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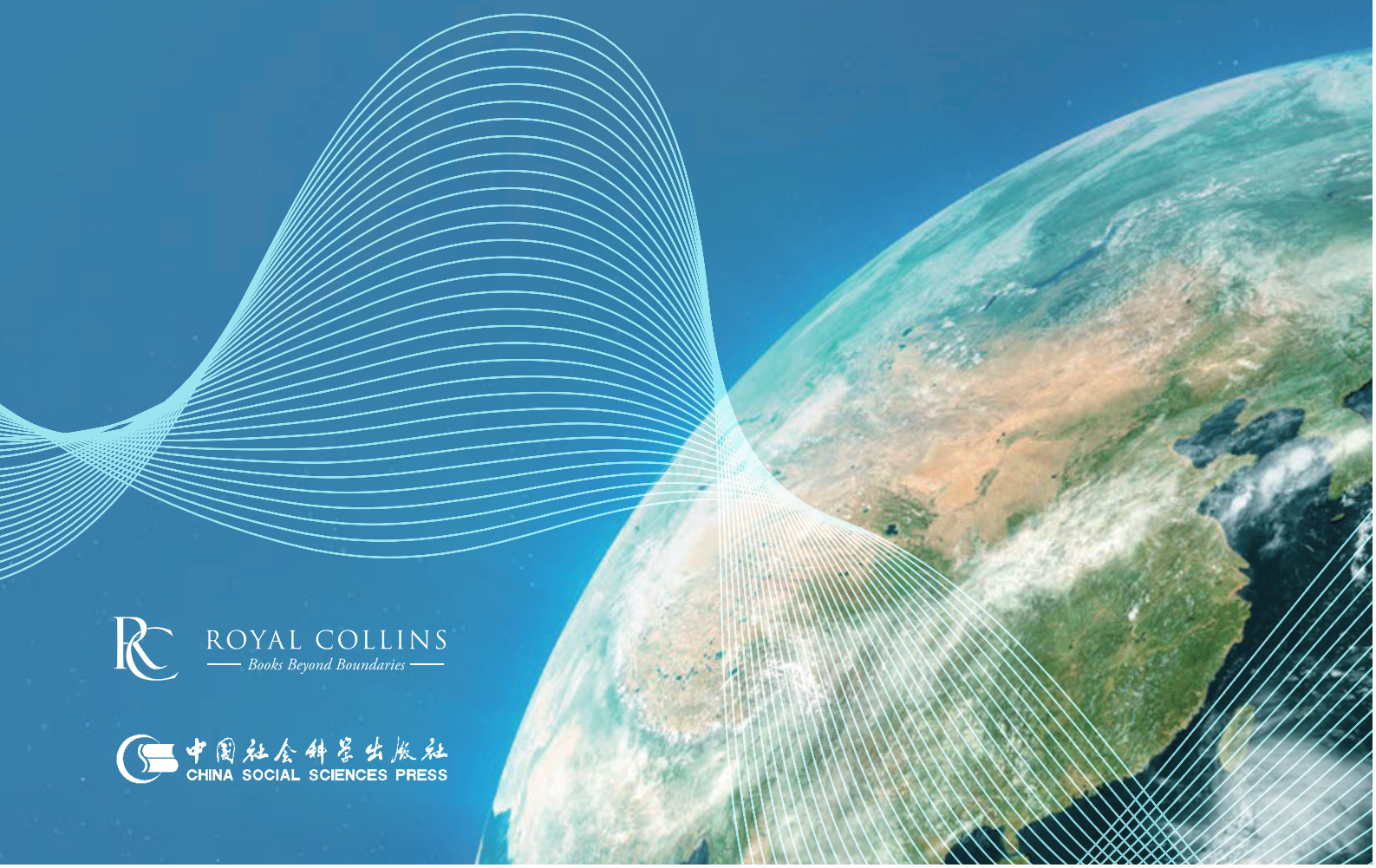
World Openness Report 2023

Institute of World Economics and Politics, CASS
Research Center for Hongqiao International Economic Forum



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Let the Light of Opening-Up Shine the World

2023 marks the third year of the World Openness Report. In the past three years, we have often heard the weakening footstep of globalization, but we have also pooled our wisdom to drum and advocate for the human community with a shared future. The world openness and cooperation have never been in such a state as they are today, making great strides while facing tough terrain ahead. Aiming to continue the mission of "building an open world economy" proposed by President Xi Jinping, this year's report centers on the major changes in the post-COVID era to launch a grand narrative of common openness in the world, under the principle of being "scientific, international and authoritative."

1. Explore Science with Scientific Spirit

As the world changes, the times and history put forward a tough question: how can we solve the problems encountered when transforming the subjective world and the objective world? Our answer is: Let the light of science and reason guide the world through the thorns to a smooth path.

Based on scientific measurement, we compiled the **World Openness Index** to gauge the openness of various economies and sectors in the world from economic, social, cultural, policy, performance, and other dimensions, striving to fill the research gap in this field as an important supplement to existing global indicators. Since its inception, the World Openness Index has gradually flourished from a scientific research "seedling" growing in the ivory tower to a practice of "sapling" in world development, won the approval of our readers, and gradually became an international public product widely recognized. Using it as a tool, we can better look back at the history of the world openness, see through the present, and look ahead to the future of it.

The principle of scientificity is a top priority in the compilation of the World Openness Index. **Be authoritative:** To accurately measure the openness of countries and regions around the world, objective and reliable data released by international authorities such as the United Nations, the World Trade Organization (WTO), and the World Bank is collected through appropriate statistical methods guided by the scientific theory of openness. **Be realistic:** In

compiling the index, we not only follow the mainstream views of the international economic community but also adapt to the practice of opening-up in today's world and the opening-up policies of various countries, with full consideration of the flow of goods, services, people, capital, information, and other factors. This index focuses on economic openness, especially trade openness, combined with related social openness and cultural openness while taking into account differences in national conditions. **Be ground-breaking:** As a breakthrough, we have compiled the index based on the most recent statistics. For some indicators of the unreleased official data for 2022, we estimated these underlying data using a common statistical method. This, for the first time, allows the 2023 World Openness Report to update the index to the year before the release of the report, that is, the latest World Openness Index 2022, effectively improving the timeliness and policy reference value.

Chapters 1 and 3 of this report highlight the latest results of the World Openness Index research in the new year. **World openness in 2022 continues the overall downward trend since 2008, with the intensified divergence of openness between countries, sectors, and regions. As active openness and conservative seclusion are colliding fiercely and stuck in a contradictory stalemate, countries still need to work together, meeting each other halfway to maintain and expand world opening-up.**

The "chill" of the world openness situation remains strong. In 2022, the World Openness Index was 0.7542, 5.4 percent lower than the 0.7975 in 2008. This is the seventh consecutive year that the index has been between 0.75 and 0.76, with a slight increase of 0.17 percent from 2020 and a decrease of 0.4 percent from 2021, and the second lowest level since 2008. This means there is still no solid foundation for a recovery. The world economy is less open, social and cultural openness is continuously at a relatively low level, while openness policy and performance remain sluggish.

The "temperature difference" of opening performance widened. In terms of contribution to world openness, in 2022, 78 economies made positive contributions, while 51 economies made negative contributions. From 2008 to 2022, the openness index for advanced economies decreased by 7.7 percent from 0.8543 to 0.7882, while for emerging economies and developing countries, it increased by 4.8 percent from 0.6741 to 0.7067. In terms of sectors, the world cultural openness index and the world economic openness index shrank by 2.9 percent and 0.4 percent, respectively, in 2022, while the world social openness index increased by 0.46 percent.

The "icebreaking" of opening impetus is expected. The World Openness Policy Index for 2022 was 0.7469, 0.9 percent lower than the previous year, and the Openness Performance Index was 0.7618, with an increase of 0.1 percent on top of the 0.1 percent increase in 2021. Scientific and technological progress, digital intelligence, green development, and other positive driving forces for global opening-up have accumulated, further facilitating the flow of factors such as goods, services, and information and improving the performance of opening-up. The policy sector has also witnessed a lot of progress. For example, thanks to the steady increase in the visa openness index from 0.76 to 1.07, the passenger volume of international flights since 2023 has recovered to more than 90 percent of the 2019 level.

2. Write Openness with an Open Mind

Since the inception of the report, we have adhered to the core principle of openness and cooperation, taking it as both a goal and a method. The purpose of the report is to build global consensus on openness, promote the opening-up of the world, and improve the well-being of people in all countries. Therefore, its compilation and release should be more inclusive and international.

In order to better demonstrate the "openness" of the World Openness Report, on the basis of fully absorbing the opinions and suggestions from the participants of the press conferences and international symposiums of the previous two reports, we held three international symposiums in Hangzhou, China in February 2023, Rome, Italy and Geneva, Switzerland in April 2023. We have listened to the opinions and suggestions from many international organizations and think tanks, including the United Nations Conference on Trade and Development (UNCTAD), the Food and Agriculture Organization of the United Nations, the United Nations Industrial Development Organization, the United Nations Global Compact, the International Trade Centre, the WTO and the World Intellectual Property Organization (WIPO). More and more experts and scholars participate in the research of the report, either as content designers, specific chapter writers, experts who review the first draft, or consulting experts of the symposium. In this way, **the report truly gathers the openness wisdom and power of the world.**

"Victory is ensured when people pool their strength; success is secured when people put their heads together." Thanks to the active and extensive participation of intellectuals with insight into politics, business, schools, and research institutes, we have conducted more in-depth academic research under the theme of opening up and reached a more pragmatic policy consensus on openness practice. From the perspective of both theory and practice, Chapter 2 and Chapters 8–11 of this report fully demonstrate the positive interaction between countries and the world in opening-up. In this way, **in this era full of uncertainty, we can understand more deeply the historical logic of "thriving in openness and withering in seclusion" and answer the "three questions" of openness.**

—Why should we open up? Both in theory and in practice, the openness of all economies and the common trend of economic development fully demonstrate that openness is the only way for national prosperity and development and a grand cause for the good of the people, countries, and the world. After World War II, the United States significantly cut tariffs by signing trade agreements, reducing its average import tariff from 33 percent in 1944 to 13 percent in 1950. The concept of free trade not only promoted the economic growth of the United States but also contributed to world economic development. Today, faced with the challenge of the sluggish recovery of the global economy and the increasingly prominent four deficits, all countries have a greater responsibility to contribute to the progress of history and promote the "win-win" of domestic development and world development through opening up together.

—By what should we open up? High-level opening-up can only be supported by high-level opening-up capacities. Only by focusing on fostering opening-up capacities can we assume

greater opening-up responsibility and obtain higher opening-up benefits. Since the WTO was established in 1995, 36 new members have joined the organization. By analyzing the trends of GDP, import and export, and foreign investment in the 30–40 years before and after their entry into the WTO, it can be found that two-thirds of the members have seen significant economic improvement since joining the WTO, while 1/3 of the members have seen little or no economic change. An important reason for the difference in profit and loss of countries after joining WTO is the difference in their opening-up capacities. Therefore, all countries in the world, especially emerging markets and developing economies, need to attach great importance to the building of national opening-up capacities.

—To what extent should we open up? The optimal openness should be the most appropriate openness. When the opening-up capacity is utilized to the greatest extent, the corresponding openness would be the most appropriate. "A tasty orange grown in southern China would turn sour once it is grown in the north." We should tread a "fine line" when opening up in different periods and at different levels of development, neither feeling inhibited nor being blind or bold. The increase in a country's development level will lead to the progress of its opening-up capacity, so the appropriate openness should also be stepped up synchronously. Over the past 45 years of reform and opening-up, China's coastal, inland, and border areas have opened up in a gradual manner, in the order of "point–line–plane." Coming into the new era, China is pursuing a more proactive strategy of opening up, with CIIE achieving greater success and the Belt and Road Initiative (BRI) becoming a popular international public product and a platform for international cooperation. China has embarked on a path of opening-up and reform and positive interaction between China and the rest of the world, becoming an example of appropriate openness.

