

---

# Status Quo and Trend of Global Value Chains Development

The development of GVCs is an important symbol of economic globalization, playing an essential role in promoting the growth of the world economy. From the perspective of GVCs, there is an interdependent and progressive relationship among national openness, regional openness, and global openness. Cooperation in advancing the development of GVCs will be conducive to economies sharing the benefits of economic globalization. China is a key force in driving the development of GVCs and has developed into one of the global manufacturing supply centers.

## 1. Flourishing GVCs in the Era of Economic Globalization

The development of GVCs can reflect the evolution of modern international trade. According to the division of production and cross-border characteristics, international trade can be divided into three parts: domestic trade (the whole production and consumption process does not cross border), traditional trade (the production process does not cross border), and GVC trade<sup>1</sup> (the production process crosses the border). GVCs are in fact a manifestation of economic interests in international labor division and value distribution, as well as an essential force influencing international economic cooperation.

**The scale of GVCs in major economies doubled.** Based on the Global Input-Output Database of the Asian Development Bank (ADB), the decomposition of the indicators of GVCs is calculated. The results show that during 2007–2021, 60 of the 62 world's major economies have experienced an increase in GVCs.<sup>2</sup> The average increase was 107 percent.

**Strong resilience to external shocks.** In 2008, the subprime crisis in the US, which spread rapidly around the world, triggered a series of financial crises and economic contractions. GVCs of major economies declined briefly in 2008–2009 (see Fig. 8.1) because of the decline in external demand and then entered an upward trajectory from 2010 before falling again in 2020 due to the COVID-19 pandemic. However, it managed to rebound and return to growth in 2021. The

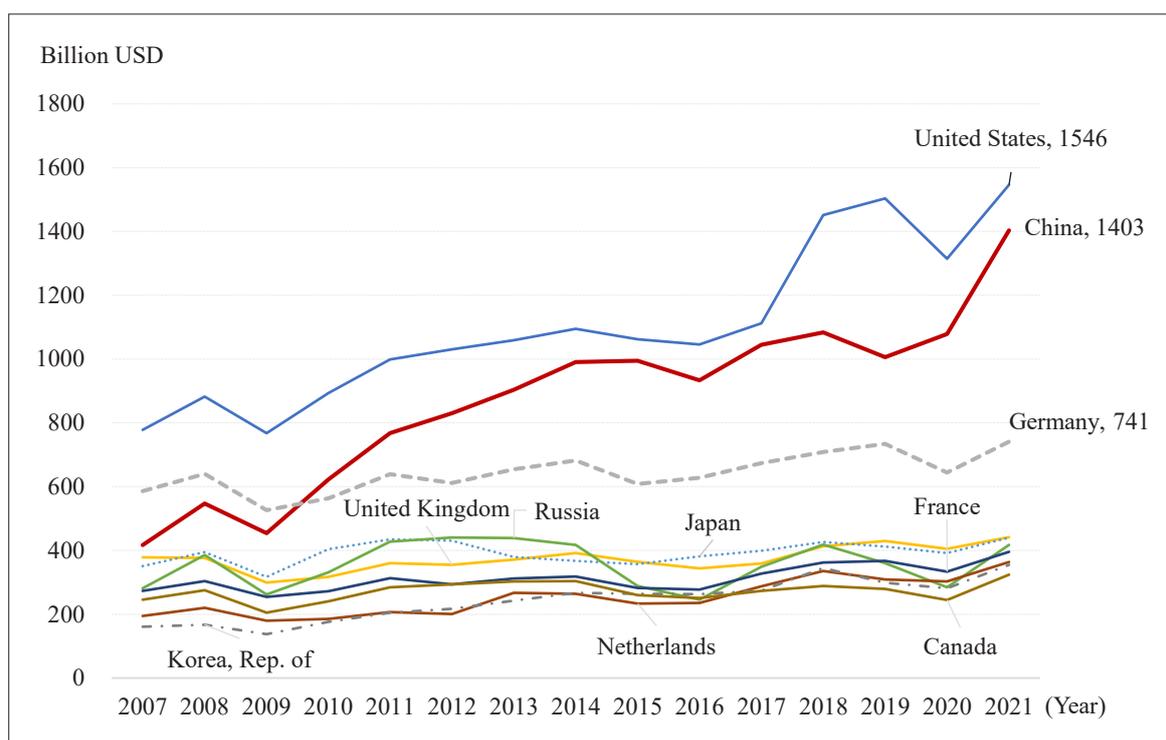


Fig. 8.1 Trade in GVCs: Top 10 economies in 2021, 2007–2021

scale of GVCs continues to grow, even after the above two shocks, demonstrating the resilience of the GVCs.

**The US, China,<sup>3</sup> and Germany are firmly in the top three in GVCs.** During 2007–2021, China and the US experienced rapid growth in GVCs, while Germany’s growth rate remained relatively stable. In 2010, China surpassed Germany in 2010 to become the world’s second-largest economy in terms of GVCs. Compared with 2007, there have been some changes among the top ten economies in terms of GVCs in 2021 (see Table 8.1). The US continues to hold the top, while China overtakes Germany to rank second. Rep. of Korea overtakes Canada and Italy to rank ninth. Laos, Cambodia, Mongolia, Vietnam, and Malta are experiencing rapid growth, while Finland, Greece, Italy, and Norway are experiencing slower growth.

Table 8.1 Trade in GVCs: Top 10 economies, 2007 vs. 2021

Unit: Billion USD

Rank in 2021	Economy	2021	2007	Rank in 2007
1	US	1,546	778	1
2	China	1,403	417	3
3	Germany	741	586	2

(Continued)

Rank in 2021	Economy	2021	2007	Rank in 2007
4	United Kingdom	442	379	4
5	Japan	440	351	5
6	Russia	418	281	6
7	France	396	273	7
8	Netherlands	364	194	10
9	Korea, Rep. of	355	...	...
10	Canada	324	246	8
...	Italy	...	242	9

**Box 8.1 Trend of traditional trade**

From 2007 to 2021, the scale of traditional trade<sup>4</sup> of major economies showed an upward trend, with a brief contraction due to the international financial crisis, but the decline was relatively small. In terms of the value of traditional trade, the member structure of the leading echelon is relatively stable, with China consistently ranking first, followed by the US and Germany (see Fig. 8.2), and the top 10 economies are also fairly stable in the rankings (see Table 8.2).

