.1	51.5	0.24
Rubber and plastics products	0.7	2.1	0.35
Other non-metallic mineral products	0.4	1.7	0.26
Basic metals	0.1	1	0.15
Fabricated metal products	2.4	8.3	0.28
Machinery and equipment, nec	5.4	19.3	0.28
Computer, electronic and optical equipment	18.7	91.3	0.21
Electrical machinery and apparatus, nec	0.6	2.3	0.25
Motor vehicles, trailers and semi-trailers	0.2	0.6	0.28
Other transport equipment	5.5	14.1	0.39
Manufacturing nec; recycling	1.8	5.1	0.35
<b>Services</b>	<b>201.4</b>	<b>463.3</b>	<b>0.43</b>
Electricity, gas and water supply	2.9	9.9	0.30
Construction	11.3	49.7	0.23
Wholesale and retail trade; repairs	45	84.1	0.53
Hotels and restaurants	4.7	10	0.46
Transport and storage	25.6	75.7	0.34
Post and telecommunications	4.7	10.7	0.44
Financial intermediation	31.5	60.3	0.52
Real estate activities	23.1	33.7	0.69
Renting of machinery and equipment	1.9	4	0.48
Computer and related activities	4	25.7	0.16
R&D and other business activities	17.1	36.9	0.46
Public administration and defence; compulsory social security	12.8	33.7	0.38
Education	3.4	4.9	0.69
Health and social work	5.6	10.3	0.54
Other community, social and personal services	5.7	11.6	0.49
Private households with employed persons	2.2	2.2	1
<b>All industries</b>	<b>254.8</b>	<b>711.5</b>	<b>0.36</b>

Source: OECD, Input-Output Table database (<http://www.oecd.org/trade/input-outputtables.htm>).

Figure 1. **Backward linkages of Singapore industries: which industry had the largest impact on the whole economy in 2011?**

(Increase in the whole economy due to one unit increase in output)



Source: OECD, Input-Output Table database (<http://www.oecd.org/trade/input-outputtables.htm>).

**Table 2. Structure of value added exports from Singapore, by sector and industry, 2015**  
(Billions of dollars and per cent)

Sector and industry	Gross exports	Domestic value added (DVA)	Foreign value added (FVA)	Share of FVA in total gross exports (%)
<b>Total</b>	<b>356.2</b>	<b>137.1</b>	<b>219.1</b>	<b>61.5</b>
<b>Primary</b>	<b>1.7</b>	<b>1.1</b>	<b>0.6</b>	<b>34.3</b>
Agriculture, hunting, forestry and fishing	1.7	1.1	0.6	34.3
<b>Secondary</b>	<b>261.3</b>	<b>78.2</b>	<b>183.1</b>	<b>70.1</b>
Food, beverages and tobacco	6.1	2.4	3.7	60.7
Textiles, clothing and leather	2.8	0.9	1.9	67.2
Wood and wood products	0.7	0.3	0.4	56.7
Publishing, printing and reproduction of recorded media	5.4	2.6	2.7	50.7
Coke, petroleum products and nuclear fuel	43.8	4.4	39.4	89.9
Chemicals and chemical products	28	14.3	13.7	48.9
Rubber and plastic products	5.4	2.1	3.4	61.7
Non-metallic mineral products	1	0.4	0.6	56.8
Metal and metal products	13.8	4.8	9	65.4
Machinery and equipment	18.1	7.9	10.2	56.3
Electrical and electronic equipment	113.9	27.8	86.1	75.6
Precision instruments	13	6	7	54.1
Motor vehicles and other transport equipment	8.6	4.2	4.4	51.3
Other manufacturing	0.8	0.1	0.7	89.5
<b>Tertiary</b>	<b>93.1</b>	<b>57.7</b>	<b>35.4</b>	<b>38</b>
Electricity, gas and water	0.1	0.1	0	17.8
Construction	2	1.2	0.8	39.9
Trade	12.3	8.3	4	32.8
Hotels and restaurants	5.5	4	1.5	27.1
Transport, storage and communications	25.9	12.1	13.8	53.2
Finance	9.9	7.2	2.7	27.7
Business activities	28.5	18.5	9.9	34.8
Education	1.7	1.4	0.3	19.5
Health and social services	1.2	0.8	0.4	31.9
Community, social and personal service activities	5.1	3.4	1.7	33
Other services	0.9	0.7	0.2	22.7

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

Note: Gross exports refer to the sum of domestic value added and foreign value added. For the definition, see box 2.

### ... and the largest exporter among ASEAN countries.

The outstanding performance of Singapore can be seen in trade. The value of its exports of goods and services of \$511 billion in 2016 exceeds total GDP by 165 per cent. No other ASEAN country shows a higher value of exports than GDP, although some show a higher share of exports in GDP: 94 per cent for Malaysia, the second largest in terms of export share, followed by two thirds for Cambodia, Malaysia and Thailand.<sup>2</sup> Export orientation has been the approach from the country's start. Already in 2000, Singapore had concluded the first free trade agreement (FTA) with New Zealand, followed by one with Japan in 2002 – the first FTA for Japan. Since then, with 32 trading partners including Australia (2003), the United States (2003), India (2005) and China (2008), as well as the European Free Trade Association (EFTA) (2003) and the Gulf Cooperation Council (2008), Singapore has implemented 21 FTAs (12 bilateral and 9 regional).

### However, the largest share of value added trade belongs to foreign countries.

This export value does not become part of a country's GDP, as the exports contain foreign inputs and materials that derive from other countries. Nonetheless, net trade (exports less imports) in Singapore is the largest in ASEAN and contributes the largest amount of its GDP. This confirms that Singapore is really a trading economy. This paper examines Singapore's exports from the value added point of view. The volume, direction and ownership of value added trade reveal the complicated structure of GVCs in which Singapore is involved.

With an estimated \$400 billion in value added exports in 2018, about 60–70 per cent of exports of goods and services as reported in the country's balance of payments (BoP)<sup>3</sup> (table 3), Singapore controlled the largest amount of value added exports among ASEAN member states, with \$40 billion more than the next largest country, Malaysia, in 2018 (figure 2). The data on value added exports used here are estimated from international input-output tables and do not typically match the data as reported in the BoP or other trade statistics (e.g. merchandise trade data based on customs clearance) that are collected using different methodologies.<sup>4</sup> The lower value of value added exports compared with BoP exports is explained by the fact that this value is the base price, unlike other export data based on free on board (or FoB) prices, and that no re-exports are included in the data for value added exports.

Export data as measured by the BoP indicated slow trade in recent years (2015–2016), and Singapore was no exception. Export data measured by value added saw similar declines in the same period. But a recovery in exports was observed for value added trade in 2016. Value added exports registered a record level in 2018.

The structure of value added exports (box 2), which comprise both foreign value added and domestic value added, reveals a different picture of trade patterns. In terms of domestic value added, or value added created within the economy in the process of exporting, the country ranking is different. Here, Singapore is not the largest country generating value added at home, but only the fourth largest (see figure 2). However, this amount, about \$150 billion in 2018, constitutes 42 per cent of Singapore's GDP, the second highest share after Malaysia (60 per cent in 2018).

<sup>2</sup> Data from the World Bank's World Economic Outlook database.

<sup>3</sup> As much as 40–50 per cent of Singapore's exports are re-exports.

<sup>4</sup> For the BoP data, see IMF (2009), Balance of Payments and International Investment Position Manual, Sixth Edition.

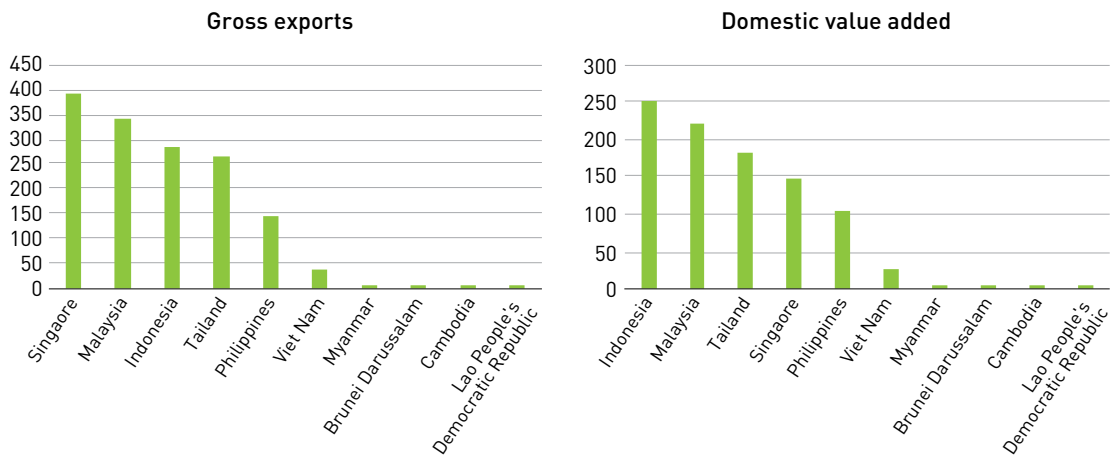
**Table 3. Comparison of Singapore's value added exports (gross exports) and exports as reported in the balance of payments, 1990–2018 (Billions of dollars)**

Year	Value added exports (gross exports)	Exports in BoP
1990	35.1	67.5
1995	75.2	159.5
2000	92.2	181.4
2005	158.3	288.3
2010	311.3	472.2
2013	355.3	587.4
2014	381.9	596.1
2015	356.2	528.2
2016	361.9	511.2
2017	374.2	..
2018	388.4	..

Source: Value added exports from AJC-UNCTAD-Eora database on ASEAN GVCs; exports in BoP from UNCTAD Stat ([www.unctadstat.unctad.org](http://www.unctadstat.unctad.org)).

Note: Value added exports for 2016–2018 are projected by UNCTAD and Eora.

**Figure 2. Value added exports (gross exports) and domestic value added in exports from Singapore, 2018 (Billions of dollars)**



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

Note: Gross exports refer to the sum of domestic value added and foreign value added. For the definition, see box 2.

### Box 2. GVC terminology used in this 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 indicates what part of a country's gross exports consists of inputs that have been produced in other countries. The foreign value added share is the share of the country's exports that do not add to its GDP.
2. **Domestic value added:** Domestic value added is the part of exports created in country, i.e. the part of exports that contributes to GDP. The sum of foreign and domestic value added equates to gross exports. 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).
3. **Value added incorporated in other countries' exports:** This 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 are the same.
4. **GVC participation** indicates the share of a country's exports that are part of a multistage trade process, by adding to the foreign value added used in a country's own exports the value added supplied to other countries' exports. 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 of the extent to which a country's exports are integrated in international production networks.

The GVC participation rate corrects the limitation of the indicators for both foreign and domestic value added, in which countries at the beginning of the value chain (e.g. exporters of raw materials) by definition have low shares of foreign value added content in 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. 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).

### The share of foreign value added in gross exports varies by industry, with an all-industry average of 62 per cent...

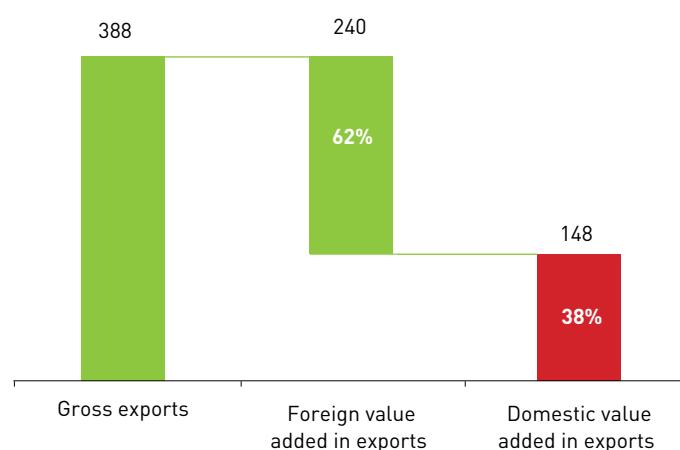
The portion of exports that accrue to countries other than Singapore, or foreign value added, was 62 per cent (figure 3). This large share is mainly explained by the importance of two manufacturing industries: (i) electrical and electronic equipment, and (ii) coke, petroleum products and nuclear fuel industries (see table 3). These two industries together account for half of both total exports and foreign value added exports.