3. Surge Innovation with Innovative Trends

Since the birth of economic globalization, its multi-dimensional and complex characteristics have been constantly changing, with both positive and negative effects that vary from country to country, but the role of enterprises as the main body of globalization remains still. Based on this, despite desk work, we paid more attention to investigation and research. When compiling the 2023 report, we not only invited the representative world's top 500 enterprises to participate in the discussion but also approached the front line of enterprises to deeply explore the "source of running water."

From China's coastal counties to the other side of the ocean, from traditional manufacturing factories to emerging platform enterprises, we see that, at present, when the stock competition is intensified and the "involution" game is upgraded, entrepreneurs pay more attention to mining increment, constantly "making the cake bigger." When the noise of "hemispherization," "slowbalization," "the end of globalization," and so on is causing a great clamor, the industrialists are talking more about "new track," "new blue ocean," and even "new globalization."

As a "pathfinder" observing the world's opening-up trend, we are keenly aware that innovation is both a task and an opportunity in the new era. Chapters 4 and 5 of this report focus on the far-reaching impact of the digital economy and green trade on international economic and trade cooperation, demonstrating that, **under the new trend of digital and green, globalization will not dissipate but will break new ground.**

Digital economy as a new engine. As a major economic form following the agricultural economy and industrial economy, the digital economy has not only given birth to new industries but also empowered thousands of industries, thus becoming an underpinning driving force for global economic growth and innovative development. It is estimated that by 2026, the digital economy of the world's major countries will account for 54 percent of global GDP. With the vigorous growth of the digital economy and digital trade, the intension and extension of digital-related rules are also expanding. Cross-border data flows, digital intellectual property rights, and tax-related rules are all breaking new ground and being incorporated into a growing number of international agreements. Digital technology will surely bring a strong impetus to greater openness with its gift of overcoming barriers to human communication.

Green and low-carbon as a new track. Green and low-carbon is a path we must take to achieve sustainable development. In 2022, the total import and export volume of green trade in the world reached US$8.84 trillion. Over the past decade, green trade has accounted for 20 percent to 23 percent of the total global trade in goods, where there is still huge room for growth. Countries should strengthen communication and coordination on carbon pricing and carbon rules, reduce "green barriers," and accelerate the spread of green and low-carbon products and technologies worldwide, which will certainly open up broader areas for openness cooperation.

New changes in the opening-up pattern. With economic globalization facing headwinds, the global order is to be restored. As important participants in world opening-up, emerging markets and developing economies have a stronger desire and more urgent need to seek mutually beneficial opening-up. In the past two decades, emerging markets and developing economies have outpaced advanced economies in terms of economic growth and generally maintained a higher trade growth rate than that of advanced economies, continuously making larger contributions to global value chains (GVCs). They are also increasingly becoming the focus of international investment, playing a bigger role in world opening-up and global economic governance and promoting economic globalization to be open, inclusive, balanced, and beneficial for all.

4. Make History from a Historical Perspective

Speaking of openness, the security issue that goes along with it is one that cannot be ignored and is increasingly mentioned and paid attention to. When rationality gives way to self-opinioned values and efficiency gives way to the absolute security outlook, how can we correctly view the opening-up and national security in the context of economic globalization? To know great truths, one must study history.

Is openness and security mutually exclusive? Is being open certainly unsafe? There is a saying in the West, "Either the goods go out, or the soldiers go out." Both the Anglo-Dutch War and the American War of Independence had something to do with trade monopoly. The Ming Dynasty fought with the Northern Yuan regime by fits and starts. But once the commodity exchange market was opened, it would bring peace and tranquility to the border. Zhang Qian's "pioneering journey," originally intended to unite with Da Yuezhi to combat the Huns, eventually opened the Silk Road that lasted for two thousand years.

History shows that openness will indeed increase a country's risk factors, but trade and information exchange with the outside world will also strengthen its capacity, enhance its ability to maintain security, and help it obtain a more stable external environment through enhanced mutual trust and deepened binding of interests with the outside world. The Cold War mentality cannot bring security, nor can beggar-thy-neighbor policy. The fundamental way out for world security is to **advocate the vision of common, comprehensive, cooperative, and sustainable security and balance openness and security at a higher level**. Chapters 6 and 7 of this report reveal the dialectical relationship between openness and security from a theoretical perspective.

Flourish together rather than harming each other. The entropy law of physics also proves that openness is not necessarily dangerous, but seclusion is surely not safe. This report suggests that the appropriate openness of an economy is the openness guaranteed by its opening-up capacity. Under appropriate openness, the more open an economy is, the more it develops and the more secure it is. We should not emphasize only the security of openness at the expense of the openness and development of security.

Take the middle course rather than the extreme. In an interconnected world, there is no such thing as absolute security because when one side tries to achieve "absolute security," the other side will feel "absolutely insecure." The generalization and polarization of security will only make a country rigid inside and conservative in external relations, which will hurt both others and itself. "Generalization of security" will lead to "generalization of insecurity." Similarly, openness without security protection is uncertain and unsustainable. We should find the best combination of optimal openness, optimal security, and maximum development at the global level.

Be harmonious and cooperative rather than exclusive. As global security issues become increasingly interconnected, transnational, and diverse, the report believes that an equal, open, cooperative, and shared world economic order is crucial to enhancing the resilience and security of industrial chains and supply chains. All countries should uphold multilateralism to balance openness and security, enhance opening-up capacities through win-win cooperation, and expand common security through exchanges and mutual learning. As Mark Twain said, "If your only tool is a hammer, everything starts to look like a nail." In the era of walking hand in hand, we should not only see the so-called "security" tools but also see the ideas of "promoting harmony among all nations" in Chinese civilization, the "universal love for all" in Western civilization, and the "tolerance and kindheartedness" in Islamic civilization, to better solve common challenges through solidarity and cooperation.

Looking back at the earth from hundreds of millions of kilometers away, when the gullies and mountains are leveled, when the sea and land boundaries disappear, and when there are no more boundaries between races and civilizations, the fact that mankind is a unified community of shared future becomes more concrete. We should make the right choice between progress or retrogression, openness or seclusion, cooperation or confrontation so as not to let this planet wander or even go astray. As science fiction writers once asserted, "The choice is: the Universe … or nothing," we can also predict that either we embrace openness or nothing. To advance opening-up, cooperation and win-win development, instead of seclusion, confrontation, and monopoly, should be the basic consensus on which we forge ahead and jointly pursue the beautiful dream of mankind.

CHAPTER 1

World Openness Index 2022

The world economy thrives in openness and withers in seclusion. At present, the world is facing unprecedented changes, which continue to accelerate. The human society is once again standing at the "crossroads" of choice. The World Openness Index indicates that the world's openness has been in the doldrums in recent years, but we can also see hope for expansion.

In terms of the calculation of the openness index, two points need to be explained. First, in order to provide timely statistics from 2022, the Openness Index is compiled once a year. The index of the most recent year is mainly based on the evaluation with standard methods on the part of the available basic data of the year. Subsequent adjustments will be made based on the latest data, and subsequent *World Openness Report* will be updated accordingly.[1] Second, the data for GDP, which is used to weight economies in the regional and world openness index, had changed (from constant 2010 prices to constant 2015 prices). In this chapter, the indexes of 2021 to 2022 are calculated according to the updated scope, and the historical data for 2008 to 2020 are adjusted accordingly.

1. World Openness Index

(1) World opening-up continued to slow down

The 2022 World Openness Index was at 0.7542, down 0.4 percent from 2021, 0.4 percent from 2019 and 5.4 percent from 2008.

The 2021 World Openness Index was 0.7573, up 0.6 percent from 2020, slightly exceeding that in 2019, but a decrease of 5.0 percent from 2008.

For details of the World Openness Index during the period 2008–2022, see Fig. 1.1.

The 2022 World Openness Index was 0.0031 units lower than in 2021, which is the combined result of the expansion or tightening of openness in 129 economies.

—The main factors for expanding openness include the increase in international trade, the recovery of international tourism and studying abroad, the re-opening of cross-border entry

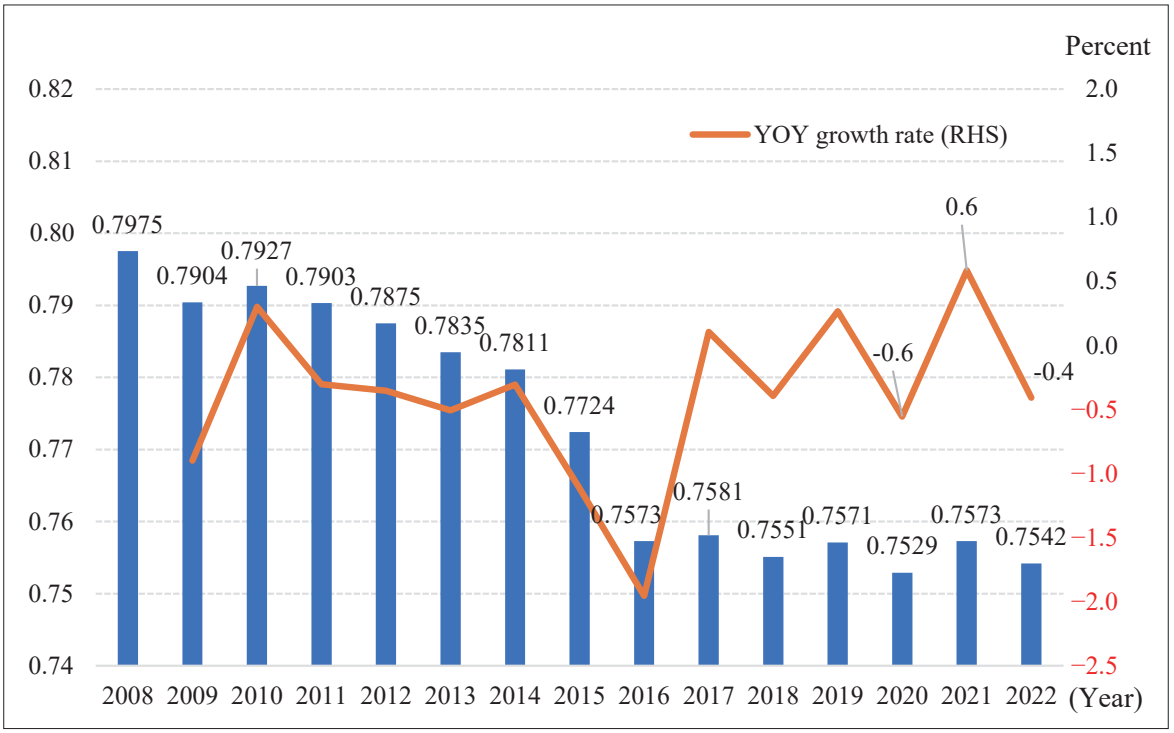

Fig. 1.1 World openness indexes: 2008–2022

and exit policies, and the signing of international investment agreements. The contribution to the World Openness Index has increased by 0.00388, 0.00028, 0.00015, and 0.00008 units, respectively, from 2021, a total increase of 0.00439 units.

—The main factors for tightening of openness include an increase in non-tariff measures, a decrease in cross-border direct investment, a decrease in the international citation of scientific literature, and a tightening of financial openness policies, resulting in a decrease of 0.00488, 0.00104, 0.00059, and 0.00014 units in their contributions to the World Openness Index from 2021, with a total decrease of 0.00665 units.

—The contribution of 78 economies to the World Openness Index in 2022 exceeded their contribution in 2021, with a total increase of 0.0043 units. In this increment, India accounted for 16.3 percent, Ireland for 7.1 percent, and Spain for 6.4 percent.

—The contribution of 51 economies to the World Openness Index in 2022 was smaller than that in 2021, with a total decrease of 0.00738 units. In this reduction, the United States accounted for 23.6 percent, Japan for 16.6 percent, and Germany for 11.2 percent.

The World Openness Index in 2022 decreased by 0.0433 units compared to 2008, and the overall level of world openness has shown a tightening trend over the past 15 years.

From 2008 to 2022, economies such as Nepal, Cabo Verde, Iceland, Rep. of Korea, and China saw the largest increase in their openness index. China has achieved significant progress in expanding its opening up to the outside world, with its openness index rising from 0.6789 to 0.7517, ranking among the top areas in the world.