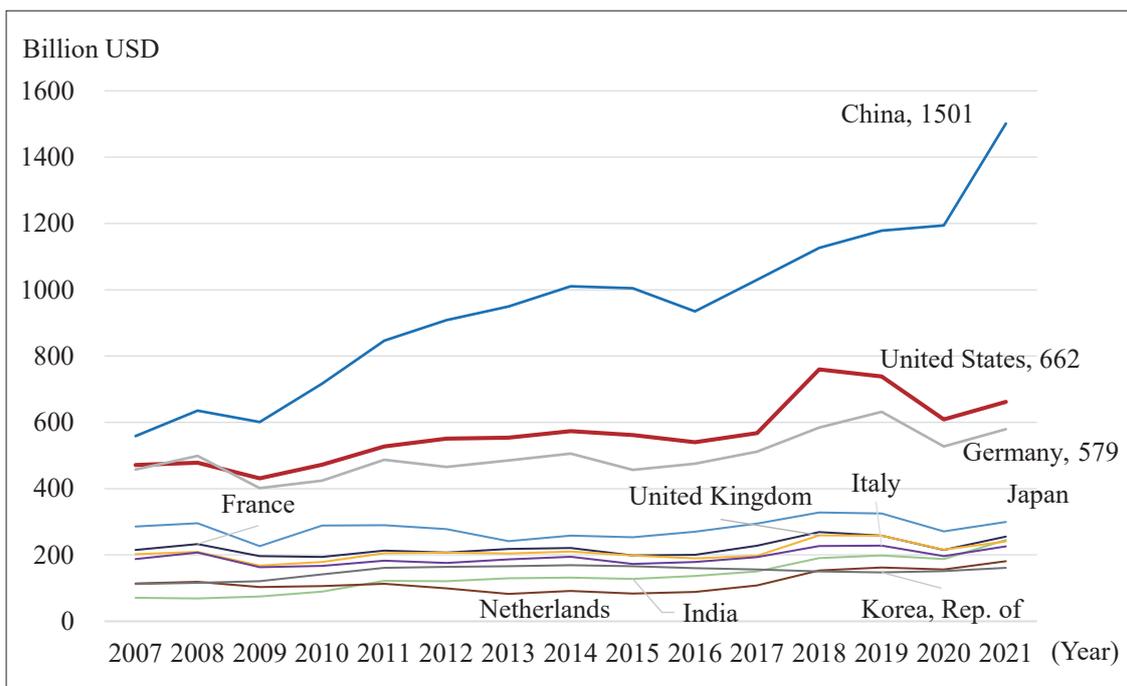


Fig. 8.2 Traditional trade: Top 10 economies in 2021, 2007-2021

Table 8.2 Traditional trade: Top 10 economies, 2007 vs. 2021

Unit: Billion USD

Rank in 2021	Economy	2021	2007	Rank in 2007
1	China	1,501	559	1
2	US	662	471	2
3	Germany	579	389	3
4	Japan	300	286	4
5	France	256	216	5
6	India	245	...	...
7	United Kingdom	240	203	6
8	Italy	226	188	7
9	Netherlands	181	114	9
10	Korea, Rep. of	161	113	10
...	Canada	...	124	8

## 2. Development of GVCs Reflects the Deepening of the International Labor Division

According to the development process of GVCs, combined with specific commodity categories, GVCs can be split into simple GVCs (cross border once) and complex GVCs (cross border twice or more). In accordance with the final destination of products, complex GVCs can be further divided into two parts: flowing back to the territory or flowing to other economies. During 2007–2021, although the scale of both simple and complex GVCs shows a trend of expanding, the growth of complex GVCs is faster during the period without financial crises, reflecting the deepening of the international labor division.

**The scale of simple GVCs expanded in general.** Based on the ADB database, the decomposition indicators of GVCs are analyzed. The results indicate that of the 62 major economies, the simple GVCs of 59 economies has increased<sup>5</sup> during 2007–2021, with an average increase of 106.4 percent (see Fig. 8.3). The top ten economies in terms of the scale of simple GVCs remained relatively stable, with the three economies of **the US, China, and Germany ranking top three consistently** (see Table 8.3).

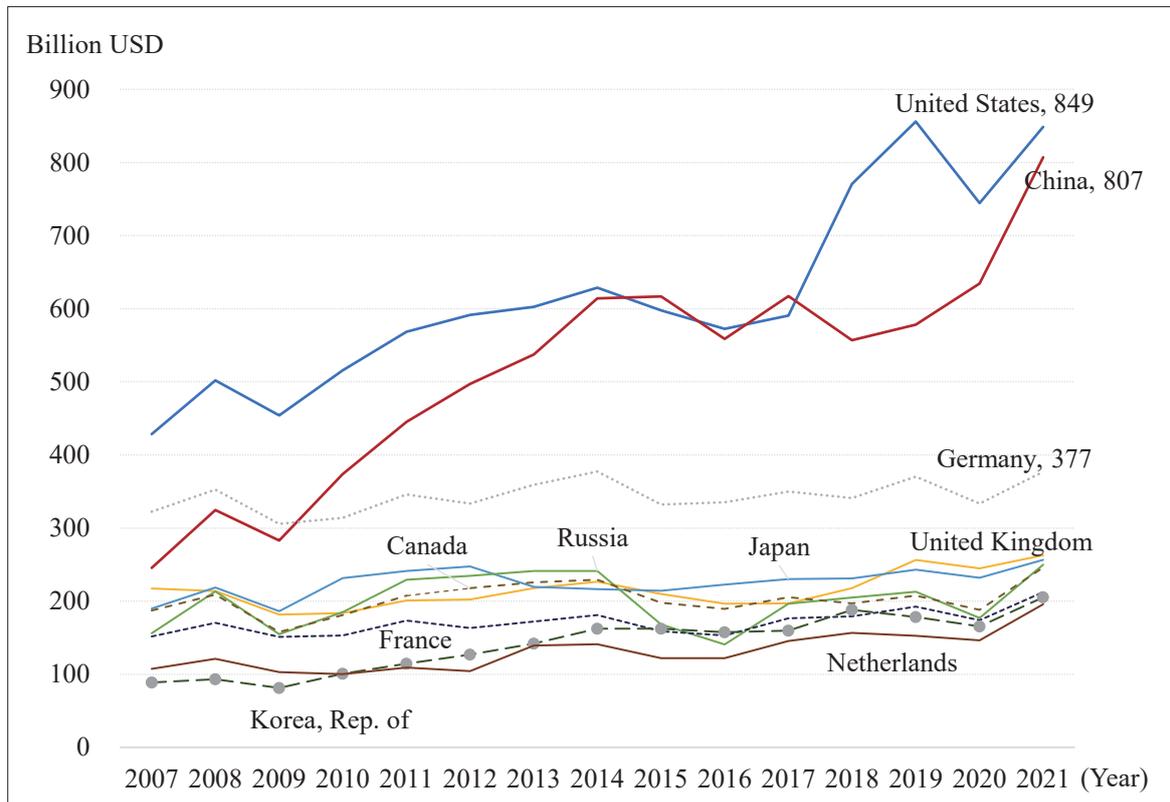


Fig. 8.3 Trade in simple GVCs: Top 10 economies in 2021, 2007-2021

Table 8.3 Trade in simple GVCs: Top 10 economies, 2007 vs. 2021

Unit: Billion USD

Rank in 2021	Economy	2021	2007	Rank in 2007
1	US	849	429	1
2	China	807	246	3
3	Germany	377	323	2
4	United Kingdom	263	217	4
5	Japan	257	190	5
6	Russia	250	156	7
7	Canada	246	187	6
8	France	212	152	8
9	Korea, Rep. of	205	...	...
10	Netherlands	196	108	10
...	Italy	...	135	9