Among ASEAN member states, Singapore has the largest share of foreign value added in total exports – 20 percentage points higher than the next largest countries, Malaysia and Viet Nam. This implies that Singapore uses a significant amount of imported materials, parts and components for its own exports. In other words, Singapore has to source these inputs from various firms, countries and regions through supply and production chains. The upstream part of GVCs plays an important role in the trade business of Singapore across industries (see table 2). The share of foreign value added in gross exports ranges from 18 per cent for electricity, gas and water to more than 90 per cent for coke, petroleum products and nuclear fuel, with 61 per cent for the all-industry average. Among the three sectors of the economy – primary, manufacturing and services – the manufacturing sector is most involved in upstream supply chains and GVCs. Although this characteristic is also observed in other ASEAN countries, the higher share for both the primary and services sectors is typical of Singapore. For the services sector, the main exporting industries are transport, storage and communications, business activities (such as R&D, front and back offices services), trade businesses, and financial services. In these industries, foreign inputs take a share of 30–50 per cent of total exports (see table 2).

### ... and with the evolution of countries participating in GVCs, two of the top countries providing inputs to Singapore – Japan and the United States – had been replaced by ASEAN by 2005, but ...

The share of other countries' contributions in Singapore's exports has been high in the past, but in the 2010s and more recently, it has not risen, reflecting the slow-down of globalization at the

Figure 3. Value added exports from Singapore, 2018  
(Billions of dollars)



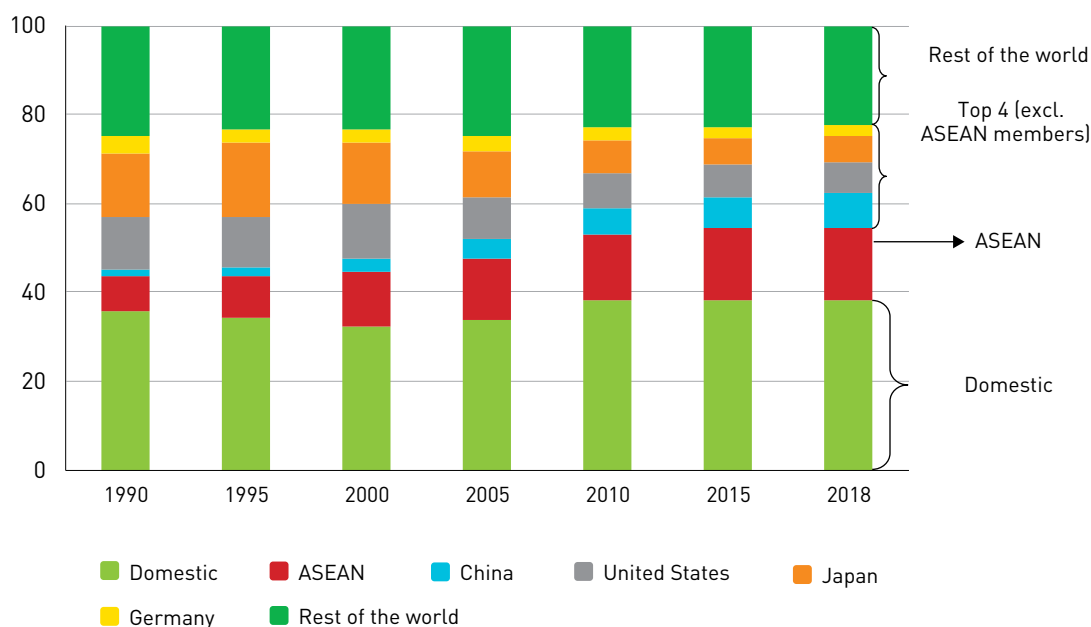


global level. Many countries are contributing to Singapore’s value added trade. Over the past years, however, the significance of these countries is changing, reflecting the economic relationships of these countries with Singapore and the strategic direction of Singapore with regard to international businesses. Foreign multinationals regard Singapore as a hub undertaking many functions, such as headquarters, logistics, R&D, procurement and sales. They do not much consider Singapore as a production site: less than 10 per cent of Japanese affiliates in Singapore, for example, are thinking to expand their production function there, whereas more than 20 per cent wish to strengthen their headquarters functions in Singapore.<sup>5</sup>

There have been several notable changes in the contribution of various countries to exports from Singapore (figure 4):

- Japan was the most significant contributor of inputs to Singapore’s exports until the beginning of the 2000s. Singapore is the first country with which Japan concluded an economic partnership agreement (the Japan–Singapore Economic Agreement for a New Age Partnership in 2002). Despite the fact that all Japanese exports to Singapore have been enjoying zero tariffs since 2002 and have been increasing in volume, the Japanese share of all foreign value added for Singapore has been declining (see figure 3). In the mid-2010s, its share had already been overtaken by both the United States and China.

Figure 4. Value added exports from Singapore, by value added creators, 1990–2018 (Per cent)



Source: AJC-UNCTAD-Eora database on ASEAN GVCs.  
 Note: Value added exports for 2016–2018 are projected by UNCTAD and Eora.

<sup>5</sup> JETRO, FY2017 survey of Japanese affiliated firms in Asia and Oceania, December 2017. Based on 334 Japanese affiliates in Singapore. The survey covers 4,630 Japanese affiliates in Asia and the Oceania.

- In contrast, ASEAN as a group has become the largest contributor to Singapore's exports since the early 2000s. Singapore is a hub not only for developed-country investors but also for ASEAN firms in many senses (i.e. logistics, procurement, R&D, finance). Because of the widely based regional value chains spread throughout ASEAN, products are transported to Singapore to add value in exports.
- China's influence on Singapore's exports has strengthened only in the past decade or so. China's position in value added exports from Singapore is becoming more significant, a common observation witnessed also in other ASEAN countries. The China and Singapore FTA went into force in 2009.
- The United States is well positioned in Singapore's export businesses, though its share in total exports and foreign value added has also been declining, albeit not so as rapidly as that of Japan. The United States–Singapore FTA, concluded in 2003, eliminates 100 per cent of all tariff lines.
- From Europe, Germany has contributed an almost constant share of foreign value added to Singapore's exports. Other major European countries such as the United Kingdom, France and Italy also rank high, though their shares are significantly smaller than the German share (2, 1.1 and 0.4 per cent, respectively, in 2018). The EFTA–Singapore FTA went into force in 2003. Among EFTA countries, Switzerland ranks highest in foreign value added in Singapore with a 0.8 per cent share.

### **... their loss of home-country exports was compensated by international production, to a certain extent.**

Japanese and United States firms seem to differ in their strategies towards providing their products to Singapore. Firms in both countries use foreign investment to provide goods and services more than they provide direct exports from their home countries. Their export volumes are not so different, amounting to \$30–45 billion in 2016 (figure 5), but although sales in Singapore by foreign affiliates from both countries have been rising, United States affiliates in Singapore have grown steadily and faster, and in 2015 their sales were 3.4 times larger than Japanese affiliates, whereas before 2000 they were almost the same size. This is explained by the size of the FDI stock in Singapore of the United States (S\$243.3 billion or \$177 billion in 2015), which was more than double that of Japanese FDI stock (S\$114.2 billion or \$83 billion).

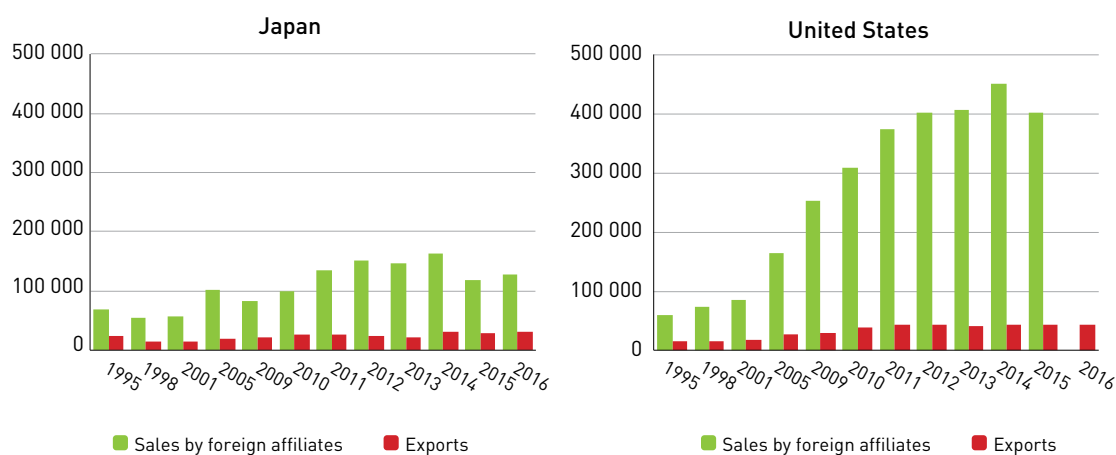
The greater presence of United States multinationals than of Japanese ones provides Singapore with more opportunities to link the country with the production and supply chains of those multinationals. Thus, the participation of the United States as input providers in Singapore GVCs (foreign value added) is greater than that of Japan (see figure 4).

Nearly half of the sales of Japanese affiliates in Singapore are exported (JETRO 2017). This constitutes the domestic value added created within Singapore. Thus, the Japanese contribution to Singapore exports would be larger than the foreign value added attributed to Japan.

### **Japan–Singapore relations in GVCs spread over many products, resulting in Japanese products' contributing to 6 per cent of Singapore's exports.**

Country relationships through GVCs reveal how value chain relationships are evolving. The GVC relationship between Japan and Singapore provides an interesting case that features both structural changes in the economy and strategic changes in company operations. Japan had been the largest input provider to Singapore exports until the beginning of the 2000s, even more than ASEAN as a group, but saw its share decline to only 6 per cent of gross exports from Singapore by the mid-2010s, less than the shares of ASEAN, China and the United States (see figure 4).

Figure 5. Exports to Singapore from Japan and the United States and sales by Japanese and United States affiliates in Singapore, 1995–2016 (Millions of dollars)



Source: UNCTAD FDI/TNC database (for sales by foreign affiliates) and UNCTAD GlobStat (for exports).

Note: For sales data, all affiliates for Japan and majority-owned foreign affiliates for the United States.

Table 4. The 20 largest value added products from Japan integrated in Singapore exports, 2015 (Millions of dollars and per cent)

Rank	Contributing product from Japan <sup>a</sup>	Value (\$ million)	Contributing share to exports from Singapore
1	Road freight transport	1 315	0.4
2	Semiconductor devices	1 188	0.3
3	Other electrical devices and parts	1 171	0.3
4	Wholesale trade	1 107	0.3
5	Other electronic components	1 010	0.3
6	Research and development (intra-enterprise)	984	0.3
7	Integrated circuits	970	0.3
8	Financial service	784	0.2
9	Other business services	717	0.2
10	Petroleum refinery products (including greases)	698	0.2
11	Goods rental and leasing (except car rental)	407	0.1
12	Electric power for enterprise use	390	0.1
13	Plastic products	354	0.1
14	Information services	352	0.1
15	Relay switches and switchboards	270	0.1
16	Worker dispatching services	246	0.1
17	Real estate rental service	238	0.1
18	Other office machines	225	0.1
19	Wiring devices and supplies	203	0.1
20	Hot rolled steel	163	0
:	:	:	:
	All 402 products	21 590	6.1

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

<sup>a</sup>Based on 402 product classification.