(2) Top 20 most open economies

Singapore is the most open economy in 2022, whose openness index ranks first among the 129 economies. In the fifteen years since 2008, Singapore has consistently been the world's most open economy for the last eight years (2015–2022) and ranked second in the world in the seven years before that (2008–2014).

Germany and China's Hong Kong Special Administrative Region (SAR) continue to rank second and third, respectively, in the list of the World Openness Index in 2022. Both economies have been in second to fourth place in the world for the past 15 years.

Ireland, Malta, the Netherlands, Australia, Switzerland, Cyprus, and the United Kingdom ranked fourth to tenth, respectively.

Belgium, Canada, France, the Rep. of Korea, Austria, New Zealand, Luxembourg, Sweden, Greece, and Denmark ranked eleventh to twentieth respectively.

Six members of the G20, including Germany, Australia, the United Kingdom, Canada, France, and the Rep. of Korea, are among the twenty most open economies.

Details of the rankings of the aforementioned economies in the Openness Index of 2008 and 2019 to 2022 are shown in Table 1.1.

Table 1.1 The 20 most open economies in 2022

Economy	2022	2021	2020	2019	2008
Singapore	1	1	1	1	2
Germany	2	2	2	3	3
Hong Kong, China	3	4	3	2	4
Ireland	4	3	4	4	11
Malta	5	6	9	9	7
Netherlands	6	10	11	7	9
Australia	7	8	6	6	25
Switzerland	8	9	8	8	12
Cyprus	9	12	15	15	16
United Kingdom	10	11	7	5	5
Belgium	11	14	14	14	13
Canada	12	7	5	11	8
France	13	15	13	13	10
Korea, Rep. of	14	13	10	10	55

(Continued)

Economy	2022	2021	2020	2019	2008
Austria	15	18	21	20	19
New Zealand	16	17	17	17	21
Luxembourg	17	5	12	16	49
Sweden	18	22	24	25	20
Greece	19	24	30	34	36
Denmark	20	20	25	23	26

Note: Sorted by the 2022 ranking, G20 members in bold.

The data and rankings of the 129 economies on the list of World Openness Index since 2008 can be found in parts I and II of the Appendix of this report.

2. Openness Index on Certain Subjects

The openness in relevant areas (economy, society, culture[2]), policies, and performance[3] in recent years is demonstrated as follows.

(1) World economic and cultural openness tightened, and social openness slightly increased

The Economic Openness Index has slipped. The World Economic Openness Index was 0.8948 in 2022 (see Fig. 1.2), both down 0.4 percent from 2021 and 6.7 percent from 2008 but up 1.2 percent from 2019.

The top 10 economies on the 2022 Economic Openness Index list are as follows: Singapore, China's Hong Kong SAR, Germany, Ireland, Malta, Switzerland, Belgium, the Netherlands, France, and Lithuania.

From 2008 to 2022, the economies with a significant increase in economic openness index were Nepal (89.4 percent), Cabo Verde (13.6 percent), Iceland (13 percent), Rep. of Korea (11.7 percent), and Cambodia (9 percent).

Cultural openness index has significantly decreased. The World Cultural Openness Index in 2022 was 0.3184 (see Fig. 1.2), a year-on-year decrease of 2.9 percent, a decrease of 2.7 percent from 2019, and a decrease of 21.7 percent from 2008. Over the past 15 years, the index has continued to fluctuate and decline.

—In the year-on-year decline of the World Cultural Opening Index in 2022, international citation of scientific and technological literature accounted for 54.8 percent, cultural goods trade for 21.6 percent, and trade in intellectual property for 19.6 percent.

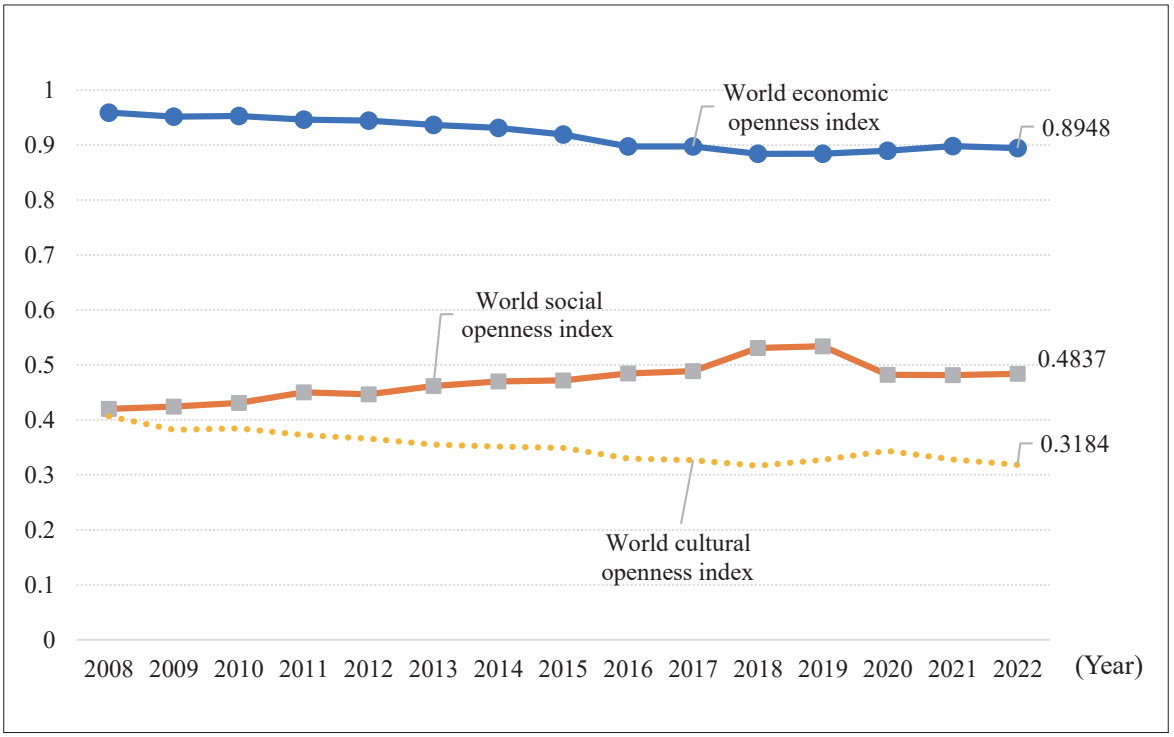

Fig. 1.2 World economic, social, and cultural openness indexes: 2008–2022

—In 2022, the top ten economies with the highest cultural openness index were the United States, Ireland, Luxembourg, China's Hong Kong SAR, Singapore, Germany, China, Cambodia, Japan, and Canada.

—From 2008 to 2022, the economies with a significant increase in the cultural openness index were Greece (355.2 percent), Luxembourg (224.8 percent), Sudan (173.2 percent), Azerbaijan (125.3 percent), and Armenia (121.5 percent).

Social openness index slightly rebounded. The World Social Openness Index in 2022 was 0.4837 (see Fig. 1.2), with a YOY growth rate of 0.46 percent, a decrease of 9.4 percent from 2019, and an increase of 15.2 percent from 2008. In the past 15 years, the index has been on the rise for most of the time, but due to factors such as the pandemic, it significantly decreased by 9.8 percent in 2020 and further decreased by 0.1 percent in 2021.

—In 2022, the top ten economies with the highest social openness index were China's Macau SAR, Germany, Australia, Singapore, Cyprus, the United Kingdom, Luxembourg, Austria, Canada, and New Zealand.

—From 2008 to 2022, the economies with a significant increase in social openness index were Albania (196.5 percent), Bosnia and Herzegovina (161.3 percent), Georgia (159.5 percent), Colombia (154.7 percent), and Mauritius (118.4 percent).

(2) Small differentiation was seen between World Openness Policies and Openness Performance in 2022

The openness policy index has declined. In 2022, the World Openness Policy Index was 0.7469 (see Fig. 1.3), a YOY decrease of 0.9 percent, and both decreased of 0.1 percent from 2019 and 7.7 percent from 2008.

—In 2022, the top ten economies with the highest openness policy index were Singapore, Switzerland, Australia, Lithuania, Rep. of Korea, Latvia, Estonia, Germany, Italy, and Spain.

—From 2008 to 2022, the economies with significant increases in the openness policy index were Nepal (109.3 percent), Cabo Verde (16.1 percent), Rep. of Korea (15.31 percent), Iceland (15.26 percent), and Costa Rica (12.7 percent).

The open performance index slightly increased. In 2022, the World Openness Performance Index was 0.7618 (see Fig. 1.3), a YOY increase of 0.1 percent, a decrease of 0.73 percent compared to 2019, and a decrease of 2.9 percent compared to 2008.

—In 2022, the top ten economies with the highest open performance index were the US, Singapore, China's Hong Kong SAR, Germany, China, Ireland, China's Macau SAR, Malta, Luxembourg, and the Netherlands.

—From 2008 to 2022, the economies with a significant increase in the open performance index were Nepal (54.4 percent), China (18.2 percent), Luxembourg (14.8 percent), Cambodia (12.3 percent), and Ireland (11.9 percent).

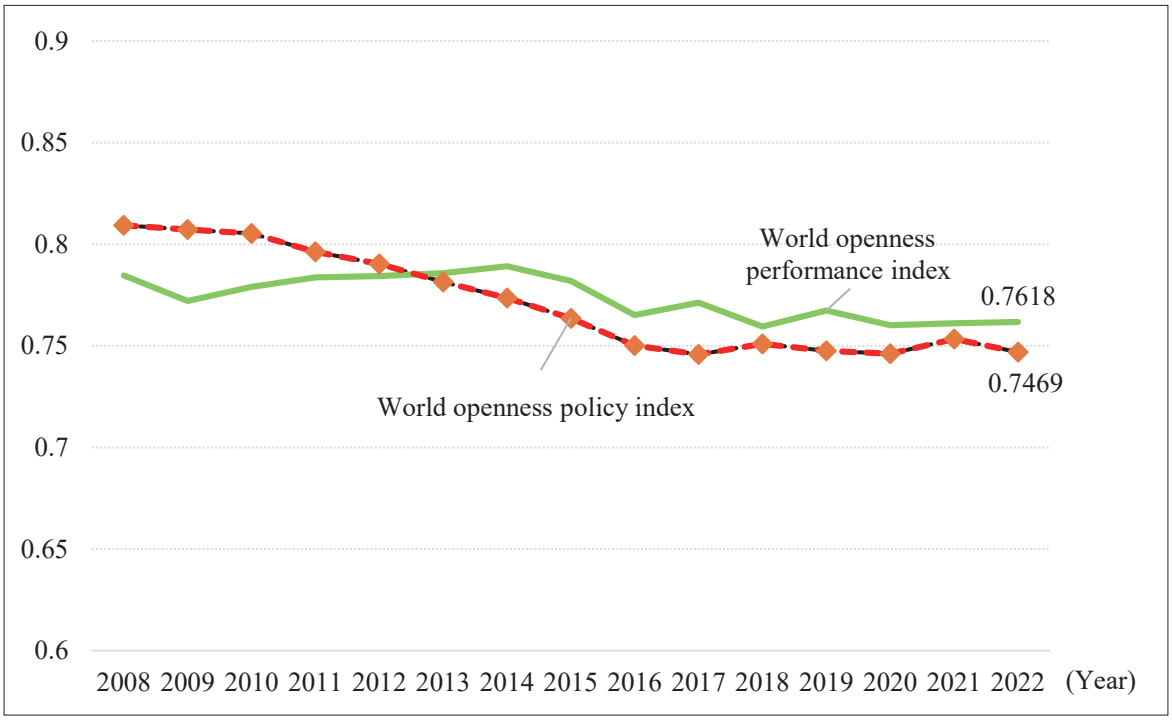

Fig. 1.3 World openness policy and performance indexes: 2008–2022

3. Openness Index by Different Groups of Economies

The 129 economies covered by the World Openness Index can be grouped according to geographic locations, income level, and development level. In addition, there are Belt and Road countries, G20,[4] and the BRICS countries.[5] The World Bank was used as a reference for groupings of geographic location and income level, while the International Monetary Fund (IMF) was used as a reference for the grouping of the development level. For details of the economies in each group, see part IV of the Appendix.