**The scale of complex GVCs flowing back increased steadily.** From 2007 to 2021, the value of final complex GVCs flowing back into the territory increased in 50 of the 62 major economies, with an average increase of 238.2 percent, about three times that of the beginning of the period<sup>6</sup> (see Fig. 8.4). The top ten economies in terms of the scale of complex GVC flowing back remained relatively consistent, with **the US, China, and Germany in the top three consistently, but there were changes in the ranking** (see Table 8.4). Compared to 2007, the US remained in first place in 2021, China overtook Germany in second place, Rep. of Korea overtook Russia in tenth place, and the Netherlands overtook Italy in seventh place. The corresponding indicators of Cambodia, Laos, Vietnam, Mongolia, and Bulgaria grew rapidly.

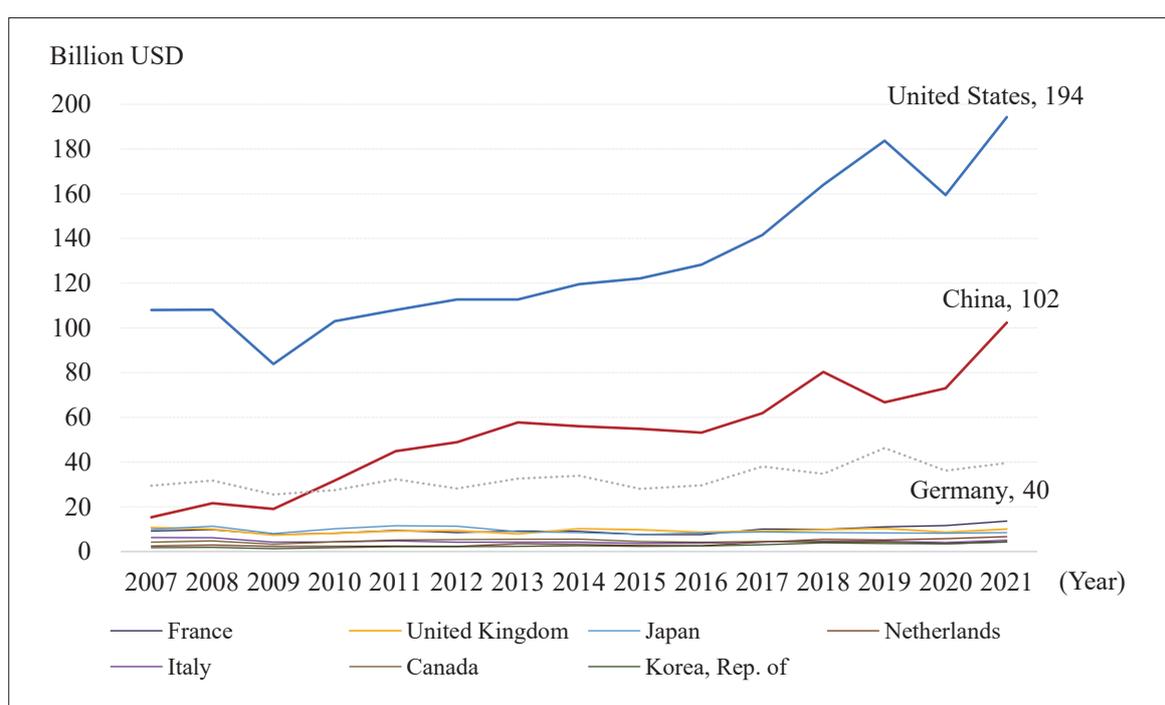


Fig. 8.4 Complex GVCs ultimately flowing back: Top 10 economies in 2021, 2007–2021

Table 8.4 Complex GVCs ultimately flowing back: Top 10 economies, 2007 vs. 2021

Unit: Billion USD

Rank in 2021	Economy	2021	2007	Rank in 2007
1	US	194	108	1
2	China	102	15	3
3	Germany	40	30	2
4	France	14	9	6

(Continued)

Rank in 2021	Economy	2021	2007	Rank in 2007
5	United Kingdom	10	11	4
6	Japan	8	10	5
7	Netherlands	7	...	...
8	Italy	5	6	7
9	Canada	5	4	8
10	Korea, Rep. of	4	...	...
...	Russia	...	3	10
...	Spain	...	3	9

**The scale of complex GVCs flowing to other economies continued to expand.** The scale of complex GVCs flowing to other economies increased in 60 of the 62 major economies over 2007–2021,<sup>7</sup> with an average increase of 113.17 percent (see Fig. 8.5). The member structure of the top ten economies remained comparatively stable (see Table 8.5). Compared to 2007, the US remained at the top in 2021, China overtook Germany in second place, and the rest of the top ten economies remained unchanged in the list while some of them changed their ranks. The corresponding indicators of Laos, Cambodia, Kyrgyzstan, Vietnam, and Belgium showed a steep increase.

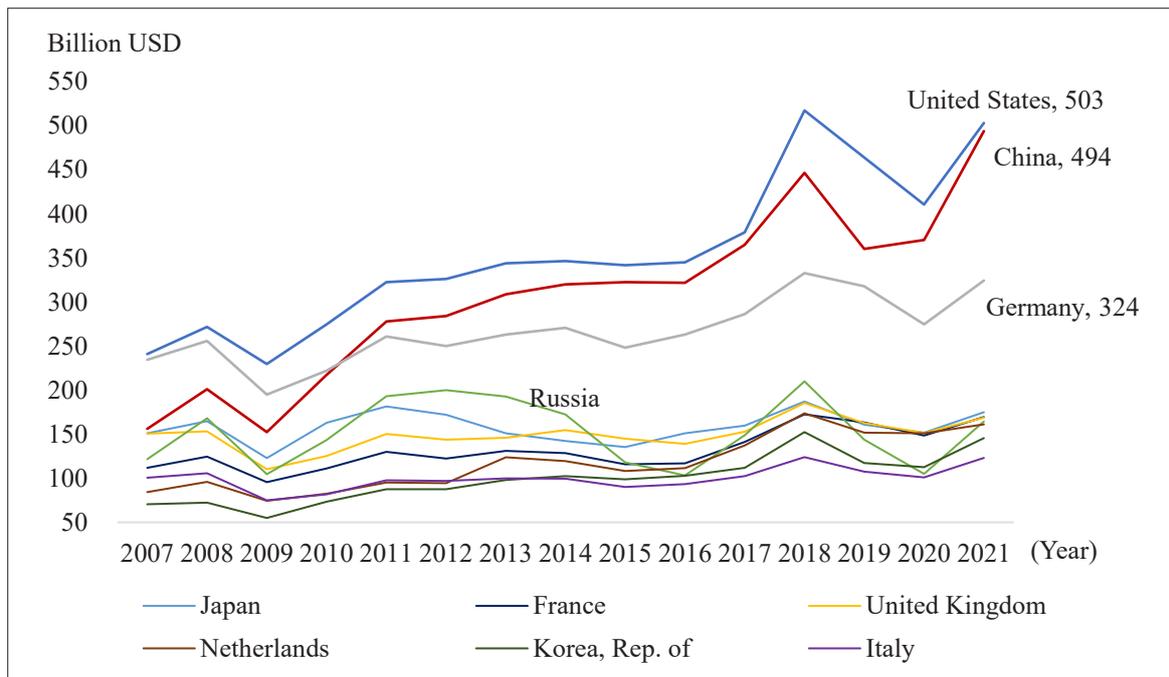


Fig. 8.5 Complex GVCs ultimately flowing to other economies: Top 10 economies in 2021, 2007–2021