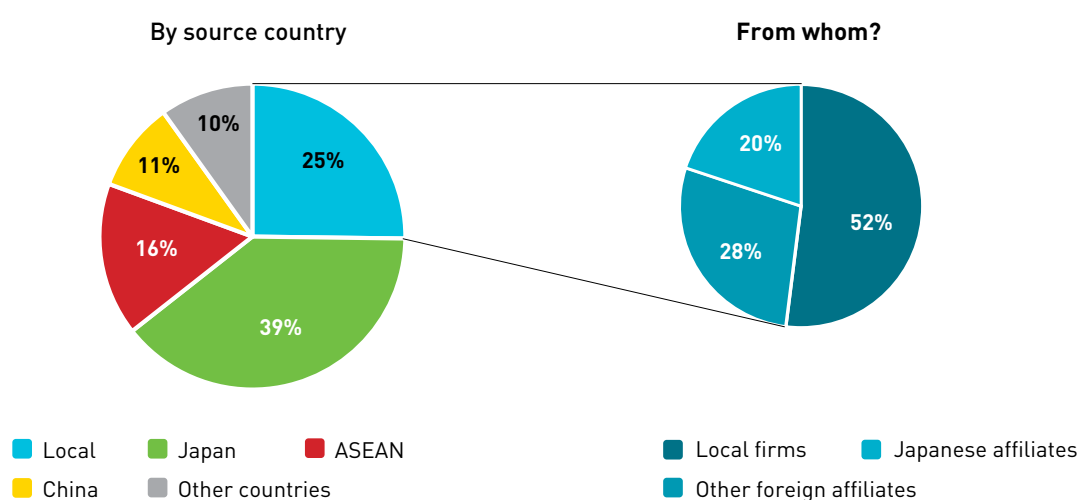
Among the 402 classes of products – worth \$22 billion – exported in 2015 from Japan, the largest contributors to Singapore’s exports are wholesale, logistics, R&D, business services and electronics-related products (e.g. semiconductors, electronic computers, circuits) (table 4). The share of Japanese exports to Singapore that were integrated into Singapore’s value added exports reached 73 per cent of all Japanese exports.<sup>6</sup> The involvement of many Japanese products in Singapore’s exports is due to the use by Japanese companies of Singapore as an important hub for exports into the region. Many regional headquarters of Japanese companies deal with numerous products because of their headquarters functions.

The largest-contributing sources for the inputs used by Japanese affiliates in Singapore are Japan, followed by Singapore itself, ASEAN and China (figure 6). Three quarters of total procurement by these Japanese affiliates come from abroad. Even when they procure inputs in Singapore, nearly half of those inputs are purchased from either Japanese or foreign affiliates, not from Singaporean firms. The Japanese data demonstrate how closely domestic production in Singapore is related to foreign supply chains.

### As much as 80 per cent of value added exports of Singapore are estimated to derive from foreign origins.

The increasing sales by foreign affiliates in Singapore mean that their products are also used in Singapore’s GVCs, no matter who created the value chains. In the case of Japanese affiliates in Singapore, nearly half of the parts and components they procure (48 per cent) are from foreign affiliates in Singapore, including both Japanese and non-Japanese ones, as mentioned (see figure 6).

Figure 6. Procurement of raw materials and parts by Japanese affiliates in Singapore, by source, 2017 (Per cent)



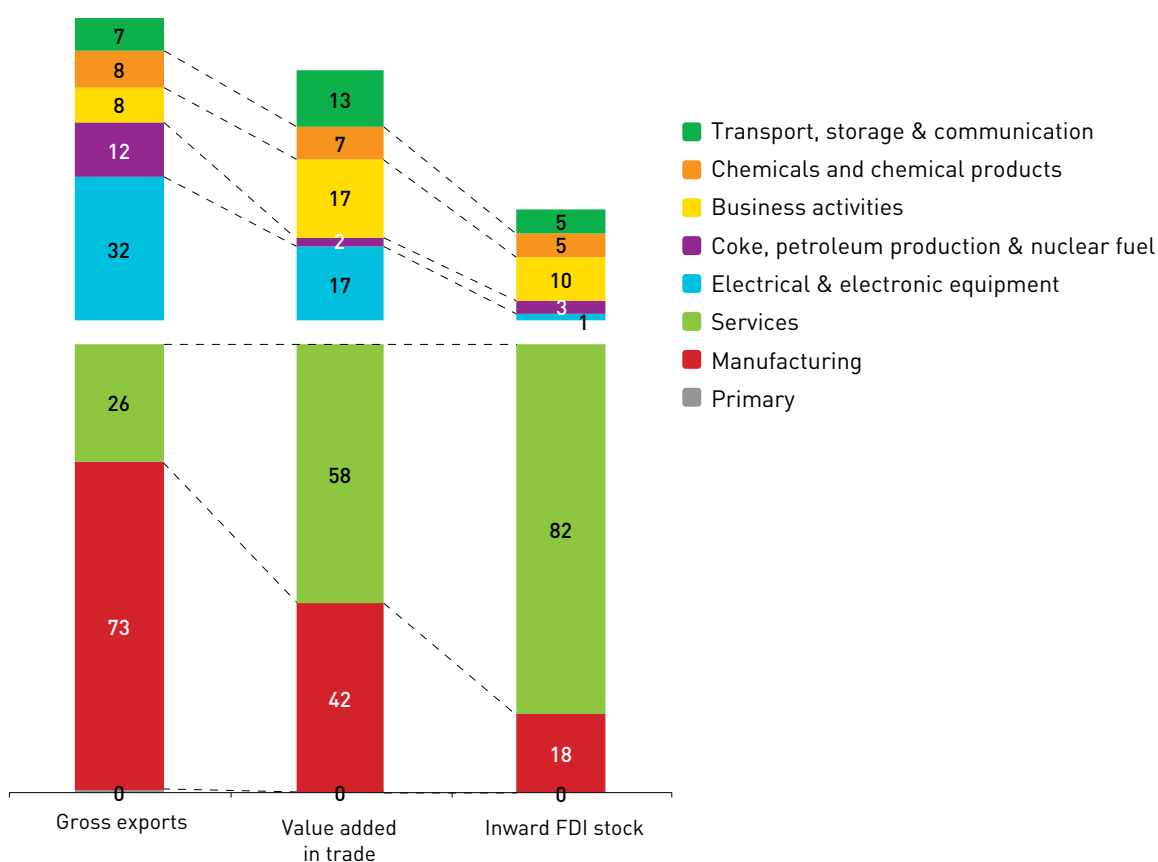
Source: JETRO 2017.

<sup>6</sup> Calculated as \$21.6 billion (foreign value added attributed to Japan in table 6) divided by \$29.4 billion (Japan’s goods and services exports to Singapore in figure 6).

If these shares hold true for other firms, both Singaporean and foreign, then nearly half of domestic value added in gross exports (see figure 3) originates in foreign firms operating in Singapore. Thus, together, 80 per cent of value added exports from Singapore may derive from foreign countries (i.e. 60 per cent of foreign value added and 20 per cent of domestic value added originating in foreign firms in Singapore).

The services-oriented economy of Singapore is more strongly reflected in data on exports as reported by value added creator as well as in data on FDI (figure 7). The share of services jumps from one quarter to one half, if the trade is measured by value added creator instead of by exporter classification. This share is even more visible in FDI, at 90 per cent, as both manufacturing and services companies from abroad tend to establish affiliates in Singapore that are engaged in services. Thus, for example, the electrical and electronic equipment industry has by far the largest exports, but in terms of value added, its importance drops by half to almost the same size as that of the business activities industry (which includes consultancy services, engineering, R&D services and the like). Business activities services required for manufacturing are indeed important investment targets in Singapore (see figure 7). For example, in 2017, out of 777 affiliates established by 576 Japanese manufacturing multinationals in Singapore, 546 or 70 per cent were classified under

**Figure 7. Relationship between GVC and FDI in Singapore, by industry, 2015**  
(Per cent shares in total industry)



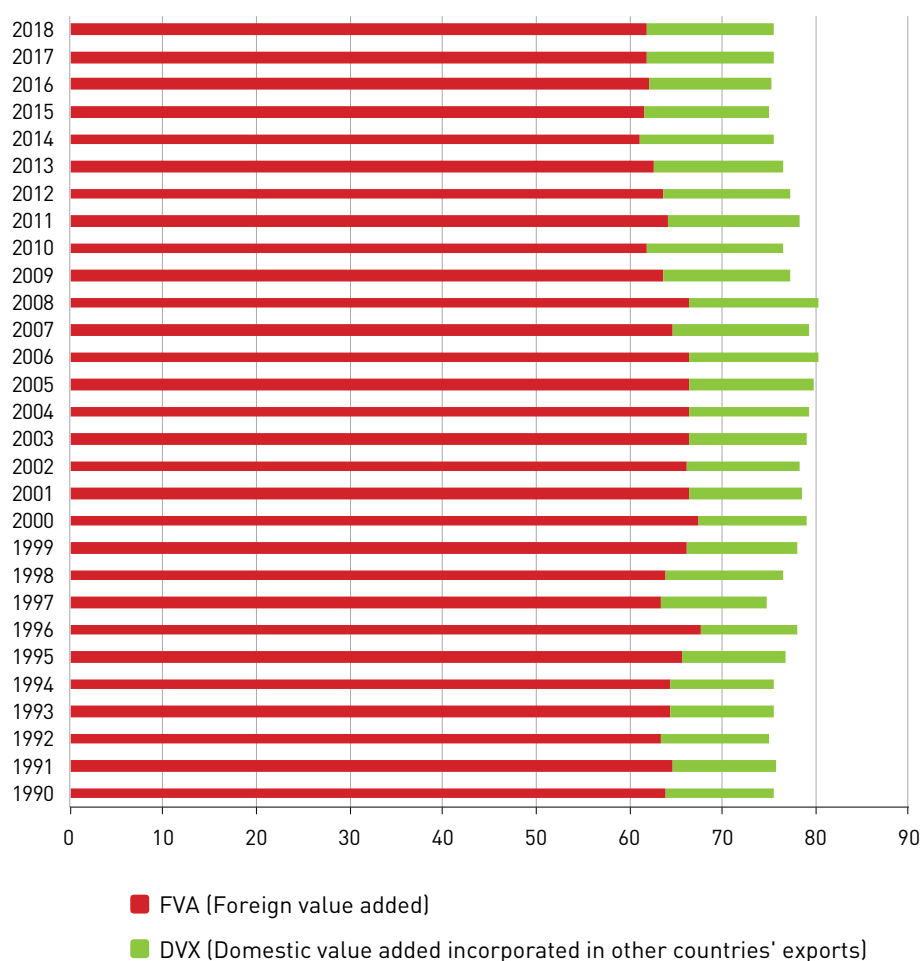
Source: AJC-UNCTAD-Eora database on ASEAN GVCs and UNCTAD for inward FDI stock.  
Note: Services include amounts not allocated by industry. Industry classification for gross exports is on a consignment basis, while that for value added in trade is on value added creating industry basis.

services.<sup>7</sup> This ratio is nearly twice as high as the average for Japanese foreign affiliates established in the world (38 per cent).<sup>8</sup>

**The downstream parts of Singapore's GVCs are the shortest among ASEAN member states because Singapore's exported products are mainly intended for final demand and high-tech products.**

Although products exported from Singapore contain the largest share of foreign value added, after exporting Singapore's products are less integrated into other countries' exports. The share of Singapore's value added incorporated in other countries' exports among Singapore's total exports is the lowest among member states (AJC 2017) – less than 15 per cent (figure 8). Singapore's

**Figure 8. GVC participation in Singapore, 1990–2018 (Per cent)**



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

<sup>7</sup> Toyo Keizai Shimposha, Kaigai Shinshutsu Kigyo Data Web 2017.

<sup>8</sup> Ministry of Economy, Trade and Industry, Dai-47kai Kaigai Jigyo Katsudo Kihon Chosa 2016.

exported products are mainly for final demand and end up in their export markets as products for consumption. Unlike the case in other countries, Singapore's products are rarely processed and exported again. The sum of this share (in GVC terminology, DVX) and the foreign value added share shows the extent of the country's participation in GVCs. This GVC "length" is greater for Singapore than for any other ASEAN member states (AJC 2017), though this is thanks to the upstream part of the chain (see figure 8). The length of GVCs has not changed much over the past two to three decades, which implies that Singapore has been involved in GVCs since long before the 1990s (data are available only from 1990).