(1) Openness of South Asia, East Asia and the Pacific Ocean region expanded slightly, and others tightened up in 2022

The 2022 Openness indexes of different geographic regions are as follows, in descending order: Europe and Central Asia ranked first, with an openness index of 0.7788; North America and East Asia and the Pacific Ocean region ranked second and third, respectively, with openness indexes of 0.7763 and 0.7592 respectively; and Latin America and the Caribbean Area, the Middle East and North Africa, South Asia, and Sub-Saharan Africa ranked fourth to seventh respectively. Their openness indexes were 0.6918, 0.6811, 0.6453 and 0.6203 respectively.

There were only two regions whose openness index increased in 2022: South Asia and East Asia and the Pacific Ocean region. Their openness indexes increased by 0.22 percent and 0.01 percent, respectively. The remaining five regions experienced declines in openness, with the Middle East and North Africa experiencing the largest decline of 0.82 percent. The other four experienced declines of between 0.1 percent and 0.6 percent.

Compared to 2019, openness indexes of Latin America and the Caribbean Area saw the biggest declines in 2022, falling by 1.54 percent; the Middle East and North Africa declined by 1.1 percent, South Asia down by 0.58 percent, East Asia and the Pacific Ocean region down by 0.5 percent.

The movement of openness from 2008 to 2022 in the above regions falls into two categories: three regions with expanding openness, namely East Asia and the Pacific Ocean region, South Asia, and Europe and Central Asia, with openness indexes increasing by 4.6 percent, 2.7 percent, and 1.8 percent respectively; four regions with tightening openness, in which North America showed the largest decline of 18.4 percent, the Middle East and North Africa experienced a decrease of 1.15 percent.

Details of the openness index of each region since 2008 are shown in Fig. 1.4.

(2) Openness of lower-middle-income economies declined significantly in 2022

The 2022 openness indexes of high-income, upper-middle-income, lower-middle-income, and low-income economies are 0.7853, 0.7232, 0.6056, and 0.6489, respectively. Openness indexes

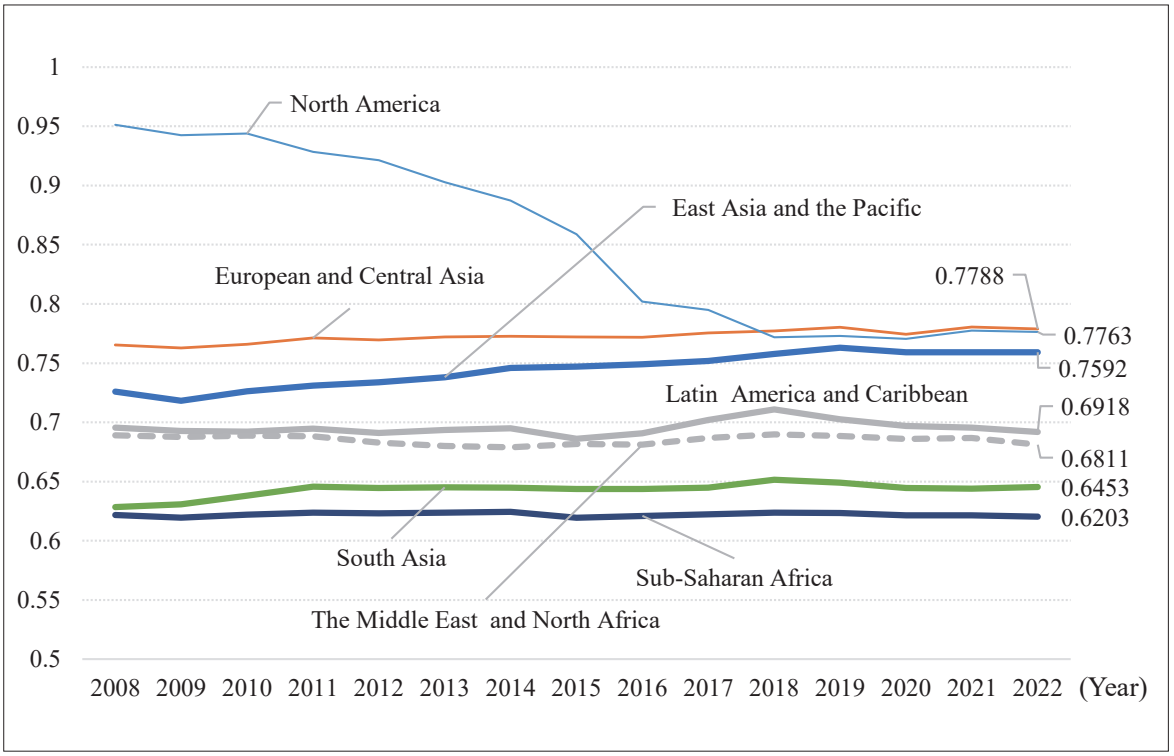

Fig. 1.4 Openness indexes of seven regions: 2008–2022

of the first two groups of economies are the highest, while that of the lower-middle-income economies is the lowest.

Compared to 2021, except for low-income economies, the openness of the other three groups of economies in 2022 has tightened. The openness index of high-income economies decreased by 0.37 percent, upper-middle-income economies decreased by 0.5 percent, and lower-middle-income economies decreased by 0.54 percent. Low-income economies saw a slight increase of 0.1 percent.

Compared to 2019, all four groups of economies experienced a tightening in openness in 2022. Among them, the openness index of high-income economies decreased by 0.24 percent, upper-middle-income economies decreased by 0.32 percent, lower-middle-income economies decreased by 0.57 percent, and low-income economies decreased by 0.23 percent.

From 2008 to 2022, openness tightened only in high-income economies, with the openness index declining by 7.5 percent; it widened in the remaining three groups of economies, with the openness indexes of upper-middle-income, lower-middle-income, and low-income economies increasing by 6.3 percent, 5.1 percent, and 0.6 percent, respectively.

Fig. 1.5 demonstrates the details of the openness index by different income groups since 2008.

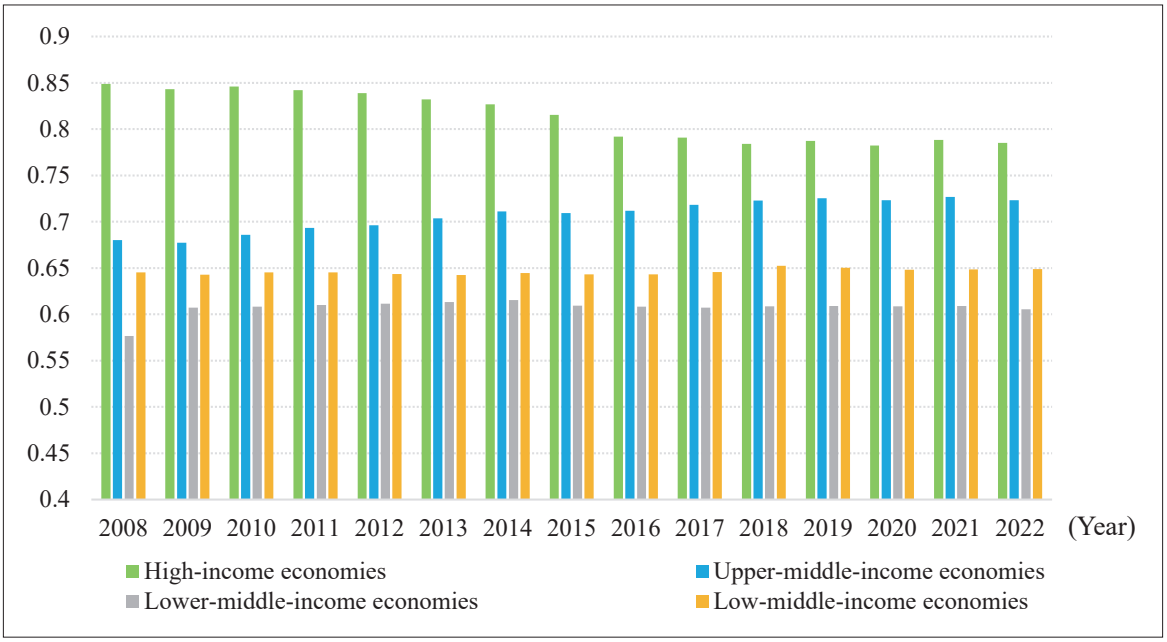

Fig. 1.5 Openness indexes of economies by income groups: 2008–2022

(3) Openness tightened in emerging market and developing economies as well as advanced economies in 2022

The IMF categorizes global economies into advanced economies, emerging markets, and developing economies. Currently, there are 41 advanced economies and 156 emerging market and developing economies, of which 36 and 93, respectively, are samples of the World Openness Index.

Both groups slightly tightened openness in 2022. The openness index of advanced economies was 0.7882, and that of emerging market and developing economies was 0.7067, down 0.34 percent and 0.44 percent, respectively, over 2021.

Compared to 2019, the openness of both groups tightened slightly. The openness index of advanced economies fell by 0.2 percent, while that of emerging market and developing economies fell by 0.3 percent.

From 2008 to 2022, the openness index of advanced economies fell by 7.7 percent, while that of emerging market and developing economies increased by 4.8 percent. Over the past fifteen years, openness has been predominantly tightened in advanced economies and widened in emerging markets and developing economies, and the decline in the former has outpaced the rise in the latter.

The openness trends of the two economic groups since 2008 are shown in Fig. 1.6.

Among the advanced economies, the openness indexes of the EU, particularly the Euro Area and the G7, are shown in Fig. 1.7.

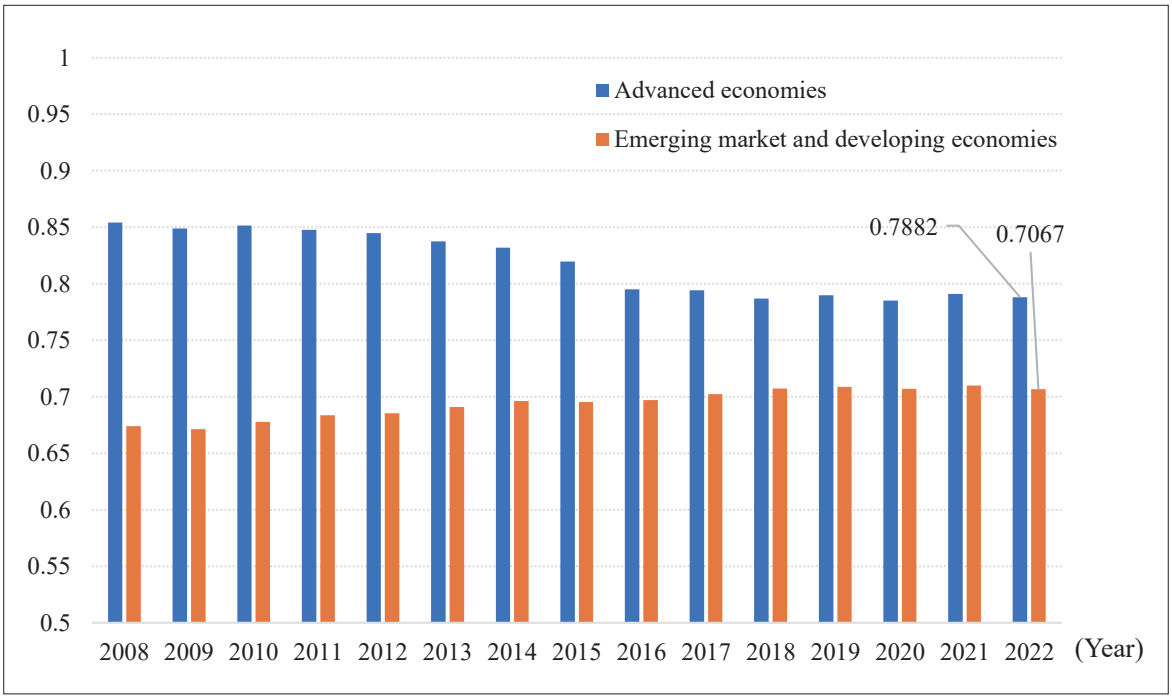

Fig. 1.6 Openness indexes of advanced economies and the emerging market and developing economies: 2008–2022