**Table 8.5 Complex GVCs ultimately flowing to other economies:  
Top 10 economies, 2007 vs. 2021**

Unit: Billion USD

Rank in 2021	Economy	2021	2007	Rank in 2007
1	United States	503	241	1
2	China	494	156	3
3	Germany	324	234	2
4	Japan	175	151	4
5	France	170	120	7
6	United Kingdom	169	151	5
7	Russia	164	122	6
8	Netherlands	161	84	9
9	Korea, Rep. of	145	71	10
10	Italy	123	101	8

The growth rate of trade in complex GVCs, whether flowing back or to other economies, is higher than that of simple GVCs,<sup>8</sup> indicating that the integration of GVCs is increasingly deepening, and the interests of economies are more closely linked. The scale of complex GVCs flowing to other economies is larger than the scale of complex GVCs flowing back, with the former accounting for about 89 percent.<sup>9</sup> The scale of China's simple GVCs and the scale of its complex GVCs that ultimately flow to other economies are among the largest in the world, indicating that along with the deepening of the international labor division, China is collaborating closer with other economies, and is of crucial significance to stabilize the world production network.

### **3. Major Economies Deeply Embedded in the Global Production Network from Different Links**

Economies with high forward GVCs participation<sup>10</sup> are mainly located upstream in the global production network and mainly export intermediate goods and services; economies with high backward GVCs participation<sup>11</sup> are located downstream in the global production network and rely mainly on importing intermediate goods and services to produce and export products.

The participation of major economies in the global production network has been deepening. During 2007–2021, the forward GVCs participation and backward GVCs participation of major economies have shown a fluctuating upward trend. At the same time, there are significant regional differences, suggesting that economies from different continents play different roles in

the global production network. Specifically, Asian economies have a wider distribution in the GVCs production network, with different economies playing key roles in different upstream and downstream segments; the European region is important not only as a supplier of global intermediate products but also as an assembler of global final products; and the economies in America and Oceania are at the lowest level among the three major regions in terms of the relevant indicators (see Fig. 8.6 to Fig. 8.11<sup>12</sup>). Asian economies had accelerated their integration into GVCs through participating in labor-intensive segments such as processing and assembly, but in recent years, with rising labor costs and increasing domestic market demand, both forward and backward GVCs participation have declined.

Looking ahead, emerging technologies such as artificial intelligence, the Internet of Things, and big data will provide new development opportunities for Asian economies. For one thing, Asian economies are expected to be embedded in high-value-added GVCs by strengthening R&D investment, cultivating high-tech industries, and improving product quality. For another thing, with the high-quality implementation of free trade agreements already in force, regional integration will be further strengthened, which will also provide Asian economies with broader markets and more cooperation opportunities. The European economies have strong overall strength in R&D innovation and process innovation, and their ability to control the final stages of production and assembly has continued to improve. However, some economies in the region are facing challenges such as industrial structural transformation and rising unemployment and should pay more attention to strengthening complementary cooperation and mitigating bifurcation in their future development.