The short downstream part of GVCs and the long upstream part of GVCs indicate how Singapore is involved in international production both globally and within ASEAN. Singapore's trade is typically oriented to services and high-tech products. Services account for 30 per cent of exports from Singapore, as compared with 23 per cent for ASEAN as a whole, and, in the manufacturing trade, three quarters of exports are high-tech products (table 5). Services exports are less involved in GVCs than manufacturing exports in both the upstream and downstream paths of GVCs. High-tech products are not transferred across borders many times, and they tend to be integrated into final products once they cross a border, which leads to a relatively short path for the downstream GVCs.

Another characteristic of Singapore's trade is the significance of intermediate trade, which reflects the country's position as a hub of various international production chains. This results in higher participation in upstream GVCs in Singapore on the import side, but not necessarily on the export side, as their products tend to be integrated into final products for consumption in export markets, as noted above. Parts and components take a share of 40–50 per cent of total manufactured trade (figure 9), as compared with 30 per cent for ASEAN as a whole. When participation in GVCs is high, there is a high share of parts and components in trade. However, their higher shares do not necessarily lead to greater participation in GVCs as imported parts and components are used as final products in the importing economies.

### **For Singapore, the potential for GVC extension is instead outside ASEAN ...**

The path of GVCs, be it upstream or downstream, can be extended beyond ASEAN. However, for the benefit of the ASEAN community, the focus in this series is on the creation of value chains more within the region than outside the region. An exercise was undertaken to separate the value chains created within the region from those created outside it (table 6). In the case of Singapore, the share of ASEAN in the combined upstream and downstream paths of GVCs – or in GVC terminology, the variables FVA and DVX (see box 2) – has been 27 per cent (see table 6) in recent years. This share has not risen much since the mid-2000s, but it is 10 percentage points larger than in 1995, a trend similar to that observed in ASEAN as a whole. This increase is driven by the growing role of ASEAN in the upstream part of GVCs, which shows that Singapore absorbs ASEAN products, as a production hub. In contrast, the ASEAN share in the downstream part of GVCs in Singapore has declined over the years, something which has not been observed in other ASEAN countries. It means that Singaporean products that are integrated in other countries' exports are exported more quickly to markets outside ASEAN than within ASEAN.

However, a JETRO survey (JETRO, 2017) indicates that three fifths of Japanese affiliates' exports from Singapore are within ASEAN, and only 16 per cent of exports by Japanese affiliates in Singapore are sent to Japan, as compared with those in Viet Nam, Myanmar, the Philippines and Cambodia, where more than half of their exports are directed to Japan (and in Thailand and Lao People's Democratic Republic, more than 40 per cent). Regionally integrated production systems are somewhat stronger in Singapore than in other ASEAN countries. The regional value chain participation of Singapore – 21 per cent of gross exports in 2018 (see table 6) – whereas that of ASEAN as a group is 16 per cent.

Table 5. Singapore's manufactured goods exports by technology intensity, 1995–2016 (Per cent)

Manufactured goods	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016
Labour-intensive and resource-intensive manufactures	4.8	3.4	2.4	1.8	2	1.9	1.9	2.2	2.2	2.4
Low-skill and technology-intensive manufactures	3.6	2.8	3.6	4.2	5.3	4.6	4.4	4.1	3.9	3.2
Medium-skill and technology-intensive manufactures	17.4	15.8	17.5	18.8	19.8	20.3	19.8	19.3	19.7	20.5
Medium-skill: Electronics (excluding parts and components) <sup>a</sup>	0.5	0.4	0.5	0.4	0.4	0.2	0.3	0.2	0.1	0.2
Medium-skill: Parts and components for electrical and electronic goods <sup>b</sup>	2.5	2.8	2.6	2.2	2.4	2.4	2.3	2	2	2.1
Medium-skill: Other, excluding electronics	14.4	12.6	14.4	16.2	16.9	17.6	17.2	17.1	17.5	18.3
High-skill and technology-intensive manufactures	74.2	78	76.5	75.2	72.9	73.2	73.8	74.3	74.3	73.9
High-skill: Electronics (excluding parts and components) <sup>c</sup>	26.4	19	10	5.2	4.4	4.6	4.5	4.3	4.8	4.4
High-skill: Parts and components for electrical and electronic goods <sup>d</sup>	34.6	43.9	45.4	44.9	40	38.2	39.7	39.4	40.1	39.4
High-skill: Other, excluding electronics	13.2	15.1	21.1	25.1	28.5	30.3	29.6	30.7	29.4	30
<b>Total manufactured goods</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Value in total manufactured goods (\$ bil)</b>	<b>98.9</b>	<b>117.5</b>	<b>183.5</b>	<b>253.7</b>	<b>279</b>	<b>282</b>	<b>287</b>	<b>288.5</b>	<b>264.2</b>	<b>256.6</b>

Source: UNCTAD, GlobStat.

Note: Does not include primary commodities that account for one fifth of total merchandise exports from Singapore.

<sup>a</sup> SITC 775.<sup>b</sup> SITC 772.<sup>c</sup> SITC 751 + 752 + 761 + 762 + 763.<sup>d</sup> SITC 759 + 764 + 776.



Figure 9. Shares of parts and components in Singapore's manufacturing trade, 1995–2016



Source: UNCTAD's GlobStat database.

Table 6. GVC and RVC participation in Singapore, 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	64	56.6	7.4	11.5	8.8	2.7	75.5	10.1
1995	65.6	56.2	9.3	11.1	7.3	3.8	76.7	13.2
2000	67.4	55.5	12	11.7	8	3.7	79.1	15.7
2005	66.4	52.5	13.9	13.3	9.3	4.1	79.7	18
2010	61.9	47	14.9	14.7	10.6	4.1	76.5	19
2015	61.5	45.5	16	13.5	9.6	3.9	75.1	19.9
2018	61.9	45.3	16.6	13.6	9.6	4	75.5	20.6

Source: AJC-UNCTAD-Eora database on ASEAN GVCs.  
RVC = regional value chain.

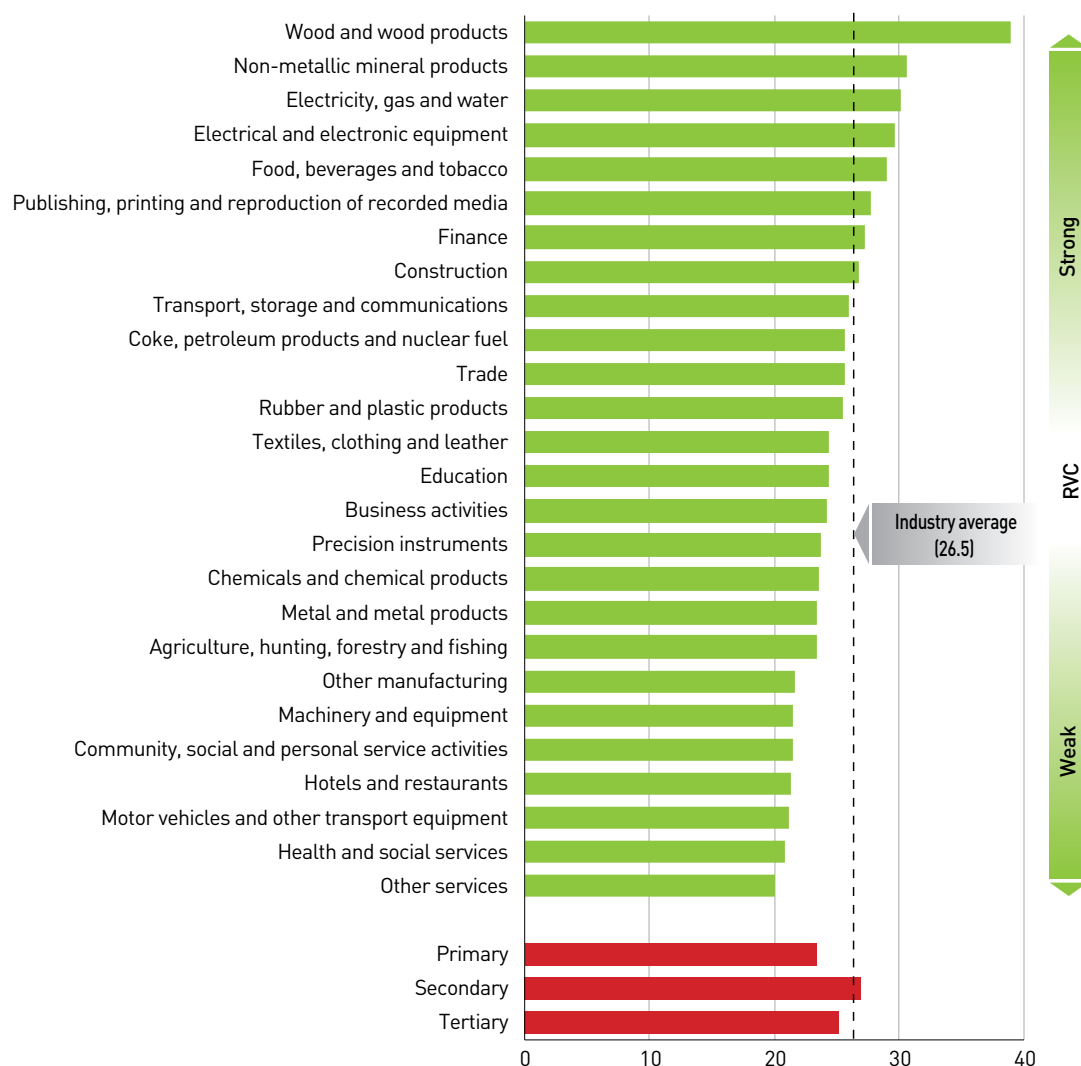
### ... as their export products are more globally based.

For Singapore GVCs, both global and regional strategies are important and a natural consequence as certain products handled by Singapore can easily involve countries outside the region in terms of the use of technology and contents of intermediate products which are simply not available within the region. Although the value of exports from the wood and wood products industry is small, it is the largest industry with the most established production chains within the region. In terms of established production chains, it is followed by the non-metallic mineral products industry, the electricity, gas and water industry, the electrical and electronic equipment industry, and the food, beverages and tobacco industry (figure 10). The electrical and electronic equipment industry is the largest industry in terms of the value of exports, in terms of value added and shipments. All five industries tend to concentrate regionally because of the domestic nature of their industries.

The electric and electronics industry is also a typical industry that extends its production chains throughout the region as well as outside the region.

Because of almost no constraints, no establishments, and no interest groups Singapore can exercise policy management with a free hand. Singapore wants to be a hub and is indeed one for finance, R&D, logistics, education, training, innovation and the like. For these hubs to function properly and continue to provide firms with an edge over other countries and cities, spokes or connectivity are required. To remain a hub, the country needs to excel others in the region in various competitive factors. GVCs can play an important role in achieving that goal.

**Figure 10. How important are RVCs in Singapore, compared with GVCs, by industry in 2015**  
(Share of RVC participation in GVC participation)



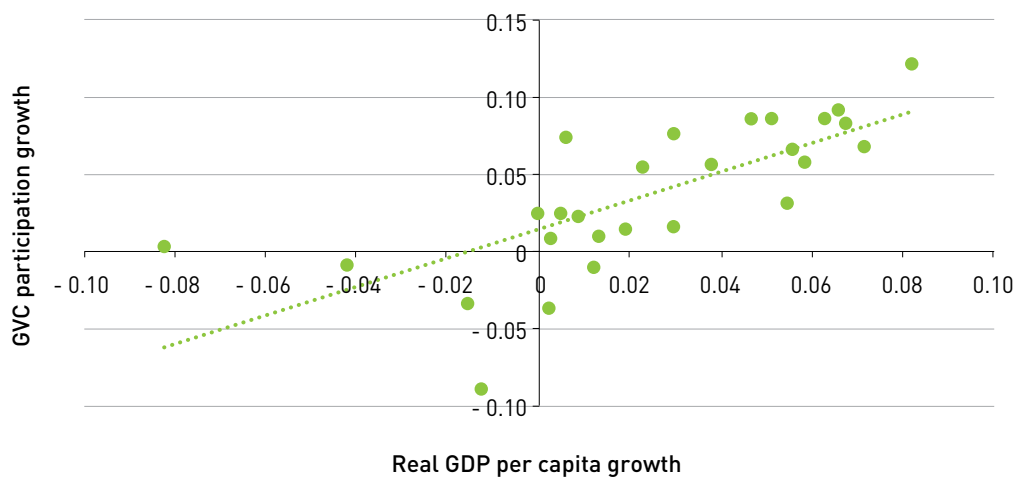
Source: AJC-UNCTAD-Eora database on ASEAN GVCs.