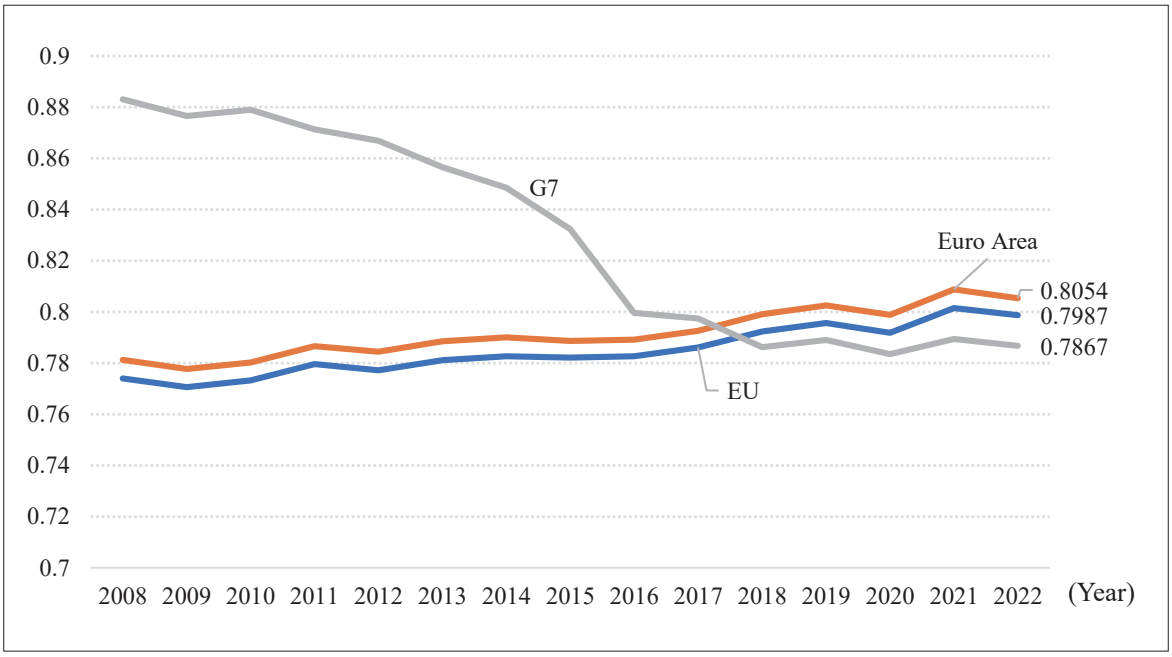

Fig. 1.7 Openness indexes of the EU, Euro Area, and G7: 2008–2022

Since 2008, especially after 2020, the EU has been an important force in widening world openness:

The openness index of the EU was 0.7987 in 2022, down 0.35 percent from 2021, up 0.4 percent from 2019, and up 3.2 percent from 2008.

The openness index of the Euro Area was 0.8054 in 2022, down 0.42 percent from 2021, up 0.36 percent from 2019, and up 3.1 percent from 2008.

In contrast to the EU or the Euro Area, the G7's openness index has been declining from 2008 to the present. In addition, the decline is much greater than that of the World Openness Index. The group's openness index was 0.7867 in 2022, down 0.3 percent from 2021, 0.3 percent from 2019, and 10.9 percent from 2008. Prior to 2018, the G7's openness index exceeded those of the Euro Area and the EU, but the gap between them narrowed rapidly. Since 2018, the G7's openness index has been lower than those of the other two.

(4) Openness of the G20 declined

The G20 comprises 19 member states and the EU, of which 19 states are in a sample of the World Openness Index. The openness index for the group as a whole is shown in Fig. 1.8.

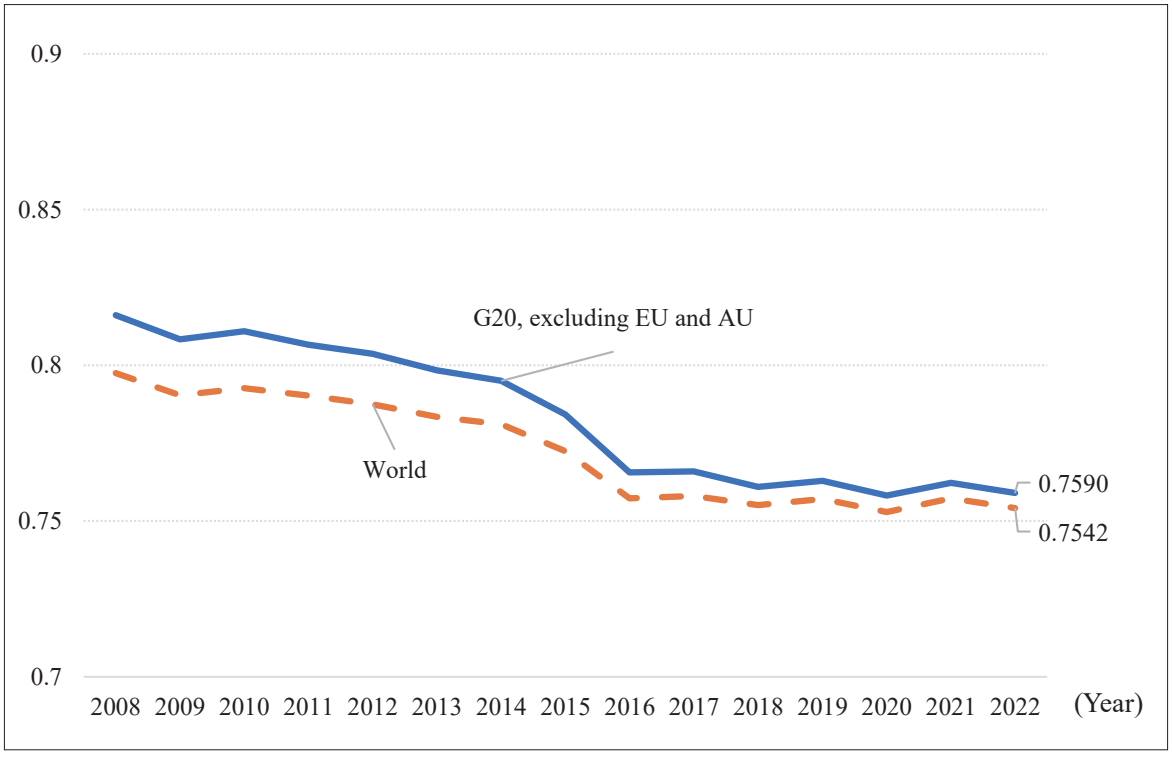

Fig. 1.8 Openness indexes of the G20 (excluding the EU and AU): 2008–2022

In 2022, the openness index of the G20 was 0.7590, down 0.4 percent from 2021, 0.5 percent from 2019, and 7 percent from 2008.

From 2008 to 2016, the G20's openness tightened quickly, with the openness index falling from 0.8161 to 0.7656. Since 2017, the G20's openness index has been fluctuating slightly between 0.7580 and 0.7660.

The gap between the G20's openness index and that of the world continues to narrow. The ratio of the two openness indexes ranged between 1.023 and 1.018 from 2008 to 2014, declining rapidly since 2015, down to around 1.006 in 2022. The continued tightening of openness of the G20 in recent years is worth particular attention.

(5) Opening-up of the countries involved in the BRI decreased slightly

There are more than 150 countries involved in the BRI, 99 of which are in the sample of the World Openness Index. The overall openness index is shown in Fig. 1.9.

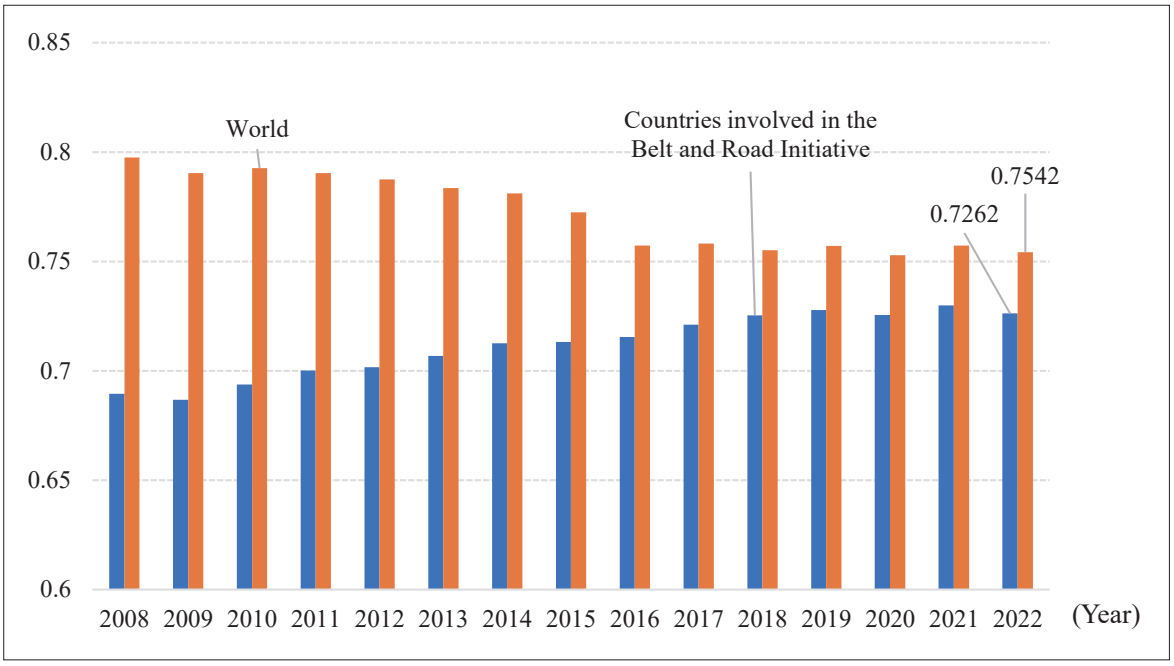

Fig. 1.9 Openness indexes of countries involved in the BRI: 2008–2022

In 2022, the openness index of countries involved in the BRI was 0.7262, down 0.5 percent from 2021, down 0.2 percent from 2019, and up 5.3 percent from 2008.

The ratio of the openness index of the countries involved in the BRI to that of the world stood at 0.86 in 2008, gradually climbed to 0.96 in 2018, and has remained stable ever since.

(6) Openness of the BRICS countries decreased

The openness index of the BRICS countries as a whole is shown in Fig. 1.10.