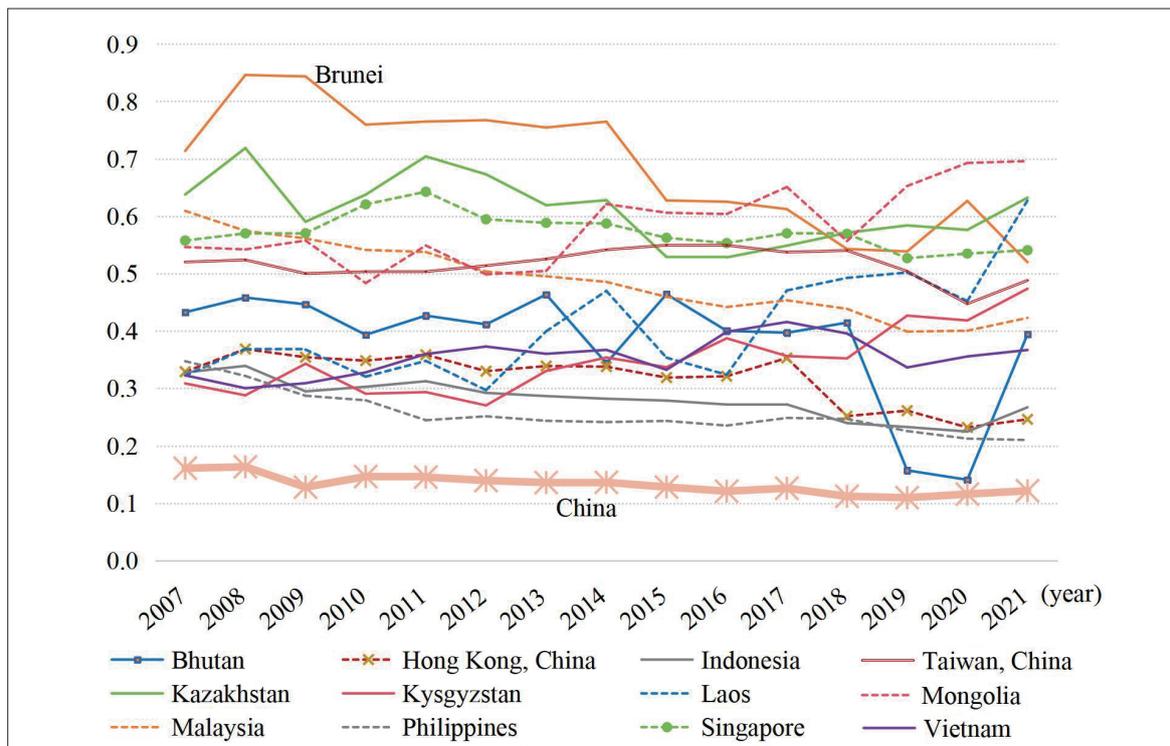


Fig. 8.6 Overall forward GVCs participation: Selected Asian economies, 2007–2021

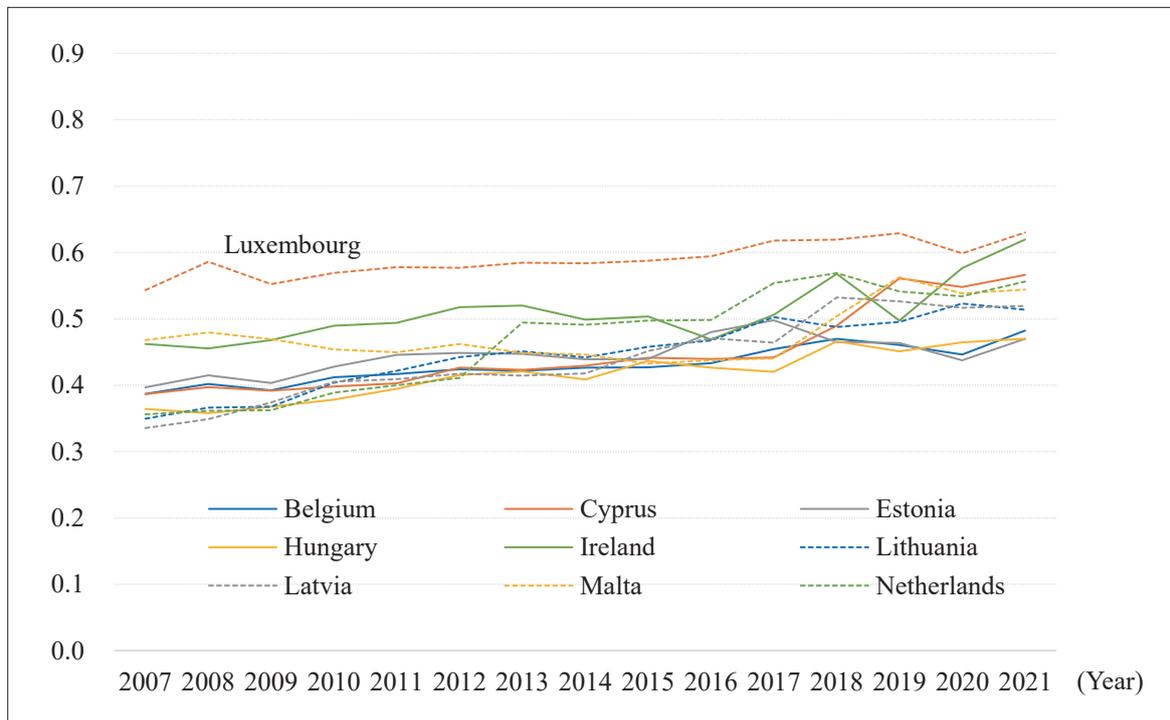


Fig. 8.7 Overall forward GVCs participation: Top 10 European economies, 2007-2021

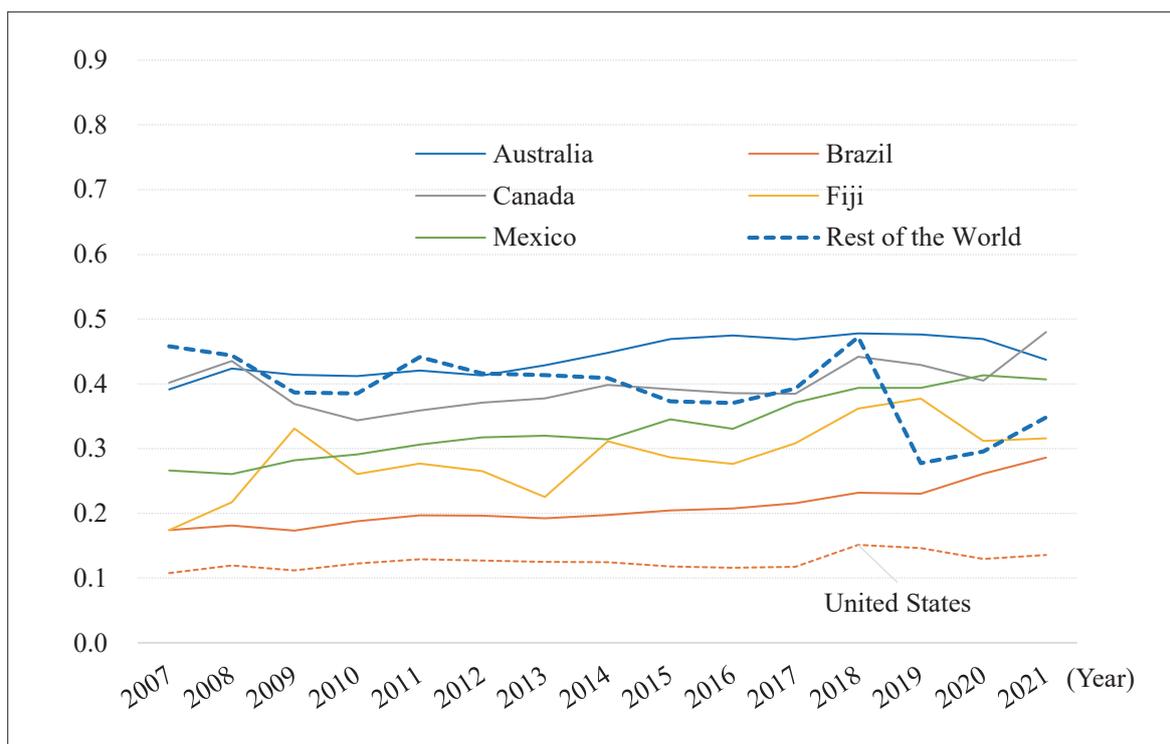


Fig. 8.8 Overall forward GVCs participation: US and other selected economies, 2007-2021