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 outside ASEAN in GVCs is larger than that of ASEAN. Industry classification is at the two- to three-digit level of ISIC.

**To maintain the benefits of GVCs for the economy, Singapore should move more towards upgrading its capacity to provide various functions by maintaining high levels of FDI ...**

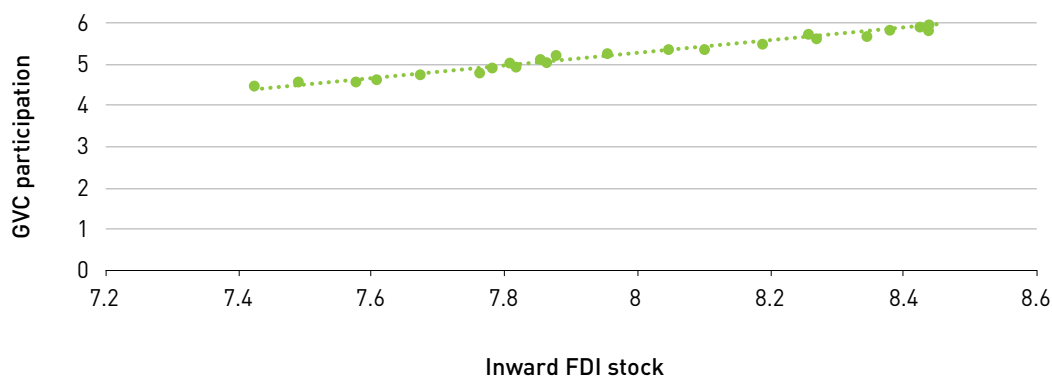
Although Singapore has already achieved significant involvement in GVCs, it could do more. Indeed, like many other countries, Singapore provides evidence of the positive relationship between GVC participation and economic growth (figure 11). Singapore’s involvement in GVCs has grown with the increasing level of FDI (figure 12).

**Figure 11. Relationship between GVC participation and economic growth rates in Singapore, 1990–2018 (Log scale)**



Source: AJC-UNCTAD-Eora database on ASEAN GVCs; GDP data from UNCTAD GlobStat.  
 Note: 29 observation points. GVC participation uses 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; GDP per capita uses yearly differences in their log in dollars.

**Figure 12. Relationship between GVC participation and FDI presence in Singapore, 1990–2017 (Log scale)**



Source: AJC-UNCTAD-Eora database on ASEAN GVCs and UNCTAD FDI/TNC database (for FDI stock).  
 Note: 28 observation points. As data for FDI stock in 2018 are not available, data stop at 2017. GVC participation uses 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; inward FDI stock uses its log in millions of dollars.

### **... and distributing benefits from innovation.**

Along the GVC curve (or often dubbed “smile curve”), Singapore occupies both ends of the curve, in other words, the highest value added parts of production chains. The assembly and manufacturing part of the GVC curve has the potential to be upgraded given level of technology and GVC participation of the largest export industry, electrical and electronic equipment. The R&D activities in this industry could be better harnessed, as well as in other manufacturing industries. At the moment, the linkage of R&D activities with the rest of the economy is not very strong (see figure 1). Higher value added activities are important in manufacturing.

The RIE plans are helpful in this respect. Benefits from R&D and innovation should be spread throughout not only the economy but also the ASEAN region. As the downstream path of GVCs is short for Singapore, once the R&D benefits it provides are used by other countries in the region, Singapore GVCs could become even stronger and longer, contributing to the economic growth of both Singapore and the ASEAN region.

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## ANNEX TABLES

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

Value added creator	Exports from Singapore						
	1990	1995	2000	2005	2010	2015	2018
<b>World</b>	22 429	49 330	62 150	105 098	192 590	219 078	240 465
<b>Developed countries</b>	15 067	33 049	37 909	56 597	93 671	96 535	102 856
<b>Europe</b>	4 820	10 282	11 069	20 932	36 740	38 762	41 321
European Union	4 460	9 323	10 079	19 171	33 037	34 554	36 893
Belgium	203	540	507	1 032	1 675	1 907	2 021
France	507	1 152	1 175	2 324	3 790	3 847	4 079
Germany	1 294	2 569	2 710	5 176	9 373	8 383	8 939
Italy	508	887	900	1 788	2 993	3 163	3 331
Netherlands	340	848	824	1 473	2 686	2 863	3 105
United Kingdom	837	1 810	2 326	3 847	6 234	7 409	7 842
Other developed Europe	360	959	990	1 760	3 703	4 208	4 427
Switzerland	248	668	619	1 127	2 459	2 967	3 115
North America	4 325	8 734	12 184	16 008	27 549	28 777	30 893
Canada	232	478	1 018	1 458	2 912	3 154	3 404
United States	4 093	8 256	11 166	14 550	24 637	25 623	27 489
Other developed countries	5 922	14 033	14 656	19 657	29 382	28 996	30 642
Australia	682	1 213	1 326	2 514	5 057	6 131	6 616
Japan	5 126	12 594	13 042	16 629	23 239	21 590	22 631
New Zealand	44	90	107	218	457	538	589
<b>Developing countries</b>	7 191	15 997	23 896	47 563	96 685	119 900	134 795
<b>Africa</b>	161	530	1 218	2 359	4 185	4 353	4 758
<b>Latin America and the Caribbean</b>	292	666	965	1 659	4 566	4 882	4 759
<b>Asia</b>	6 733	14 790	21 701	43 525	87 885	110 615	125 223
West Asia	682	1 139	1 560	3 233	6 121	7 859	8 302
Kuwait	91	201	281	742	1 448	1 931	2 019
Saudi Arabia	378	577	669	1 211	2 120	2 637	2 739
South, East and South-East Asia	6 051	13 651	20 141	40 292	81 765	102 755	116 921
East Asia	3 187	5 943	8 194	16 085	30 064	39 127	44 626
China	569	1 516	2 849	7 397	18 585	25 478	29 720
Hong Kong, China	368	823	954	1 390	2 027	3 004	3 275
Korea, Republic of	550	1 697	2 038	4 185	5 853	7 393	8 045
Taiwan Province of China	1 696	1 902	2 342	3 097	3 558	3 207	3 533
South Asia	265	695	912	2 192	5 395	6 748	7 769
India	141	371	512	1 312	3 603	4 364	5 129
Iran, Islamic Republic of	104	277	338	768	1 550	2 104	2 318
ASEAN	2 599	7 013	11 035	22 014	46 305	56 880	64 526
Brunei Darussalam	9	21	33	68	122	150	153
Cambodia	1	5	8	16	34	38	44
Indonesia	801	2 430	3 647	7 101	16 307	20 468	23 250
Lao People's Democratic Republic	0	1	1	2	5	5	6
Malaysia	1 209	3 082	5 308	10 346	20 421	24 331	27 569
Myanmar	10	16	41	43	103	137	162
Philippines	172	470	721	1 715	4 683	5 874	6 854
Thailand	371	919	1 142	2 484	4 381	5 567	6 128
Viet Nam	27	69	135	240	249	310	359
<b>Oceania</b>	5	11	12	20	48	50	55
<b>Transition economies</b>	171	284	345	938	2 234	2 642	2 814
Russian Federation	142	230	273	742	1 778	2 162	2 294
<b>Domestic value added (DVA)</b>	12 629	25 904	30 024	53 178	118 725	137 086	147 972
<b>Gross exports</b>	35 058	75 234	92 175	158 276	311 315	356 164	388 437

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 Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	90	19 024	3 372	1 086	689	818
<b>Developed countries</b>	56	12 693	2 010	761	468	618
<b>Europe</b>	18	4 168	781	301	169	246
European Union	16	3 862	720	277	158	226
Belgium	1	175	31	16	10	10
France	2	432	69	35	16	20
Germany	4	1 131	115	78	44	83
Italy	2	440	104	28	18	29
Netherlands	2	293	79	28	11	14
United Kingdom	3	730	244	47	25	27
Other developed Europe	1	307	62	24	11	20
Switzerland	1	208	20	15	8	17
North America	20	3 406	749	233	93	119
Canada	1	199	89	14	6	6
United States	19	3 207	660	219	87	113
Other developed countries	18	5 118	480	227	206	253
Australia	3	592	255	35	27	15
Japan	14	4 431	217	184	176	234
New Zealand	0	36	3	3	1	1
<b>Developing countries</b>	187	13 852	1 897	1 330	541	705
<b>Africa</b>	1	137	53	9	6	4
<b>Latin America and the Caribbean</b>	2	249	96	16	9	8
<b>Asia</b>	184	13 462	1 747	1 305	526	692
West Asia	3	549	333	38	14	11
Kuwait	0	76	50	5	1	1
Saudi Arabia	1	309	209	21	5	5
South, East and South-East Asia	181	12 913	1 414	1 267	512	681
East Asia	10	2 812	296	109	93	100
China	3	485	126	35	19	15
Hong Kong, China	1	331	8	9	9	10
Korea, Republic of	2	477	54	19	21	18
Taiwan Province of China	4	1 516	106	46	43	57
South Asia	2	223	76	18	9	7
India	1	122	26	11	7	5
Iran, Islamic Republic of	0	85	48	6	1	2
ASEAN	169	9 878	1 043	1 140	411	575
Brunei Darussalam	0	6	2	0	0	0
Cambodia	0	0	0	0	0	0
Indonesia	4	678	304	43	27	16
Lao People's Democratic Republic	0	0	0	0	0	0
Malaysia	8	1 061	131	52	29	30
Myanmar	1	7	0	0	0	0
Philippines	1	129	5	10	3	4
Thailand	2	307	27	17	10	9
Viet Nam	1	18	4	2	1	1
<b>Oceania</b>	0	4	0	0	0	0
<b>Transition economies</b>	1	152	35	9	22	10
Russian Federation	0	129	33	8	18	8
<b>Domestic value added (DVA)</b>	153	7 672	570	1 014	341	516
<b>Gross exports</b>	243	26 696	3 942	2 100	1 030	1 334

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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



industry, 1990 (Millions of dollars)

## Exports from Singapore by sector and industry

Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Services					
			Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
10 650	628	379	3 313	381	138	1 355	226	942
7 218	463	288	2 318	267	88	959	151	666
2 057	153	98	634	67	32	210	44	213
1 917	134	91	582	61	30	191	40	196
77	6	4	27	3	1	8	2	9
221	15	12	72	7	5	25	5	22
660	44	26	158	17	7	47	11	59
190	13	10	66	7	3	22	4	22
115	9	7	45	5	3	15	3	15
301	22	15	104	11	5	38	7	33
140	19	6	53	6	2	19	5	16
111	16	4	39	4	1	14	4	12
1 748	155	80	899	100	27	408	62	246
56	4	4	32	3	2	16	1	8
1 692	151	76	867	97	26	392	61	238
3 413	155	110	785	100	29	341	45	207
176	12	10	87	9	9	31	6	24
3 181	140	97	681	90	19	304	37	178
15	1	1	7	1	1	2	0	2
6 868	654	410	5 778	748	376	1 365	609	2 054
46	3	2	23	2	1	10	1	6
86	6	4	42	4	2	19	2	11
6 734	645	403	5 711	741	372	1 336	605	2 037
110	8	6	130	15	4	69	5	30
15	1	1	14	2	0	7	1	3
50	4	3	68	8	2	38	2	15
6 625	637	397	5 581	726	369	1 267	601	2 007
1 907	82	39	366	45	15	146	22	106
219	14	8	82	9	5	30	6	23
247	12	5	36	5	1	15	1	11
315	12	7	72	9	2	31	5	19
1 125	44	20	175	23	6	70	10	53
72	5	4	39	4	2	14	3	12
46	3	2	18	2	2	5	2	6
22	1	1	18	2	1	8	2	4
4 645	549	354	5 176	677	352	1 107	575	1 890
2	0	0	2	0	0	1	0	1
0	0	0	0	0	0	0	0	0
185	11	12	119	12	8	43	17	29
0	0	0	0	0	0	0	0	0
660	31	13	140	16	12	44	11	44
1	0	0	2	0	1	1	0	0
95	4	2	42	5	1	16	5	13
202	10	4	61	7	3	24	6	17
6	0	0	8	1	1	3	1	2
2	0	0	1	0	0	0	0	0
57	3	4	18	2	1	6	1	6
48	3	3	13	1	1	4	1	4
3 493	492	322	4 800	636	327	976	535	1 784
14 143	1 120	701	8 114	1 017	465	2 331	761	2 726