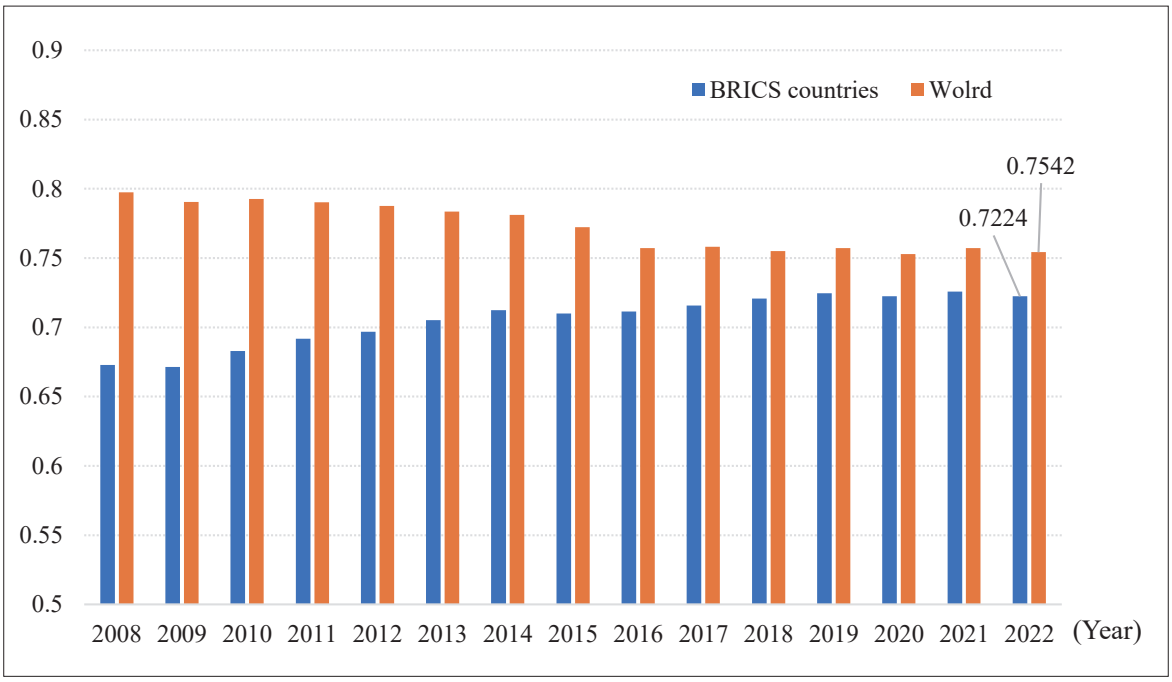

Fig. 1.10 Openness indexes of BRICS countries: 2008–2022

In 2022, the openness index of the BRICS stood at 0.7224, down 0.5 percent from 2021 and 0.3 percent from 2019; however, up 7.4 percent from 2008.

Since 2008, the openness index of the BRICS has continued to rise from 0.6728. In 2013, it surpassed 0.7 and rose to 0.7051, and reached a new high of 0.7257 in 2021.

The gap in openness between the BRICS countries and the world has been narrowing. The ratio of the openness index of the BRICS countries to that of the world was 0.844 in 2008 and 0.958 in 2022.

In general, the trend of world openness has continued to descend since 2008. In 2022, world openness remained sluggish. The forces of tightening and expanding opening-up are intertwined, leading to an increasingly complex landscape. Openness has tightened in high-income economies together with the G20 and the BRICS countries, which deserves high concern.

NOTES

1. This calculation method is an internationally accepted practice. The *World Openness Report 2022* updated the World Openness Index to 2020, and this report updates it to 2022.
2. The economic openness index covers basic indicators such as international trade in goods and services, international direct investment, and international securities investment. The social openness index covers basic indicators such as international tourists, international students, and immigrants. The cultural openness index covers basic indicators such as international trade in intellectual property, cross-border patent applications, international scientific literature citation, and international trade in cultural goods.
3. The openness policy refers to cross-border opening-up policies in economic, social, and other dimension. The openness performance refers to the flow of cross-border economic, social, and cultural open carriers, reflecting the immediate results of openness. For the concept, theory, methods, and data of the World Openness Index, please refer to the part III of the Appendix of this report.
4. The openness index here only covers the 19 member countries of the G20, excluding the EU and the African Union. On September 9, 2023, the African Union officially joined, and the number of G20 members increased to 21.
5. "The BRICS countries" in this report refers to Brazil, Russia, India, China, and South Africa. On August 24, 2023, BRICS expanded to 11 countries.

CHAPTER 2

Openness Capacity and Warranted Openness

The key variable in determining whether a country's openness is warranted or not is its state capacity to open up. This chapter focuses on the connotation and extension of state capacity to open up, introduces measurement methods for openness capacity, and takes the G20 members as the sample to measure their openness capacity, evaluate the general quantitative relationship between openness and the capacity to open up, and assess the warrantedness of openness of these countries during specific periods.

1. Openness Capacity from the Perspective of Warranted Openness

The warranted openness of a country refers to the openness level warranted by the country's state capacity to open up.[1] Openness capacity is the key factor in determining the warrantedness of openness.[2]

(1) The connotation of state capacity to open up

State capacity to open up refers to the strength, skills, qualities, attributes, or attitudes of an economy to gain the benefits of openness while assuming corresponding responsibilities. Guided by specific ideologies and within a particular institutional environment, an economy engages in economic, social, and cultural interactions with other economies. Through both competition and cooperation, they mutually conduct cross-border exchanges and allocation of goods, services, personnel, capital, technology, knowledge, information, and data, facilitating production, exchange, and consumption.

Box 2.1 What are ability and relevant terms?

The term "ability" in Chinese has a clear meaning: the comprehensive quality manifested in achieving a goal or completing a task, or "energy and strength."[3] The ability of any actor mainly comprises three layers of meaning: the comprehensive quality or resource elements mastered in certain tasks, the actual efficacy achieved in practice, and comparatively positive psychological traits displayed in completing tasks.[4]

In English, there are multiple terms related to the Chinese concept of "ability," such as:

—Ability: A general word for power or skills to do or act physically, intellectually, mentally, legally, morally, or financially, or the quality, attribute, and state of being capable. It broadly refers to all kinds of abilities, including actual and potential abilities, either innate or acquired.

—Capacity: More formal than ability. It refers to the current existing ability and usually signifies the maximum actual ability. Most of the existing literature on "state capacity" uses this term.

—Capability: Often refers to the maximum ability that can be developed under appropriate conditions, namely potential ability. It emphasizes both quantity and quality and is usually higher in quantity than "capacity." Literature using "state capability."[5]

—Competence: Often refers to the professional ability that is sufficient to meet the quality and performance requirements of a particular practice.

The above summary is mainly based on search results from the website thefreedictionary.com, which integrates contents from classic English dictionaries, including *Collins English Dictionary*, *Dictionary of the English Language* (American Heritage), *Kernerman English Multilingual Dictionary*, *Random House Kernerman Webster's College Dictionary* and *WordNet 3.0*.

(2) The extension of state capacity to open up

The extension of state capacity to open up can be understood through the "Concept–Institution–Resource" framework. Accordingly, it can be assessed at three levels: National Openness Concept, National Openness Institutions, and National Resources for Openness.

National Openness Concept. The national openness concept should base itself on a country's national conditions, including cultural and historical traditions, natural geographical environment, socio-economic development, and international relations. It should also align with global trends of development in science, technology, economy, and civilization. Major openness concepts include the Openness Concept of Win-Win Cooperation, the Openness Concept of Zero-Sum Confrontation, the Openness Concept of Isolation, and the Openness Concept of Isolation Before Opening Up.

—Openness Concept of Win-Win Cooperation. A country's cross-border openness not only safeguards its sovereignty, security, and development interests but also maintains and enhances the well-being of its people. It also advances global peace and development and promotes the building of a community with a shared future for mankind. National openness must be independent, and international interactions should be based on the principles of mutual respect

for sovereignty and territorial integrity, non-aggression, non-interference in internal affairs, equality and mutual benefit, and peaceful coexistence. Global governance should be based on extensive consultation, joint contribution, and shared benefits. Global security should be common, comprehensive, cooperative, and sustainable. Global development should be equitable, inclusive, open, coordinated, innovative, and interconnected. Interactions between different civilizations should be based on equality, mutual learning, dialogue, and inclusiveness.

—Openness Concept of Zero-Sum Confrontation. As countries open up to each other, international relations are primarily competitive rather than cooperative, with the all-round relations between nations defined by local competitions. In the opening up of the global economy, society, culture, and other fields, countries or groups of countries engage in exclusive competition. The strongest nations establish global hegemony, dominate the world order in various fields, and reap most of the benefits of openness, while the weaker nations receive a small part of the benefits, and their long-term development is hindered.

—Openness Concept of Isolation. A country strictly limits or even completely prohibits economic, political, social, and cultural exchanges with other nations. It neither directly benefits from international openness nor assumes the responsibilities that come with international openness.

—Openness Concept of Isolation Before Opening Up. If a country has no evident comparative advantages on the global stage, it should first cultivate its capabilities in an absolutely or relatively closed environment. After forming distinct international comparative advantages through isolation, it can open its doors to compete and cooperate with other nations, thereby obtaining corresponding benefits of openness and fulfilling its due international responsibilities.

Overall, the Openness Concept of Win-Win Cooperation is ideal, while the Openness Concept of Isolation is relatively extreme. The Openness Concept of Zero-Sum Confrontation and the Openness Concept of Isolation Before Opening Up represent specific combinations of openness and isolation. In human practice, a particular country may adhere to one of these four openness concepts or may follow different concepts at different times. The more a country's openness concept aligns with its own national conditions and global trends, the more widely it will be accepted and actively participated in by both domestic and international communities, and the stronger its openness capacity will be.

National Openness Institutions. National openness institutions are symbols and integral components of the state capacity to open up. They form an integrated system of interaction rules among open entities and between open and non-open entities, including both formal and informal openness institutions.[6] Formal openness institutions include strategies, laws or acts, regulations, provisions, agreements, treaties, initiatives, declarations, statements, notifications, notes, policies, measures, decisions, proposals, frameworks, and standards related to openness. Informal openness institutions include customs, ethical and moral norms, and religious beliefs.

Most openness institutions clearly have openness as the theme (for example, Foreign Relations Law, Foreign Investment Law, Foreign Trade Law, Tariff Law, Entry-Exit Animal and Plant Quarantine Law, Customs Law, International Economic and Agreement, and so on) or

explicitly include contents regarding openness although not having it as the theme (for example, Constitution, Intellectual Property Law, Financial Law, Anti-monopoly Law, Statistical Law, and relevant international treaties).

By clarifying the rights and obligations of open entities, effective openness institutions establish a well-organized and flourishing environment for openness.

Box 2.2 Most new WTO members have benefited significantly after their accesses

The WTO brings "open institutional dividends" to its members and promotes the development of an open world economy by constructing a binding trade rule system and a predictable international economic environment. Since the establishment of the WTO in 1995, 36 new members have been accessed. Quantitative analysis was conducted on indicators such as GDP growth rate, share in global GDP, growth rate of import and export, and foreign investment before and after the accession. The results showed that 24 new members, including China and Vietnam, benefited significantly after access, accounting for two-thirds of the total.

Members who benefit more have the following common characteristics. One is the stable political environment, which provides a stable and predictable business environment for multinational corporations to lay out international production. The second is that the industrial system is relatively complete, or positive progress has been made in the transformation of the industry towards diversification. The third is to strictly fulfill the accession commitments, significantly reduce tariffs and non-tariff barriers, actively carry out supporting reforms, actively adjust economic structure, and strive to integrate into the GVCs.

National Resources for Openness. The national resources for openness are the source and foundation of the state capacity to open up, which include Natural Resources, Human Resources, and Production Resources.

—Natural Resources. Natural resources comprise renewable and non-renewable resources. Renewable resources include land, forests, conservation areas, mangroves, and fisheries. Non-renewable resources include fossil fuel energy, minerals, and location. A country's natural resources reflect its current and future capacity to support a specific population and economy.

—Human Resources. Human resources refer to the quantity and quality of a country's labor force. These not only enhance human capital in the cross-border openness of ideas, knowledge, and technology but also provide human capital with international competitive advantages for cross-border production activities. The resulting consumer market cultivates the international competitiveness of domestic suppliers and attracts foreign goods and service supply.

—Production Resources. Production resources include tangible resources like machinery, buildings, equipment, residential and non-residential urban land, as well as intangible intellectual resources (such as education and R&D) and financial resources. These serve to provide essential infrastructure like water, electricity, gas, transportation, and information communication for the functioning of the state and also facilitate market entities in allocating resources to produce

goods with international comparative advantages or participate in cross-border industrial chains, supply chains, and value chains to contribute value with international comparative advantages.

—Net Foreign Assets. Net foreign assets refer to the balance between a country's claims on other countries and regions and its liabilities to them, serving as a direct indicator of a country's openness capacity.

The more abundant the resources a country has that are suitable for openness, the stronger its capacity to open up.

Box 2.3 Classification of capacities

Any actor requires capacity as a foundation to do anything. The connotation and extension of capacity are extremely rich, and the corresponding classification is diversified.

Capacity can roughly be divided into general capacity and special capacity. General capacity refers to the abilities that must be possessed to perform any activity. Special capacity, also known as specialized capacity, refers to the necessary abilities to complete a specific activity.