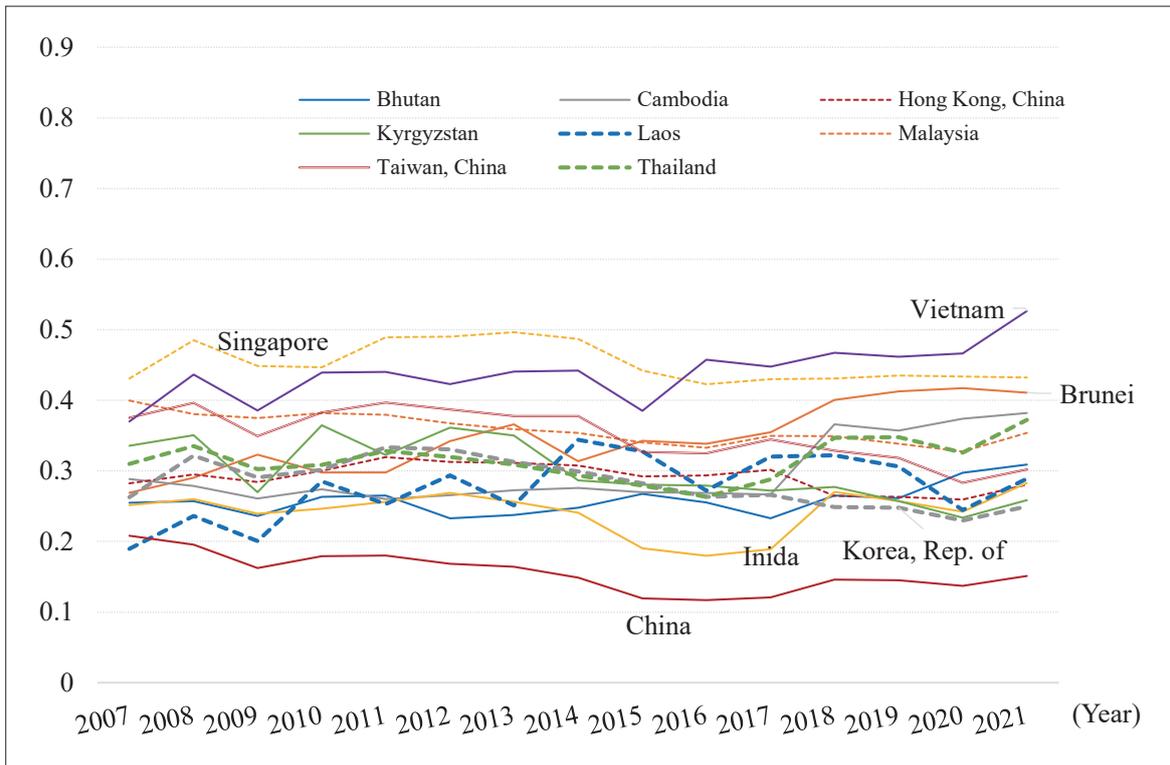


Fig. 8.9 Overall backward GVCs participation: Selected Asian economies, 2007-2021

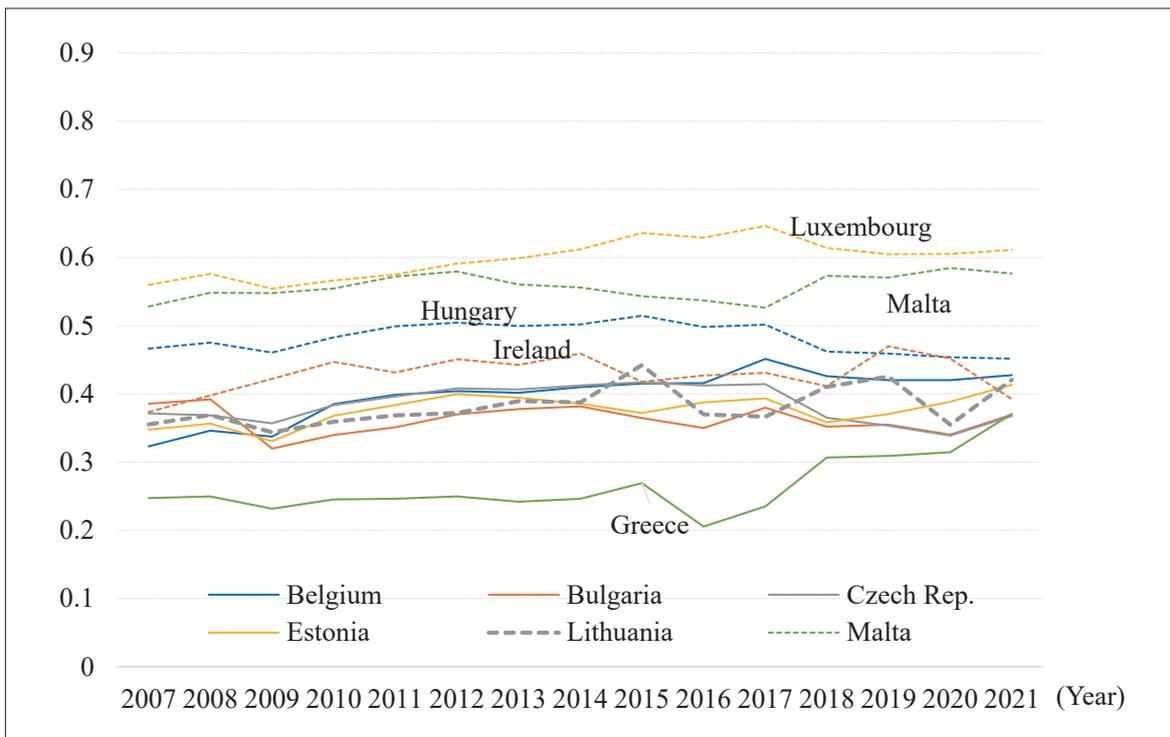


Fig. 8.10 Overall backward GVCs participation: Top 10 European economies, 2007-2021

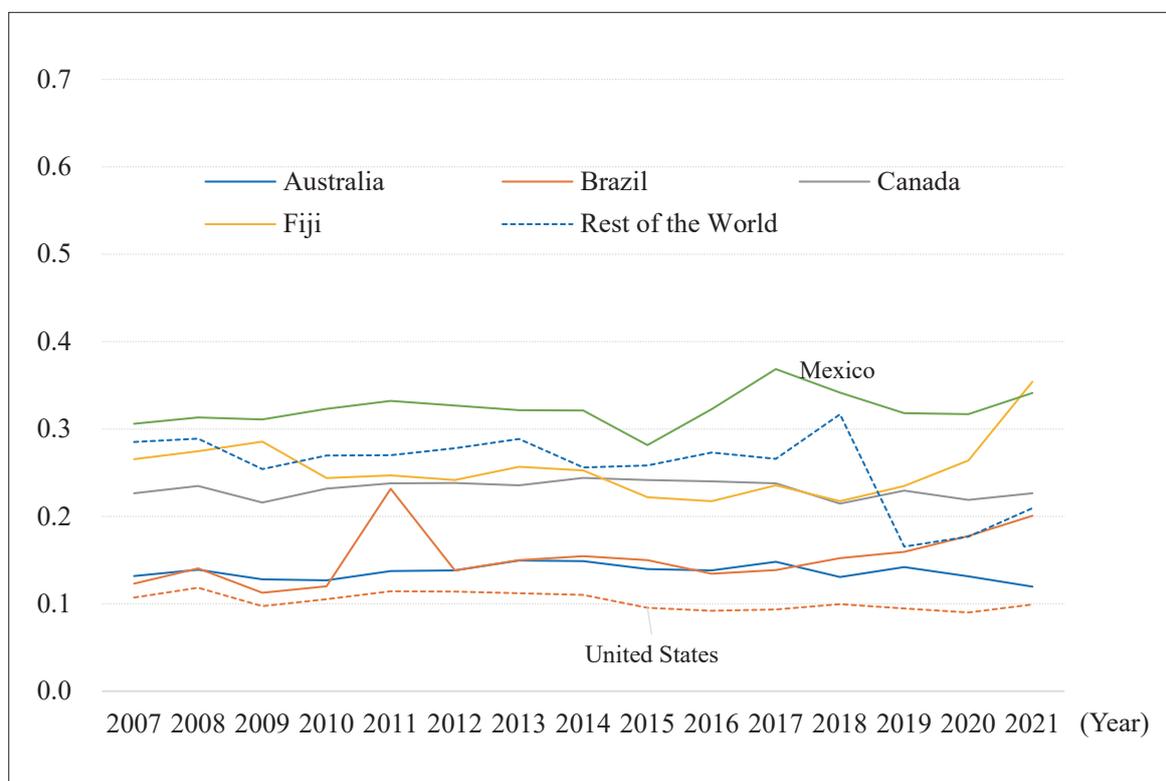


Fig. 8.11 Overall backward GVCs participation: US and other selected economies, 2007–2021