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2.2. Value added exports of goods and services from Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	187	42 462	6 733	2 626	1 729	1 849
<b>Developed countries</b>	117	28 344	4 032	1 794	1 134	1 381
<b>Europe</b>	36	8 998	1 887	722	406	505
European Union	33	8 162	1 713	658	372	453
Belgium	2	478	146	43	26	22
France	5	996	190	89	41	44
Germany	8	2 261	261	177	104	164
Italy	3	771	153	58	38	53
Netherlands	4	743	236	74	28	30
United Kingdom	5	1 599	582	122	59	57
Other developed Europe	3	836	174	64	35	52
Switzerland	2	576	43	39	27	44
North America	43	6 879	1 324	555	235	268
Canada	2	411	174	35	15	13
United States	41	6 468	1 150	521	221	255
Other developed countries	38	12 467	820	517	493	608
Australia	7	1 051	370	77	60	33
Japan	29	11 223	437	423	426	568
New Zealand	1	75	6	8	3	3
<b>Developing countries</b>	403	29 412	3 553	3 252	1 401	1 610
<b>Africa</b>	3	470	205	35	22	14
<b>Latin America and the Caribbean</b>	3	570	208	44	24	18
<b>Asia</b>	397	28 363	3 139	3 172	1 355	1 577
West Asia	5	915	503	81	27	22
Kuwait	1	170	106	14	3	3
Saudi Arabia	2	462	283	42	9	8
South, East and South-East Asia	392	27 448	2 636	3 091	1 328	1 556
East Asia	18	5 287	500	233	222	199
China	8	1 302	215	102	81	49
Hong Kong, China	2	739	25	22	25	25
Korea, Republic of	4	1 524	154	53	56	54
Taiwan Province of China	4	1 717	105	56	59	70
South Asia	4	590	199	57	24	17
India	3	325	70	33	18	12
Iran, Islamic Republic of	1	226	125	21	4	4
ASEAN	370	21 571	1 938	2 802	1 082	1 340
Brunei Darussalam	0	16	6	1	0	0
Cambodia	0	4	0	0	0	0
Indonesia	12	2 085	570	133	97	54
Lao People's Democratic Republic	0	0	0	0	0	0
Malaysia	14	2 704	327	150	87	87
Myanmar	1	12	2	1	0	0
Philippines	2	367	10	26	10	12
Thailand	5	779	88	49	41	26
Viet Nam	1	54	21	5	2	2
<b>Oceania</b>	0	9	1	1	1	0
<b>Transition economies</b>	1	256	62	17	38	16
Russian Federation	1	210	56	14	29	12
<b>Domestic value added (DVA)</b>	335	15 549	913	2 437	845	1 157
<b>Gross exports</b>	521	58 012	7 646	5 063	2 574	3 006

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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

industry, 1995 (Millions of dollars)

## Exports from Singapore by sector and industry

Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Services					
			Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
24 093	1 503	805	6 680	769	311	2 656	498	1 900
16 398	1 098	598	4 588	530	195	1 852	320	1 321
4 143	336	212	1 248	135	68	424	90	398
3 758	288	195	1 128	122	63	379	80	362
170	14	11	60	6	4	20	4	19
476	35	26	151	16	11	52	11	46
1 233	93	55	300	34	14	93	22	105
337	26	20	113	12	6	38	8	35
264	22	16	102	11	6	36	7	32
582	48	33	206	21	11	77	13	61
384	49	17	121	13	5	45	10	36
325	43	12	90	10	4	33	9	27
3 442	343	169	1 812	203	64	781	137	511
114	9	9	65	7	3	32	3	15
3 329	334	160	1 747	196	60	749	134	496
8 813	418	217	1 528	192	63	647	93	412
338	24	22	155	16	19	53	11	42
8 366	386	191	1 341	172	40	584	80	361
29	2	2	14	1	3	3	1	4
13 784	1 529	941	12 081	1 631	880	2 858	1 391	4 027
141	10	7	57	6	4	24	3	15
198	14	10	93	10	6	42	5	23
13 441	1 505	923	11 930	1 615	871	2 792	1 383	3 989
197	17	13	220	26	7	114	8	51
32	3	2	31	4	1	16	2	7
82	7	6	113	13	3	61	3	26
13 244	1 488	911	11 711	1 589	864	2 677	1 375	3 938
3 529	175	51	638	78	32	245	43	185
640	43	27	206	23	16	69	16	62
528	31	12	82	11	4	34	2	24
1 101	44	-12	169	21	5	73	14	43
1 258	57	24	180	23	7	69	11	56
187	14	10	100	11	6	37	8	28
121	8	7	43	4	4	11	4	14
54	4	3	50	6	2	23	5	12
9 528	1 299	849	10 972	1 501	826	2 395	1 324	3 725
3	0	0	5	1	0	3	0	1
1	0	0	1	0	0	1	0	0
896	41	46	333	34	25	118	43	84
0	0	0	0	0	0	0	0	0
1 702	86	40	365	43	22	122	35	110
2	0	0	3	0	1	1	0	1
273	14	5	101	11	3	36	18	28
454	27	15	135	15	8	47	12	41
15	1	1	14	1	1	5	1	4
4	0	0	2	0	0	1	0	0
94	6	7	27	3	1	10	2	8
76	5	6	19	2	1	7	1	6
6 182	1 129	742	10 016	1 394	766	2 064	1 215	3 456
30 275	2 633	1 547	16 696	2 163	1 076	4 720	1 713	5 357

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2.3. Value added exports of goods and services from Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	195	54 374	9 046	3 298	1 832	1 877
<b>Developed countries</b>	115	33 106	5 166	2 091	1 125	1 294
<b>Europe</b>	35	9 704	1 921	766	383	465
European Union	33	8 842	1 724	699	355	422
Belgium	2	449	118	40	22	18
France	5	1 017	168	87	37	40
Germany	8	2 394	272	180	94	147
Italy	3	784	118	58	35	50
Netherlands	3	718	193	70	26	27
United Kingdom	7	2 058	717	159	70	65
Other developed Europe	3	862	197	68	28	43
Switzerland	2	530	35	35	19	34
North America	44	10 305	2 397	756	291	315
Canada	3	910	433	67	29	20
United States	41	9 394	1 963	689	262	295
Other developed countries	35	13 098	849	569	451	514
Australia	7	1 146	387	83	59	34
Japan	26	11 703	447	466	385	472
New Zealand	1	91	7	9	3	3
<b>Developing countries</b>	458	39 596	4 583	3 998	1 574	1 800
<b>Africa</b>	3	1 133	266	47	31	24
<b>Latin America and the Caribbean</b>	4	849	321	66	30	22
<b>Asia</b>	451	37 605	3 995	3 884	1 512	1 754
West Asia	7	1 240	609	114	33	27
Kuwait	1	234	134	20	4	4
Saudi Arabia	3	527	281	51	10	10
South, East and South-East Asia	445	36 365	3 386	3 771	1 479	1 728
East Asia	22	7 325	705	340	271	234
China	10	2 547	260	147	110	79
Hong Kong, China	2	845	26	27	24	22
Korea, Republic of	4	1 808	248	75	63	50
Taiwan Province of China	5	2 113	170	90	73	83
South Asia	5	781	239	73	30	21
India	3	450	82	45	23	14
Iran, Islamic Republic of	1	279	151	25	5	4
ASEAN	418	28 259	2 442	3 357	1 178	1 473
Brunei Darussalam	0	26	10	2	1	0
Cambodia	0	6	0	0	0	0
Indonesia	11	3 255	864	177	101	79
Lao People's Democratic Republic	0	1	0	0	0	0
Malaysia	18	4 585	598	272	117	114
Myanmar	1	35	14	2	1	1
Philippines	2	625	11	24	10	13
Thailand	5	978	124	59	41	30
Viet Nam	2	110	42	9	3	3
<b>Oceania</b>	0	11	1	1	1	0
<b>Transition economies</b>	1	311	74	20	38	16
Russian Federation	1	249	65	16	29	12
<b>Domestic value added (DVA)</b>	379	18 640	778	2 811	905	1 233
<b>Gross exports</b>	574	73 014	9 824	6 109	2 737	3 110

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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

industry, 2000 (Millions of dollars)

## Exports from Singapore by sector and industry

Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Services					
			Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
31 410	1 790	1 132	7 580	892	304	3 089	582	2 123
19 166	1 210	764	4 687	556	180	1 894	346	1 344
4 652	358	271	1 329	151	63	507	98	384
4 262	313	250	1 204	137	58	455	87	351
179	14	12	57	6	3	21	4	17
516	36	31	154	17	10	58	11	42
1 350	98	67	308	36	12	109	23	98
377	27	24	114	13	5	42	8	33
281	22	20	102	12	5	40	8	28
770	61	52	261	28	12	110	17	69
390	45	20	124	14	5	52	11	33
314	38	13	88	10	3	35	9	24
5 188	395	224	1 835	209	61	742	148	548
250	18	19	104	11	5	52	4	23
4 938	377	205	1 731	198	57	689	144	525
9 326	458	270	1 524	196	56	645	100	412
383	27	31	173	19	18	68	12	41
8 796	421	233	1 313	173	35	563	85	360
38	2	3	15	2	3	4	1	4
20 033	1 997	1 402	13 863	1 987	895	3 551	1 676	4 351
665	31	13	82	9	4	36	4	22
293	20	17	113	12	7	51	6	27
19 069	1 945	1 372	13 666	1 966	884	3 463	1 666	4 302
322	26	22	314	37	8	170	16	66
51	4	3	46	5	1	25	3	9
122	10	8	139	16	3	77	7	29
18 747	1 920	1 350	13 353	1 929	876	3 293	1 650	4 236
4 891	226	117	848	101	34	328	61	251
1 587	74	58	291	32	16	97	21	97
612	35	16	107	14	4	47	5	28
1 228	51	- 1	226	28	6	105	16	55
1 459	67	44	223	27	8	79	19	71
264	19	17	126	14	8	51	10	32
179	12	12	58	6	5	18	5	18
68	5	4	58	7	2	29	5	12
13 592	1 674	1 216	12 379	1 814	835	2 914	1 579	3 952
6	1	0	7	1	0	4	0	2
1	0	0	2	0	0	1	0	0
1 613	54	68	381	40	22	154	31	99
0	0	0	0	0	0	0	0	0
2 924	138	72	705	86	27	277	74	193
7	1	1	6	1	1	3	0	1
517	23	7	94	12	2	39	14	23
579	31	21	159	18	9	59	14	47
32	2	2	23	2	2	9	2	6
5	0	0	2	0	0	1	0	0
124	7	10	33	4	1	13	2	9
98	6	8	23	3	1	9	1	6
7 912	1 425	1 044	11 002	1 654	772	2 369	1 443	3 582
39 322	3 214	2 176	18 582	2 547	1 076	5 458	2 025	5 704