Capacities can be categorized into functional capacity, technical capacity,[7] and behavioral capacity.[8]

—Functional capacity. This refers to the essential abilities that an actor must possess to fulfill their responsibilities. It is related to all levels and is not specific to any field or topic.[9] Borrowing from Nobel laureate Amartya Sen's perspective, the capability to function can also be defined as what an actor can do or what they can become. It is a key factor in evaluating the welfare and advantages of that actor, especially at the individual level.[10]

—Technical capacity. This refers to abilities related to specific professional knowledge and practice, often derived from formal education and practice. Actors possessing this capacity are generally limited.[11] In management and engineering, technical capability refers to an enterprise's ability to integrate technical knowledge and skills.[12] In economics, technical capability refers to an enterprise's ability to acquire technology from external sources, combine it with internal knowledge for technical innovation, and then disseminate the new technology, ultimately forming its own technology accumulation.[13]

—Behavioral capacity. This refers to an actor's ability to implement specific actions through the necessary knowledge and skills. To successfully perform this action, the actor must know what to do and how to do it. The actor learns from the consequences of their actions, which will impact the environment in which they operate. Particularly in environments with multiple stakeholders, an actor's behavioral capacity will influence the attitudes and actions of other actors.[14] In law, behavioral capacity refers to an actor's qualification to express their independent awareness, act in their own name, acquire rights, and undertake obligations (*Encyclopedia of China*).

The areas, regions, and actors involved in national openness are incredibly diverse and therefore require a wide range of capacities.

State capacity to open up is a part of national capacity and needs to collaborate efficiently with the non-openness capacities to jointly maintain national sovereignty, security, and developmental interests.

Box 2.4 What is state capacity?

"State Capacity" is a topic of concern in political science, history, sociology, and increasingly in economics, particularly in the field of development economics.

Political scientists often study state capacity from the perspectives of state, social, and international systems as well as the interconnections among them, forming three viewpoints centered respectively on the state, social, and international systems. Economists tend to study the relationship between state capacity and economic development from the perspective of resource extraction.

State capacity is not just a domestic political concept;[15] it is also considered a kind of efficacy in dealing with competition and challenges from other countries in the international system.[16] Existing literature offers multiple definitions for the concept of state capacity, among which some representative definitions or meanings include as follows.

—State capacity is the ability of state actors to execute official goals and policies.[17]

—State capacity is the ability of a state to achieve societal changes sought by its leaders through various plans, policies, and actions, mainly manifested as influencing social organization, regulating social relations, and effectively allocating and using national resources.[18]

—The key to state capacity is bureaucratic culture, that is, the motivations, beliefs, and expectations or norms among state functionaries to each other's actions.[19] It ensures high transparency of state actors to improve the quality of public political participation and promote the smooth functioning of the national public sectors.[20]

—State capacity is the ability of the state to realize its will and objectives.[21]

—State capacity is a combination of state resources and specific capabilities. Here, "state resources" refer to the material and ideological resources controlled by the state, while "specific capabilities" refer to coercive, extractive, and administrative abilities.[22]

—State capacity is the ability to develop policies[23] and implement policies.[24].

—State capacity includes institutional capacity, which is the ability of bureaucratic machinery and the ability to establish and implement institutions.[25]

—State capacity is fiscal capacity, i.e., the ability to collect taxes.[26] More broadly, state capacity is the strength of a state in accumulating resources.[27] From the perspective of the primary use of resources, state capacity can also be defined as the ability to provide public goods and services.[28]

—State capacity is the ability to enforce laws;[29] it is also called "legal capacity," i.e., the ability to enforce contracts and support markets through regulation or other means.[30]

—State capacity is the function of national political governance and management, the energy and power to rule the state and govern society,[31] and the efficacy in social governance and management.[32] Since the main actors are the state organs, state capacity can be conceptualized as the existence of state functionaries and institutions.[33] "Governance," "administration," or "management" actions can be concretized into mobilization, organization, transformation, development, and integration actions.[34]

2. Assessment of State Capacity to Open Up of G20 Countries

G20 members include 19 countries, the EU, and the African Union. This chapter assesses the 19 member countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Rep. of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkiye, United Kingdom, and the US.[35]

(1) Measurement indicators and data

The measurement of openness capacity consists of three parts: National Openness Concept, National Openness Institutions, and National Resources for Openness.[36]

—Does the National Openness Concept contribute at a high level to the building of a community with a shared future for mankind?

In an increasingly globalized world, a country's opening up not only affects the overall gains and losses of all humankind but also affects the distribution of these gains and losses between the country and the rest of the world. Therefore, the evaluation of a country's national openness concept can be based on whether it increases the overall benefits to humanity and the extent to which the international distribution of these benefits is balanced.

If a country's openness concept can balance the duties, benefits, and losses between itself and most other countries in the world at a high level, it is an advanced openness concept, such as the openness concept of win-win cooperation.

If a country adheres to the openness concept of isolation, aiming to maintain its national sovereignty and territorial security, it may lead to a decrease in overall opportunity gains for humanity or an increase in opportunity costs, ultimately harming the country's sovereignty, security, and developmental interests.

A certain country or some countries may form exclusive groups. Relying on their comparative advantages or even hegemony, they might minimize their openness losses and maximize their benefits in the short-to-medium term. However, this could minimize the benefits and maximize the losses for other countries, ultimately minimizing the long-term and overall security and development interests of all humanity.

In the long run, if specific countries adopt the openness concept of isolation before opening up, they may not particularly harm the overall openness gains for all humanity but may significantly slow down the growth rate of their openness capacity, ultimately harming their national sovereignty, security, and development prospects.

The *Policy Statements* issued by WTO members can be used to identify the openness concepts of G20 members. These statements elaborate on their own openness policies, including the formation process and content changes of policies on goods trade, service trade, direct investment, and trade-related intellectual property rights, and serve as the main basis for determining the types of their national openness concepts. The assigned values of the four types of openness concepts are shown in Table 2.1.

Table 2.1 Assigned values of national openness concepts

	Win-Win Cooperation	Isolation Before Opening Up	Zero-Sum Confrontation	Isolation
Assigned value (score)	100	70	50	20

—Can the National Openness Institutions adequately adapt to and meet the needs of domestic and global situations?

The openness institutions serve as the regulation on openness governance. The purpose of openness governance is to address coordination and cooperation issues among all parties involved, including the systems and mechanisms at various levels and for various actors in openness activities. The aim is to balance national openness with security and development, ultimately ensuring the sustainability of both open and non-open activities on a national scale.

Specifically, in the absence of a world government, each country needs to have the necessary capacities to manage its own openness initiatives and engage in global governance. This aims both to create a favorable international environment for the nation's openness activities to expand development space and to fulfill specific international responsibilities to maintain the common values of humanity.

National openness institutions need to adapt to and meet the needs of domestic and global conditions. The more complex these conditions are, the more comprehensive and meticulous the openness institutions need to be, and the higher national capacity of openness governance can be reflected.

Based on the *Trade Policy Review* reports[37] (see Box 2.5 for the characteristics) released by the WTO, this chapter measures national openness institutions utilizing the text analysis method.[38]

Box 2.5 Measurement of national openness institutions based on *Trade Policy Review* reports

The *Trade Policy Review* series of reports published by the WTO is suitable for measuring the openness institutions of each member with the following characteristics.

—The definition of "trade policy" in the *Trade Policy Review* is very close to the regulation regarding openness in the *World Openness Report*. The former reviews policies related to goods trade, services trade, and trade-related intellectual property rights, while the latter focuses on cross-border openness covering economic, social, and cultural dimensions, mainly targeting economic openness, especially trade openness.

—The reports have a neutral stance with objective content. The Trade Policy Review Body conducts reviews based on *Policy Statements* from the reviewed members and reports written by economists from the Trade Policy Review Division of the WTO Secretariat. During the report-writing process, the Secretariat seeks cooperation from members but bears sole responsibility for the facts presented and opinions expressed. Before finalizing the *Trade Policy Review* report, the Trade Policy Review Body will hold a thematic debate session on the content of the report, where the reviewed member will answer all inquiries from other members. The *Trade Policy Review* report is detailed, including the trade decision-making bodies of the reviewed member and the trade policies and practices during the review period.

—The *Trade Policy Review* reports of all members have a consistent theme and narrative style. In the reports for WTO members, the primary themes all consist of the following six sections: Summary, Economic Environment, Trade and Investment Regimes, Trade Policies and Practices by Measure, Trade Policies by Sector, and Appendix Tables. Secondary themes are also the same, with tertiary themes largely consistent. Each member's *Trade Policy Review* report follows the same narrative style, and the writing is clear and concise.

The text analysis method focuses on the policy-related content of the *Trade Policy Review* reports. The content relevant to trade policy is concentrated in the following sections: Trade and Investment Regimes (Part II), Trade Policies and Practices by Measure (Part III), and Trade Policies by Sector (Part IV). The Summary, Economic Environment (Part I), and Appendix Tables are not included in the text analysis.

This chapter takes the most recent three editions of the *Trade Policy Review* reports as the objects of analysis to reduce the bias that may result from relying solely on a single edition. According to the WTO's latest requirements (2017), starting from January 1, 2019, the four members with the largest shares of world trade (currently the EU, the US, Japan, and China) undergo a review every three years. The next 16 largest members are reviewed every five years, while other members are reviewed every seven years. The review cycle for the least developed members can be even longer.[39]

Based on the latest three editions of the *Trade Policy Review* reports, values of the recent openness institutions for G20 members can be gained, as shown in Fig. 2.1.

Among G20 members, the US has the highest level of openness institutions (with a measurement value of 181, same as below), followed by France, Germany, Italy, and the United Kingdom (assigned based on the EU, 178). The measurement values and rankings of other developed members are Canada (148, 7th), Rep. of Korea (138, 9th), Japan (121, 13th), and Australia (101, 16th).

For emerging market and developing members, the levels of openness institutions are as follows: Argentina (175, 6th), Brazil (141, 8th), China (134, 10th), India (132, 11th), Mexico (129, 12th), Turkiye (120, 14th); Indonesia (113, 15th), Russia (105, 17th), Saudi Arabia (80, 18th), South Africa (53, 19th).

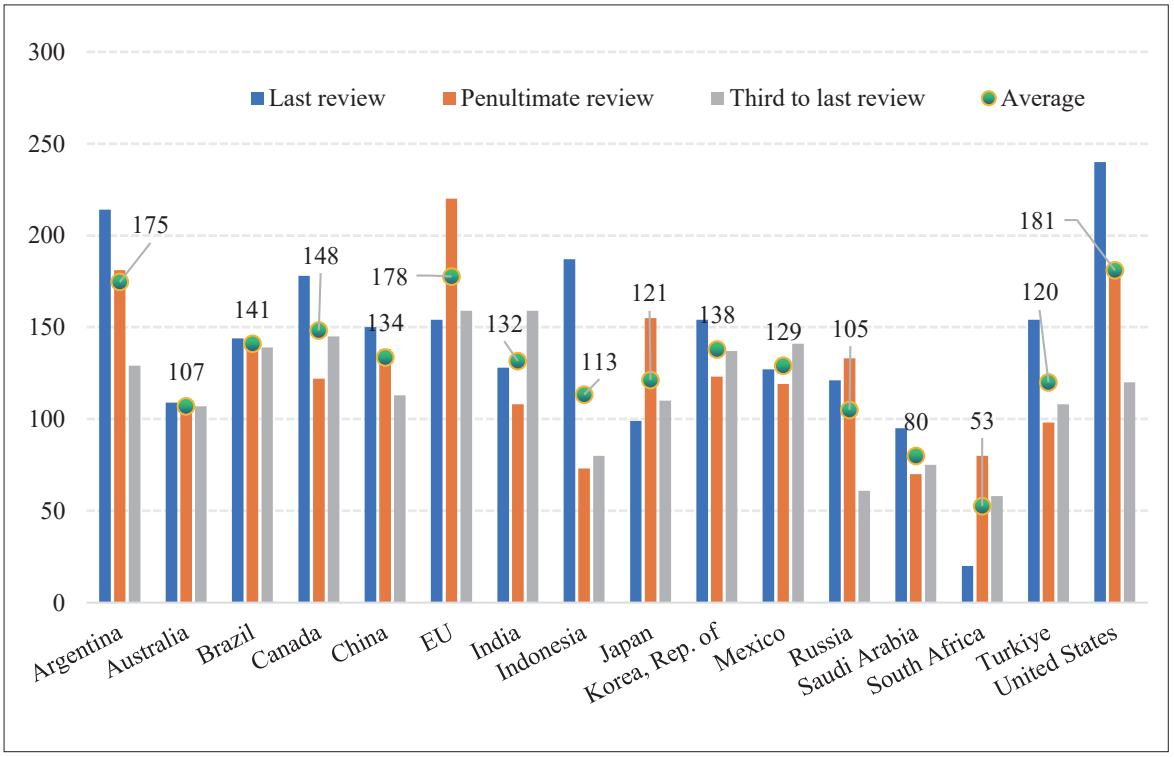

Fig. 2.1 Measurement of national openness institutions: G20 members, 2016–2018 average

Note: The unit on the vertical axis is the number of standard pages in the *Trade Policy Review* report. The EU is reviewed as a whole for trade policy, and France, Germany, Italy, and the United Kingdom are assigned values based on the EU's measurement value. For specific review dates for members, see the footnote;* the review results generally reflect the situation around 2016–2018.