#### 4. Sectoral Advantages of Major Economies from the Perspective of GVCs

The assessment and measurement of revealed comparative advantage (RCA)<sup>13</sup> can help economies better participate in GVCs and carry out cooperation in the international labor division. Table 8.6 shows the top five economies in terms of the RCA index for 35 subsectors in 2007 and 2021 under the GVCs accounting system. The results indicate that developing economies continue to excel in traditional industries such as the agricultural, forestry, animal husbandry, and fishery sectors, as well as the textile, footwear, food and beverage, and tobacco manufacturing industries in the manufacturing sector, and some of them have emerged in high-value-added industries; advanced economies maintain their leading position in high-value-added industries such as chemical manufacturing, machinery manufacturing, electrical and optical equipment manufacturing, and financial intermediation services. Specific industries are analyzed below.

**Machinery manufacturing:** Machinery manufacturing can provide support for other manufacturing industries. Advanced economies such as Germany, Italy, Finland, the Czech Republic, and Austria have shown significant comparative advantages in this industry. From

the perspective of supply, these economies have accumulated rich experience in the field of machinery manufacturing since the Industrial Revolution. From the perspective of demand, the objective demand brought about by the development of the world economy has prompted these economies to bring into play the effect of economies of scale, promoting the continuous optimization and upgrading of relevant industries.

**Transportation equipment manufacturing:** Transportation equipment manufacturing is an important high-value-added manufacturing industry, including automobiles, ships, airplanes, trains, and many other sub-sectors. Advanced economies such as Japan, the Czech Republic, and Germany have comparative advantages in this industry. In addition to the accumulation of technology, the education level in these countries is generally high. The emergence of many outstanding engineers and technical talents has played a crucial role in shaping the comparative advantages of these countries in the field of transportation equipment manufacturing.

**Textile industry:** Cambodia, Bangladesh, Sri Lanka, Pakistan, and other developing economies have significant comparative advantages in the textile industry. These economies have relatively low labor costs, as well as abundant resources of raw materials for textiles, such as cotton, silk, and wool.

**Rubber and plastics manufacturing:** Thailand and Sri Lanka, one after another, occupy the top of the list of comparative advantages in rubber and plastics manufacturing, mainly because of its abundant natural rubber resources. Thailand is the world's largest producer and exporter of natural rubber. Also, the effective application of advanced cultivation methods and innovations in rubber production are important reasons for Thailand to have significant comparative advantages.

**Food, beverage, and tobacco manufacturing:** Developing economies such as Sri Lanka, Vietnam, Indonesia, and the Philippines show significant comparative advantages in food, beverage, and tobacco manufacturing. These countries have abundant resources of agricultural products such as fruits, vegetables, meat, and tobacco. Labor costs in these countries are also relatively low. At the same time, the governments of these countries usually adopt a series of supportive policies to promote the development of related industries.

**Leather, fur, feather products, and footwear:** Developing economies account for more than half of the top five rankings of the industry's RCA indicator. The reason is that these economies have relatively low labor costs, making their production of leather, fur, feather products, and footwear cheaper. In particular, Bangladesh, with its low labor costs and high-quality local leather resources, is favored by many shoe manufacturers and is becoming a reputable leather shoe exporting country.

**Financial intermediation services:** Advanced economies such as Luxembourg, China's Hong Kong SAR, and the United Kingdom show comparative advantages in this sector. These economies have high-quality financial infrastructures, favorable geographical locations and trade links, and sophisticated market and legal systems.

Table 8.6 Top 5 economies in terms of RCA values by industry under the GVCs accounting system, 2007 vs. 2021

Industry	Top 5 in 2007					Top 5 in 2021				
	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th
Agriculture, hunting, forestry, and fishing	Laos	Pakistan	Kyrgyzstan	Vietnam	Bhutan	Cambodia	Pakistan	Laos	Brazil	Vietnam
Mining and quarrying	Brunei	Mongolia	Norway	Kazakhstan	Australia	Brunei	Mongolia	Australia	Kazakhstan	Russia
Food, beverages, and tobacco	Vietnam	Sri Lanka	Philippines	Fiji	Ireland	Sri Lanka	Vietnam	Indonesia	Philippines	Nepal
Textiles and textile products	Cambodia	Bangladesh	Sri Lanka	Pakistan	Türkiye	Bangladesh	Sri Lanka	Cambodia	Pakistan	Vietnam
Leather, leather, and footwear	Vietnam	Bangladesh	Portugal	Italy	China	Vietnam	Bangladesh	Portugal	Indonesia	Italy
Wood and products of wood and cork	Latvia	Estonia	Lithuania	Laos	Romania	Latvia	Estonia	Laos	Fiji	Lithuania
Pulp, paper, printing, and publishing	Finland	Ireland	Sweden	US	Austria	Ireland	Finland	Sweden	US	Czech Rep.
Coke, refined petroleum, and nuclear fuel	Brunei	Indonesia	Russia	Malaysia	Taiwan, China	Brunei	Russia	Ireland	India	Malaysia
Chemicals and chemical products	Ireland	Switzerland	Belgium	Slovenia	Singapore	Ireland	Switzerland	Denmark	Belgium	Korea, Rep. of
Rubber and plastics	Thailand	Czech Rep.	Sri Lanka	Slovenia	Poland	Sri Lanka	Czech Rep.	Thailand	Poland	Slovakia
Other non-metallic mineral	Bhutan	Czech Rep.	Kyrgyzstan	Estonia	Poland	Nepal	Portugal	Vietnam	Czech Rep.	Poland
Basic metals and fabricated metal	Thailand	Kyrgyzstan	Slovakia	Kazakhstan	Slovenia	Kyrgyzstan	Kazakhstan	Türkiye	Korea, Rep. of	Japan
Machinery	Germany	Italy	Finland	Czech Rep.	Austria	Finland	Germany	Italy	Austria	Czech Rep.
Electrical and optical equipment	Taiwan, China	Korea, Rep. of	Finland	Philippines	Japan	Taiwan, China	Korea, Rep. of	Singapore	Japan	Malaysia
Transport equipment	Japan	Hungary	Czech Rep.	Germany	Korea, Rep. of	Czech Rep.	Mexico	Germany	Slovakia	Japan
Manufacturing, nec; recycling	Sri Lanka	Lithuania	China	Ireland	Vietnam	Ireland	Lithuania	Türkiye	China	Italy
Electricity, gas, and water supply	Bhutan	Laos	Philippines	Bulgaria	China	Bhutan	Laos	Croatia	Vietnam	Estonia
Construction	Bulgaria	Poland	Slovenia	Estonia	Cyprus	Lithuania	Netherlands	Slovenia	Denmark	Luxembourg
Sale, maintenance, and repair of motor vehicles and motorcycles	Türkiye	Poland	Canada	Malaysia	Laos	Fiji	Poland	Canada	Lithuania	Malaysia