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2.4. Value added exports of goods and services from Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	355	89 132	15 918	6 208	3 603	3 832
<b>Developed countries</b>	194	47 401	7 559	3 568	1 973	2 412
<b>Europe</b>	67	17 948	3 571	1 516	808	1 034
European Union	62	16 446	3 228	1 392	750	941
Belgium	4	896	237	86	49	44
France	9	1 973	343	181	83	93
Germany	16	4 441	553	364	201	324
Italy	5	1 523	266	119	78	111
Netherlands	6	1 269	388	130	49	55
United Kingdom	11	3 339	1 116	275	126	129
Other developed Europe	5	1 502	343	123	58	93
Switzerland	3	939	70	67	40	75
North America	71	12 592	2 759	1 152	415	490
Canada	5	1 275	510	102	53	40
United States	67	11 316	2 249	1 050	362	451
Other developed countries	56	16 862	1 228	901	751	888
Australia	13	2 123	674	165	130	79
Japan	40	14 309	527	699	605	791
New Zealand	2	180	13	19	8	7
<b>Developing countries</b>	790	71 735	9 555	8 056	3 221	3 767
<b>Africa</b>	6	2 161	588	105	68	67
<b>Latin America and the Caribbean</b>	7	1 424	509	119	60	47
<b>Asia</b>	777	68 134	8 457	7 832	3 091	3 651
West Asia	13	2 496	1 302	246	74	63
Kuwait	3	610	363	57	11	11
Saudi Arabia	5	916	517	97	20	20
South, East and South-East Asia	763	65 639	7 155	7 586	3 018	3 588
East Asia	44	14 121	1 439	711	607	548
China	26	6 433	700	415	323	256
Hong Kong, China	3	1 212	39	41	43	44
Korea, Republic of	9	3 649	506	161	151	134
Taiwan Province of China	6	2 813	192	93	89	113
South Asia	11	1 862	647	182	80	57
India	7	1 134	249	117	64	42
Iran, Islamic Republic of	3	638	389	58	11	11
ASEAN	708	49 655	5 070	6 692	2 331	2 983
Brunei Darussalam	0	51	21	4	1	1
Cambodia	0	12	0	1	0	0
Indonesia	21	6 233	1 901	389	224	168
Lao People's Democratic Republic	0	1	0	0	0	0
Malaysia	35	8 758	1 310	594	262	288
Myanmar	1	36	16	2	1	1
Philippines	5	1 457	28	67	29	47
Thailand	11	2 077	310	142	104	74
Viet Nam	3	193	82	17	6	6
Oceania	0	17	2	1	2	1
<b>Transition economies</b>	3	832	205	58	113	50
Russian Federation	2	667	176	46	86	37
<b>Domestic value added (DVA)</b>	632	30 837	1 401	5 475	1 704	2 397
<b>Gross exports</b>	987	119 969	17 319	11 683	5 307	6 229

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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

industry, 2005 (Millions of dollars)

## Exports from Singapore by sector and industry

			Services					
Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
47 429	3 442	2 069	15 609	1 827	651	6 030	1 231	4 523
25 103	2 028	1 291	9 000	1 075	360	3 455	707	2 641
8 142	757	519	2 916	325	140	1 035	224	882
7 507	668	482	2 664	297	130	939	197	813
335	31	24	132	14	7	45	10	40
942	79	61	343	37	23	121	25	100
2 308	213	133	720	83	29	245	54	234
666	59	48	259	29	12	91	18	78
440	42	35	198	22	11	73	15	57
1 241	113	86	497	54	24	189	34	142
635	89	38	253	27	10	96	27	69
513	76	24	184	20	6	68	23	51
5 966	547	343	3 345	398	108	1 256	311	1 038
395	32	32	178	19	9	81	9	44
5 571	515	311	3 166	379	99	1 176	303	994
10 995	724	429	2 739	352	112	1 164	172	721
693	56	58	379	41	43	136	28	97
10 069	649	359	2 279	302	60	1 001	137	602
69	6	5	36	4	7	10	3	10
34 022	3 752	2 331	28 209	3 865	1 814	7 017	3 417	8 988
1 121	85	27	192	20	10	79	9	54
497	40	30	229	25	14	96	14	59
32 397	3 627	2 273	27 785	3 820	1 790	6 841	3 394	8 875
560	52	42	724	85	18	386	29	162
119	11	8	130	15	3	67	10	27
178	18	14	290	34	6	159	9	65
31 837	3 575	2 231	27 060	3 735	1 772	6 455	3 365	8 713
8 967	563	301	1 920	224	83	709	124	595
3 788	233	156	938	103	52	300	66	316
835	62	24	175	22	6	76	5	48
2 311	135	80	526	64	14	233	36	136
2 025	133	41	278	34	10	98	16	94
556	46	40	319	34	20	120	25	86
412	31	29	171	17	14	48	15	54
117	11	8	128	15	4	64	9	27
22 314	2 965	1 890	24 822	3 476	1 669	5 626	3 216	8 033
11	1	1	16	2	0	9	0	4
2	0	0	4	1	0	2	0	1
2 774	113	115	846	87	49	319	69	231
1	0	0	0	0	0	0	0	0
5 190	331	132	1 552	183	62	561	167	457
6	1	1	6	1	1	3	0	1
1 153	78	15	254	31	6	98	40	66
1 133	78	42	395	43	20	136	35	126
49	4	4	44	4	3	16	5	12
7	1	1	3	0	0	1	0	1
300	22	28	103	11	4	39	7	29
239	17	21	74	8	3	28	4	21
11 996	2 360	1 582	21 703	3 124	1 527	4 482	2 900	7 135
59 425	5 802	3 651	37 312	4 951	2 178	10 512	4 131	11 659

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2.5. Value added exports of goods and services from Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	537	160 431	33 874	12 207	7 722	8 537
<b>Developed countries</b>	270	76 873	15 616	6 417	3 695	4 749
<b>Europe</b>	98	30 859	6 200	2 747	1 578	2 223
European Union	88	27 761	5 507	2 480	1 444	1 988
Belgium	5	1 429	373	141	89	92
France	12	3 153	536	296	156	196
Germany	23	7 895	1 035	692	403	691
Italy	8	2 484	449	209	146	226
Netherlands	8	2 286	748	236	97	122
United Kingdom	15	5 281	1 771	469	227	260
Other developed Europe	9	3 099	693	267	134	235
Switzerland	6	2 008	162	158	96	192
North America	98	21 543	6 808	2 080	762	963
Canada	7	2 540	1 249	203	99	85
United States	91	19 003	5 559	1 876	663	879
Other developed countries	75	24 470	2 609	1 591	1 355	1 562
Australia	21	4 184	1 307	340	276	198
Japan	48	19 399	1 241	1 171	1 043	1 318
New Zealand	3	366	30	38	18	20
<b>Developing countries</b>	1 329	147 765	20 921	18 113	7 789	10 065
<b>Africa</b>	12	3 728	1 351	232	144	151
<b>Latin America and the Caribbean</b>	13	3 926	1 891	322	159	139
<b>Asia</b>	1 304	140 072	17 676	17 556	7 481	9 773
West Asia	19	4 617	2 476	474	159	150
Kuwait	4	1 178	734	111	25	26
Saudi Arabia	6	1 556	895	172	40	44
South, East and South-East Asia	1 284	135 455	15 200	17 082	7 321	9 623
East Asia	73	25 729	2 562	1 544	1 633	1 433
China	51	15 828	1 707	1 082	941	857
Hong Kong, China	4	1 725	65	68	69	84
Korea, Republic of	12	4 964	555	271	500	317
Taiwan Province of China	6	3 179	232	121	120	172
South Asia	21	4 533	1 579	464	234	182
India	15	3 079	776	328	198	143
Iran, Islamic Republic of	4	1 264	784	118	26	28
ASEAN	1 191	105 193	11 059	15 074	5 454	8 008
Brunei Darussalam	0	88	39	8	3	3
Cambodia	0	22	1	2	1	1
Indonesia	37	14 133	4 514	924	564	484
Lao People's Democratic Republic	0	4	0	0	0	0
Malaysia	55	16 958	2 597	1 214	572	743
Myanmar	1	85	42	6	2	2
Philippines	9	3 992	69	167	93	186
Thailand	17	3 555	550	266	174	162
Viet Nam	2	199	90	18	7	7
Oceania	1	39	4	3	5	3
<b>Transition economies</b>	6	1 951	494	145	277	142
Russian Federation	4	1 576	421	116	217	109
<b>Domestic value added (DVA)</b>	1 068	66 158	3 158	12 468	4 039	6 419
<b>Gross exports</b>	1 605	226 589	37 032	24 675	11 761	14 956

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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



industry, 2010 (Millions of dollars)

## Exports from Singapore by sector and industry

			Services					
Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
76 218	6 281	3 852	31 616	3 617	1 327	12 101	2 499	9 114
35 165	3 289	2 212	16 525	1 938	684	6 342	1 343	4 711
13 083	1 398	912	5 782	628	271	2 046	437	1 745
11 834	1 204	833	5 187	566	248	1 824	374	1 580
500	52	41	240	25	13	82	16	73
1 418	135	105	625	65	42	224	43	179
3 828	399	237	1 455	164	57	488	107	477
986	103	82	501	55	23	177	34	148
706	77	64	391	42	22	146	26	111
1 840	196	140	938	102	44	355	68	267
1 250	194	79	595	63	23	221	62	165
1 027	167	52	446	48	15	161	56	125
8 042	824	596	5 907	703	196	2 290	601	1 680
601	55	57	365	38	18	168	17	87
7 442	770	539	5 541	665	179	2 122	584	1 592
14 039	1 067	704	4 836	607	217	2 006	305	1 286
1 312	123	119	852	90	96	298	63	221
12 269	901	561	3 791	495	101	1 645	226	1 009
131	12	11	88	9	17	24	6	23
63 911	7 747	5 190	66 291	9 129	4 168	16 320	7 554	21 239
1 461	137	55	445	46	24	189	20	119
982	89	75	626	65	34	276	35	153
61 453	7 519	5 059	65 210	9 017	4 109	15 851	7 499	20 964
923	96	79	1 484	171	35	787	59	336
194	20	16	266	31	6	136	19	55
270	30	24	558	64	12	306	17	126
60 530	7 423	4 981	63 726	8 846	4 074	15 064	7 440	20 628
14 987	1 113	630	4 261	485	183	1 486	273	1 369
8 978	654	401	2 705	295	133	890	179	902
1 149	97	36	298	37	10	131	9	82
2 680	191	140	878	107	26	337	64	253
2 163	170	52	373	44	13	126	21	130
1 329	119	100	842	87	50	308	63	234
1 058	87	78	508	48	38	147	41	161
215	22	16	281	33	8	141	20	60
44 215	6 192	4 250	58 623	8 275	3 841	13 270	7 105	19 025
17	2	2	33	4	1	18	1	7
5	1	1	12	2	1	6	0	3
5 992	270	258	2 137	219	111	798	166	610
1	0	0	1	0	0	0	0	0
9 658	711	262	3 407	396	132	1 217	347	1 028
13	1	1	17	2	3	7	0	3
3 101	246	36	683	83	16	259	98	189
1 878	148	71	808	86	39	280	70	258
47	4	4	49	5	3	20	5	12
14	1	2	9	1	1	3	0	2
645	54	65	276	30	11	102	19	79
521	42	50	199	22	8	73	12	58
23 504	4 809	3 616	51 476	7 480	3 536	10 664	6 416	16 915
99 721	11 090	7 468	83 092	11 097	4 862	22 765	8 915	26 029

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 2.6. Value added exports of goods and services from Singapore, by value added creator, and by sector and