Industry	Top 5 in 2007					Top 5 in 2021				
	1st	2nd	3rd	4th	5th	1st	2nd	3rd	4th	5th
Wholesale trade and commission trade, except for motor vehicles and motorcycles	Hong Kong, China	Singapore	Sri Lanka	Taiwan, China	Portugal	Hong Kong, China	Singapore	Switzerland	Denmark	Japan
Retail trade, except of motor vehicles and motorcycles	Pakistan	Philippines	Laos	Kyrgyzstan	India	Greece	Kyrgyzstan	Croatia	Philippines	Pakistan
Hotels and restaurants	Maldives	Fiji	Nepal	Cambodia	Romania	Maldives	Fiji	Thailand	Romania	Cambodia
Inland transport	Lithuania	Türkiye	Kyrgyzstan	Russia	Nepal	Lithuania	Nepal	Romania	Bhutan	Latvia
Water transport	Greece	Cyprus	Norway	Singapore	Denmark	Greece	Denmark	Cyprus	Norway	Hong Kong, China
Air transport	Fiji	Hong Kong, China	Portugal	Maldives	Singapore	Maldives	Hong Kong, China	Portugal	Bhutan	Nepal
Other supporting and auxiliary transport activities; activities of travel agencies	Fiji	Malta	Latvia	Cyprus	Estonia	Fiji	Cyprus	Estonia	Lithuania	Greece
Post and telecommunications	Luxembourg	Fiji	Hong Kong, China	Bangladesh	Croatia	Nepal	Hong Kong, China	Bangladesh	Fiji	Maldives
Financial intermediation	Luxembourg	Hong Kong, China	Switzerland	Ireland	United Kingdom	Luxembourg	Hong Kong, China	Cyprus	Singapore	United Kingdom
Real estate activities	Greece	Hong Kong, China	Kyrgyzstan	Philippines	Maldives	Slovakia	Hong Kong, China	Greece	Luxembourg	Italy
Renting of M&Eq and other business activities	India	United Kingdom	France	Netherlands	Cyprus	Malta	India	Philippines	Belgium	France
Public admin and defense; compulsory social security	Kyrgyzstan	Cyprus	US	Finland	Cambodia	Kyrgyzstan	Cyprus	Netherlands	Maldives	Bangladesh
Education	Australia	Pakistan	Netherlands	United Kingdom	Switzerland	Australia	Malta	Pakistan	France	United Kingdom
Health and social work	Croatia	Pakistan	Canada	Fiji	Bulgaria	Ireland	Fiji	Croatia	Pakistan	Nepal
Other community, social, and personal services	Malta	Bangladesh	India	United Kingdom	US	Malta	Romania	Bangladesh	Cyprus	Portugal
Private households with employed persons	Croatia	Australia	Vietnam	Denmark	US	Cyprus	Japan	Australia	Croatia	Denmark

## 5. Fostering Open Consensus to Promote Better Development of the GVCs

National openness, regional openness, and global openness have prominent impacts on GVCs.

**National openness** is an important foundation for the sustainable development of GVCs. By formulating trade and investment facilitation policies and optimizing the business environment, countries are proactively participating in the international labor division system and integrating into GVCs.

**Regional openness** has a direct impact on the trend of GVCs development. Regional integration is conducive to accelerating intra-regional trade and investment liberalization and realizing the mobility and complementarity of production factors. Regional value chains are part of GVCs, and to a certain extent, they are conducive to promoting GVCs growth. However, any weakening of inter-regional value chain linkages will adversely affect GVCs.

**Global openness** determines the level of GVCs growth. In the process of globalization, broad, universal, and inclusive openness measures among economies and regions are conducive to promoting cross-border flows of global trade and investment, deepening the global division and cooperation of labor among industries, facilitating technological innovations and transfers, lowering production costs, improving production efficiency and promoting the stable and orderly development of GVCs.

GVCs play an essential role in promoting world economic growth. There is a need to continue to promote national openness, strengthen regional coordination and cooperation, forge a global consensus on openness, and make concerted efforts to promote the healthy development of GVCs and share the dividends of economic globalization.

### NOTES

1. GVC: The total value added of goods and services in the cross-border export activities of an economy.
2. The GVCs scale indicators of 60 economies are higher in 2021 than in 2007.
3. In this chapter, the GVCs decomposition system is used to define the economic categories, where the Chinese mainland (PRC), China's Hong Kong SAR (HKG), China's Macao SAR (MAC), and Taiwan, China (TAP) are studied separately.
4. Traditional trade refers to trade activities where the production process occurs within an individual country or territory.
5. The trade in simple GVCs indicators of 59 economies are higher in 2021 than in 2007.
6. The flowing back of complex GVCs of 50 economies are higher in 2021 than in 2007.
7. The flow to other economies of trade in complex GVCs of 60 economies is higher in 2021 than in 2007.
8. Growth rates of trade in simple GVCs, flowing back of trade in complex GVCs, and flowing to other economies of trade in complex GVCs from 2008 through 2021 are calculated in simple averages.
9. Taking the 2021 data as an example, the amount of trade in complex GVCs flowing to other economies is about US\$556,935 million, and the amount of that in complex GVCs flowing back is about US\$4,640,656 million, which accounts for 89.3 percent and 10.7 percent of the world's overall amount of trade in complex

GVCs, respectively.

10. Forward GVCs participation: The share of the domestic value added of an economy's exports to its trading partners in the total value of the economy's exports, which can be further split into simple forward GVCs participation and complex forward GVCs participation.
11. Backward GVCs participation: The share of value added of an economy's exports supplied by its trading partners in the value of the economy's total exports, which can be further split into simple backward GVCs participation and complex backward GVCs participation.
12. In Fig. 8.1 to Fig. 8.3, one certain economy is ranked in descending order by its value of the corresponding indicator in the region in 2007 or 2021.
13. Revealed Comparative Advantage Index (RCA): The ratio of the share of an economy's exports in a particular industry to its total exports to the share of that industry's exports in total world exports, which is used to reflect a country's comparative advantage in a particular industry.