Value added creator	Exports from Singapore by sector and industry					
	Primary	Manufacturing				
	Total	Total	Coke, petroleum products and nuclear fuel	Chemicals and chemical products	Metal and metal products	Machinery and equipment
<b>World</b>	594	183 105	39 378	13 727	9 023	10 199
<b>Developed countries</b>	275	79 351	16 780	6 631	3 888	5 155
<b>Europe</b>	100	32 653	6 718	2 866	1 705	2 460
European Union	90	29 138	5 975	2 569	1 550	2 168
Belgium	6	1 634	437	160	105	110
France	12	3 204	511	297	165	213
Germany	20	7 075	910	606	368	665
Italy	8	2 633	501	221	156	248
Netherlands	9	2 439	803	251	107	139
United Kingdom	17	6 329	2 138	554	278	327
Other developed Europe	10	3 515	743	297	155	292
Switzerland	7	2 421	192	189	118	247
North America	100	22 630	7 247	2 175	825	1 075
Canada	7	2 762	1 348	218	114	98
United States	93	19 868	5 898	1 957	712	977
Other developed countries	75	24 068	2 815	1 590	1 358	1 619
Australia	24	5 084	1 651	408	335	250
Japan	45	17 939	1 091	1 088	980	1 311
New Zealand	4	432	36	45	21	24
<b>Developing countries</b>	1 450	179 656	26 394	21 244	9 560	12 799
<b>Africa</b>	11	3 902	1 423	233	149	169
<b>Latin America and the Caribbean</b>	13	4 217	2 052	341	173	154
<b>Asia</b>	1 425	171 497	22 915	20 667	9 232	12 473
West Asia	24	5 936	3 260	603	202	197
Kuwait	5	1 574	993	146	33	37
Saudi Arabia	8	1 940	1 129	212	51	58
South, East and South-East Asia	1 401	165 561	19 655	20 064	9 030	12 275
East Asia	92	33 555	3 286	2 015	2 186	1 988
China	67	21 814	2 321	1 467	1 325	1 255
Hong Kong, China	5	2 571	88	100	105	137
Korea, Republic of	14	6 274	675	334	639	423
Taiwan Province of China	6	2 859	199	111	114	171
South Asia	25	5 671	2 076	577	287	233
India	18	3 736	971	397	241	181
Iran, Islamic Republic of	6	1 715	1 083	159	34	39
ASEAN	1 284	126 335	14 293	17 473	6 558	10 055
Brunei Darussalam	0	109	50	10	4	4
Cambodia	0	25	1	2	1	1
Indonesia	44	17 793	5 706	1 139	720	656
Lao People's Democratic Republic	0	4	0	0	0	0
Malaysia	65	20 245	3 152	1 439	710	966
Myanmar	2	113	56	8	3	2
Philippines	10	5 045	84	199	120	262
Thailand	21	4 529	723	334	226	221
Viet Nam	3	247	109	22	9	10
<b>Oceania</b>	1	40	5	3	5	3
<b>Transition economies</b>	7	2 324	614	171	340	176
Russian Federation	4	1 927	531	140	276	139
<b>Domestic value added (DVA)</b>	1 138	78 226	4 411	14 319	4 765	7 930
<b>Gross exports</b>	1 732	261 331	43 789	28 046	13 788	18 130

Source: AJC-UNCTAD-Eora database on ASEAN GVCs

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

industry, 2015 (Millions of dollars)

## Exports from Singapore by sector and industry

			Services					
Electrical and electronic equipment	Precision instruments	Motor vehicles and other transport equipment	Total	Trade	Hotels and restaurants	Transport, storage and communication	Finance	Business activities
86 055	7 035	4 429	35 369	4 035	1 481	13 785	2 738	9 912
35 255	3 371	2 336	16 904	1 979	711	6 599	1 360	4 667
13 593	1 478	985	6 007	651	280	2 156	456	1 759
12 161	1 245	895	5 325	578	256	1 896	382	1 577
553	59	48	267	28	14	92	18	79
1 452	139	112	631	65	43	228	45	176
3 412	359	219	1 288	145	49	440	94	412
1 015	107	88	522	57	23	187	35	150
728	82	72	415	44	24	157	29	113
2 176	236	172	1 063	115	51	399	74	300
1 432	233	91	683	72	25	260	74	182
1 224	207	63	538	58	17	201	67	145
8 292	865	647	6 044	722	198	2 382	598	1 680
649	59	64	385	39	19	178	17	89
7 643	807	582	5 659	683	180	2 204	580	1 591
13 370	1 027	704	4 853	606	232	2 061	306	1 228
1 529	147	147	1 023	108	117	366	75	255
11 305	832	529	3 606	473	90	1 621	214	911
148	14	13	103	10	21	29	7	26
77 861	9 569	6 221	75 841	10 307	4 736	19 204	8 517	23 705
1 538	142	55	440	45	23	190	19	114
1 042	94	81	652	68	35	292	37	155
75 267	9 332	6 084	74 739	10 193	4 677	18 720	8 461	23 434
1 134	121	101	1 899	217	43	1 027	72	417
250	26	21	352	41	8	184	25	71
325	37	30	690	79	14	382	20	153
74 133	9 211	5 983	72 840	9 976	4 634	17 693	8 388	23 017
19 448	1 428	848	5 479	622	231	1 946	340	1 719
12 373	895	565	3 597	392	173	1 199	231	1 177
1 717	144	55	427	53	14	188	12	117
3 408	237	178	1 104	135	31	438	77	307
1 930	150	50	343	41	12	119	19	116
1 591	143	125	1 052	109	61	397	79	280
1 251	103	96	609	57	47	179	50	186
277	29	22	384	45	10	196	28	79
53 094	7 640	5 010	66 309	9 246	4 343	15 349	7 970	21 018
20	2	2	40	5	1	23	1	9
5	1	1	13	2	1	6	0	3
7 510	335	331	2 630	270	135	1 002	200	728
2	0	0	1	0	0	0	0	0
11 392	837	324	4 020	469	154	1 470	400	1 176
16	2	2	23	2	5	9	1	4
3 924	307	46	818	100	19	316	115	221
2 366	185	92	1 017	108	48	360	87	316
59	6	5	60	6	4	25	6	14
14	1	2	9	1	1	3	0	2
739	61	78	312	33	12	118	21	86
611	49	63	231	25	9	87	14	64
27 800	5 966	4 207	57 687	8 284	3 977	12 138	7 159	18 546
113 855	13 001	8 636	93 056	12 319	5 458	25 922	9 898	28 458

and countries refer to where the value added is attributed. For GVC terminology, see box 2.

Annex table 3. Value added exports of goods and services from Singapore, by value added creating sector and industry, 1990–2015 (Millions of dollars)

Sector and industry	Exports from Singapore					
	1990	1995	2000	2005	2010	2015
<b>Total</b>	16 661	34 278	40 823	74 250	164 423	185 339
<b>Primary</b>	65	137	165	245	428	454
Agriculture, hunting, forestry and fishing	65	137	165	245	428	454
<b>Secondary</b>	7 240	14 743	18 175	31 420	65 533	77 720
Food, beverages and tobacco	127	310	387	625	1 346	1 570
Textiles, clothing and leather	89	189	242	387	707	840
Wood and wood products	23	44	52	93	207	223
Publishing, printing and reproduction of recorded media	247	572	661	1 287	2 751	3 260
Coke, petroleum products and nuclear fuel	530	843	712	1 377	2 910	4 184
Chemicals and chemical products	859	2 162	2 848	5 342	11 231	12 857
Rubber and plastic products	249	581	603	1 066	2 392	2 799
Non-metallic mineral products	61	154	184	329	663	773
Metal and metal products	432	1 041	1 274	2 373	5 326	6 144
Machinery and equipment	393	876	1 011	1 971	4 650	5 514
Electrical and electronic equipment	3 519	6 350	8 110	13 095	25 817	30 748
Precision instruments	399	885	1 061	1 772	3 553	4 417
Motor vehicles and other transport equipment	266	632	908	1 522	3 589	3 994
Other manufacturing	46	103	123	180	392	397
<b>Tertiary</b>	9 356	19 398	22 483	42 585	98 461	107 165
Electricity, gas and water	254	446	515	927	2 728	2 480
Construction	99	174	177	381	1 013	1 183
Trade	1 963	4 159	4 950	8 812	20 234	21 589
Hotels and restaurants	257	572	632	1 228	2 903	3 310
Transport, storage and communications	1 805	4 069	4 749	9 067	20 585	23 270
Finance	1 590	3 314	3 873	7 384	15 948	17 300
Business activities	2 996	5 818	6 595	12 774	29 646	32 296
Education	64	145	172	348	831	1 095
Health and social services	82	175	192	378	886	1 018
Community, social and personal service activities	213	457	542	1 085	2 730	3 018
Other services	32	69	85	201	957	606

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

Note: All values are estimated. The value includes value created both abroad (outside Singapore) (FVA) and within Singapore (DVA). The industry refers to the industry to which the value is attributed, not the industry from which exports originate.

Annex table 4. Singapore's value added exports incorporated in other countries' exports, by region or country, 1990-2018 (Millions of dollars)

Region and country	DVX from Singapore						
	1990	1995	2000	2005	2010	2015	2018
<b>World</b>	4 032	8 374	10 798	21 072	45 697	48 253	52 848
<b>Developed countries</b>	1 836	3 569	4 756	9 337	20 179	20 513	22 986
<b>Europe</b>	1 252	2 468	3 336	6 736	15 314	15 167	17 057
European Union	1 227	2 416	3 274	6 584	14 939	14 809	16 649
Belgium	86	162	194	412	920	947	1 105
France	119	215	303	532	1 071	1 117	1 232
Germany	283	501	676	1 469	3 545	3 237	3 601
Italy	48	105	136	283	644	653	743
Netherlands	208	389	438	937	2 251	2 367	2 692
United Kingdom	166	332	444	758	1 577	1 407	1 518
Other developed Europe	25	52	62	152	375	358	408
Switzerland	15	33	40	113	279	269	316
North America	220	467	678	1 028	1 881	1 935	2 080
Canada	38	96	155	269	502	512	551
United States	182	371	523	759	1 380	1 423	1 529
Other developed countries	365	634	743	1 574	2 983	3 410	3 849
Australia	68	160	173	368	857	969	1 137
Japan	275	432	510	1 094	1 888	2 203	2 458
New Zealand	10	21	25	47	108	110	115
<b>Developing countries</b>	2 184	4 789	6 022	11 687	25 387	27 610	29 719
<b>Africa</b>	23	46	58	115	257	263	287
<b>Latin America and the Caribbean</b>	25	109	220	377	749	811	925
<b>Asia</b>	2 125	4 624	5 733	11 175	24 333	26 489	28 458
West Asia	31	76	81	179	428	485	522
Kuwait	2	4	3	9	22	22	22
Saudi Arabia	10	20	19	33	84	82	87
South, East and South-East Asia	2 094	4 548	5 652	10 996	23 905	26 003	27 936
East Asia	1 093	1 539	2 041	4 191	10 081	10 768	11 132
China	36	229	561	1 722	4 893	4 968	5 054
Hong Kong, China	166	397	408	935	2 338	2 648	2 786
Korea, Republic of	128	279	436	981	2 139	2 474	2 628
Taiwan Province of China	762	631	631	545	689	651	641
South Asia	47	114	157	389	970	1 205	1 375
India	18	62	93	272	727	915	1 050
Iran, Islamic Republic of	5	5	8	19	40	56	71
ASEAN	954	2 894	3 455	6 417	12 853	14 031	15 429
Brunei Darussalam	29	33	26	52	136	144	136
Cambodia	-	3	8	15	30	33	43
Indonesia	93	270	401	744	1 657	1 902	1 996
Lao People's Democratic Republic	-	-	-	1	2	2	3
Malaysia	465	1 647	1 774	3 286	7 371	7 996	8 735
Myanmar	1	-	-	-	-	-	-
Philippines	199	524	733	1 237	1 697	1 786	2 035
Thailand	126	317	342	738	1 296	1 519	1 642
Viet Nam	42	99	170	345	664	649	839
<b>Oceania</b>	10	11	11	19	48	48	49
<b>Transition economies</b>	12	16	20	48	131	130	143
Russian Federation	5	7	10	23	64	67	73

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

Note: All values are estimated. The value refers to that incorporated in exports from the countries listed.

For GVC terminology, see box 2.





# ASEAN- Japan Centre

ASEAN Promotion Centre on Trade, Investment and Tourism  
[www.asean.or.jp/en](http://www.asean.or.jp/en)