* Argentina: September 15 and 17, 2021; March 20 and 22, 2013; February 12 and 14, 2007.
Australia: March 11 and 13, 2020; April 21 and 23, 2015; April 5 and 7, 2011.
Brazil: November 23 and 25, 2022; July 17 and 19, 2017; June 24 and 26, 2013.
Canada: June 12 and 14, 2019; June 15 and 17, 2015; June 20 and 22, 2011.
China: October 20 and 22, 2021; July 11 and 13, 2018; July 20 and 22, 2016.
EU: June 5 and 7, 2023; February 18 and 20, 2020; July 5 and 7, 2017.
India: January 6 and 8, 2021; June 2 and 4, 2015; September 14 and 16, 2011.
Indonesia: December 9 and 11, 2020; April 10 and 12, 2013; June 27 and 29, 2007.
Japan: March 1 and 3, 2023; July 6 and 8, 2020; March 8 and 10, 2017.
Rep. of Korea: October 13 and 15, 2021; October 11 and 13, 2016; September 19 and 21, 2012.
Mexico: October 5 and 7, 2022; April 5 and 7, 2017; April 17 and 19, 2013.
Russia: October 27 and 29, 2021; September 28 and 30, 2016; February 10 and 12, 2015.
Saudi Arabia: March 3 and 5, 2021; June 21, 2016; February 14, 2012.
South Africa: November 4 and 6, 2015; November 6, 2009; April 23 and 25, 2003.
Turkiye: March 15, 2016; February 21, 2012; December 17, 2003.
US: December 14 and 16, 2022; December 17 and 19, 2018; December 19 and 21, 2016.

—Are the National Resources for Openness Abundant and of High Quality?

The existing resources for the openness of a country can be measured using the World Bank's "Wealth Account."[40] The World Bank has released Wealth Accounts data for 146 economies from 1995 to 2018, covering G20 members.[41]

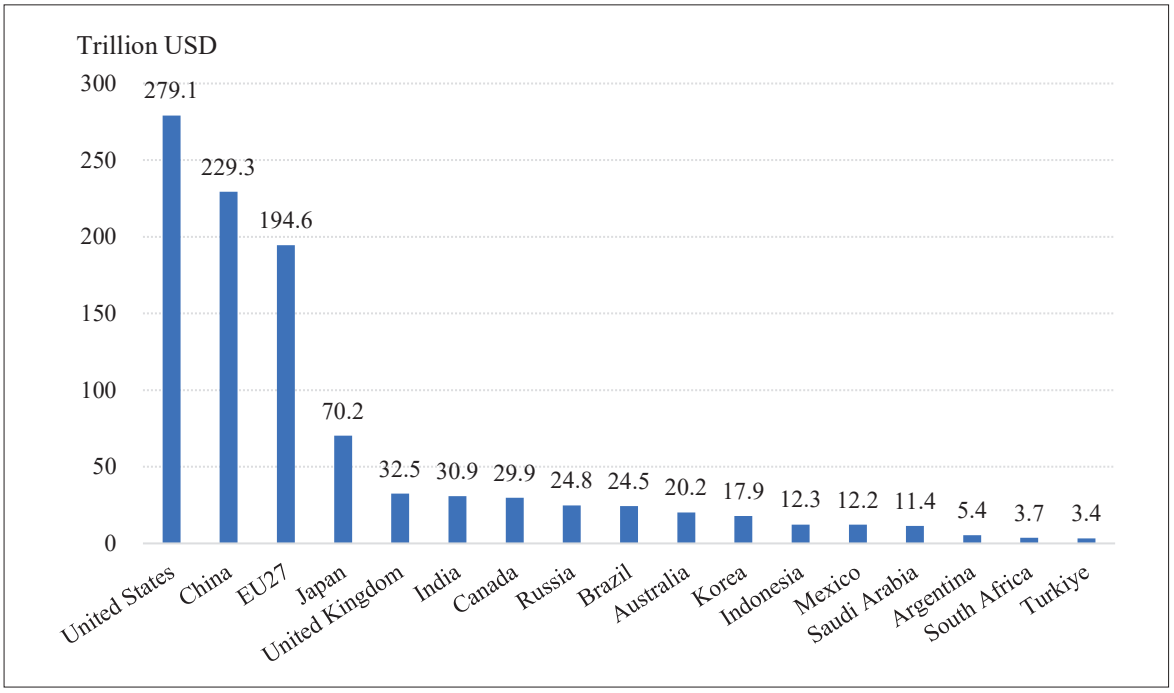

Fig. 2.2 National wealth: G20 members, 2016–2018 average

Source: World Bank Database, Wealth Accounts Data (in constant 2018 US dollars).*

From 2016 to 2018, the US, China, and the EU ranked in the top three among G20 members in terms of national wealth with figures of US$279 trillion, US$229 trillion, and US$195 trillion, respectively, marking the only three economies that have exceeded US$100 trillion. Japan ranked fourth, with a national wealth of US$70 trillion. The United Kingdom, India, Canada, Russia, Brazil, and Australia had national wealth between US$20 trillion and US$33 trillion, ranking fifth to tenth. Rep. of Korea, Indonesia, Mexico, and Saudi Arabia had national wealth between 10 trillion and US$20 trillion, ranking eleventh to fourteenth. Argentina, South Africa, and Turkiye ranked fifteenth to seventeenth respectively.

(2) Index of state capacity to open up

The Index of State Capacity to Open Up is a weighted composite value of National Openness Concept, National Openness Institutions, and National Resources for Openness.

* Databank on Wealth Accounts: https://databank.worldbank.org/source/wealth-accounts#.

Box 2.6 Calculation of the index of state capacity to open up

This chapter calculates the indices of state capacity to open up for G20 members from 2016 to 2018.

According to the *Trade Policy Reviews*, which are used to measure national openness concepts and openness institutions, the trade policies of the members reviewed date as far back as 2003 and as recently as 2023. Most of these reviews took place in or around the years 2016–2018, as detailed in the footnote of Fig. 2.1.

The measurement values for each country's openness concept, openness institutions, and resources for openness are converted into numerical values between 0 and 1. The weights of these three components in the Index of State Capacity to Open Up are 0.1, 0.25, and 0.65, respectively.

Other combinations of weights (such as 0.2, 0.4, and 0.4) have also been employed for trial calculations to test the sensitivity of the weighted results and their rankings to the weight settings. The results showed no significant differences from the measurement values initially presented.

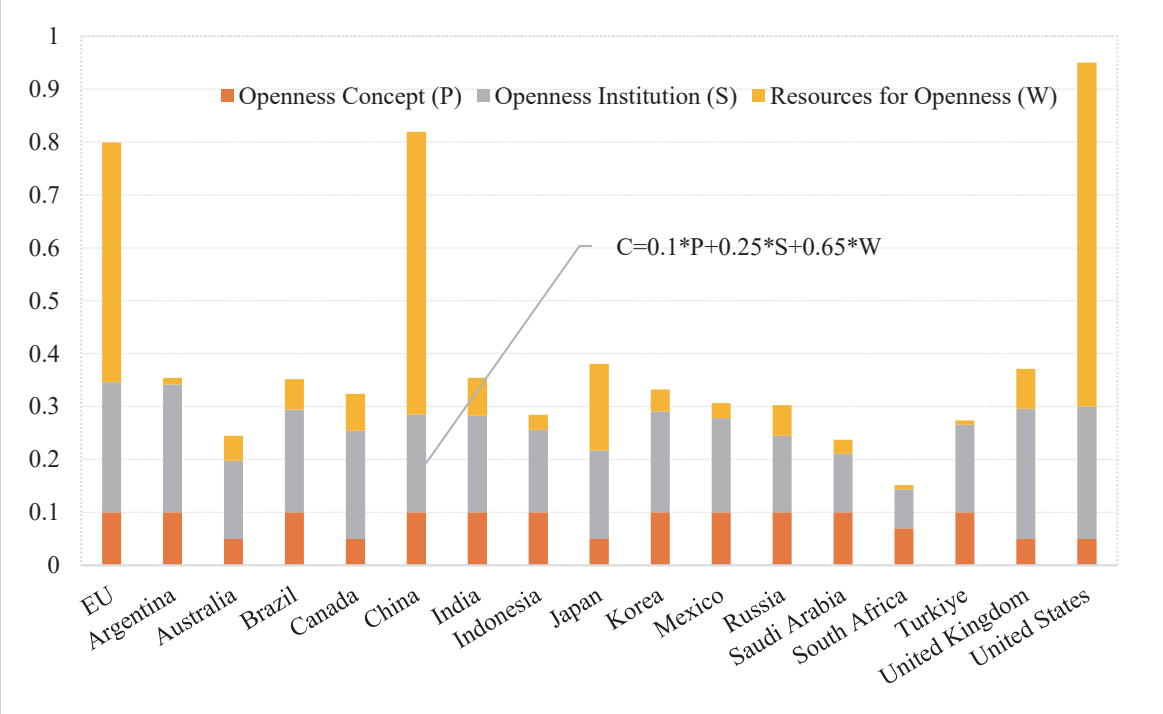

Fig. 2.3 Indexes of state capacity to open up: G20 members, 2016–2018 average

Note: (1) The bar chart represents the contributions of National Openness Concept (P), Openness Institutions (S), and Resources for Openness (W) to the Index of State Capacity to Open Up (C); (2) The UK, which exited the EU on January 13, 2020, has not yet undergone a WTO Trade Policy Review; therefore, its value for Openness Institutions is assigned the same as that of the EU.

The US, China, and the EU are the economies with the strongest openness capacity among the G20 members. Fig. 2.3 shows that for the years 2016–2018, the Index of State Capacity to Open Up for the US, China, and the EU was 0.95, 0.819, and 0.799, respectively, ranking them in the top three among the G20 members.

Japan, the United Kingdom, India, Argentina, Brazil, Rep. of Korea, Canada, Mexico, and Russia rank from fourth to twelfth in terms of their state capacity to open up, with corresponding indices ranging from 0.381 to 0.303.

The indices for Indonesia, Turkiye, Australia, Saudi Arabia, and South Africa range between 0.285 and 0.152.

(3) State capacity to open up and warranted openness

Openness is a result of the combined influence of supply and demand for openness. Quantitative methods are employed to investigate the relationship between openness and the state capacity to open up. Using the Openness Index as the dependent variable and the Index of State Capacity to Open Up as the independent variable, linear models are estimated through the least squares method for both G20 developed countries and G20 emerging markets and developing countries. Based on the estimated quantitative relationships, the Openness Index is fitted[42] and compared with the actual level of openness to evaluate whether the actual openness aligns with the state capacity to open up. See Fig. 2.4 for the actual and fitted openness indices, with the following conclusions.

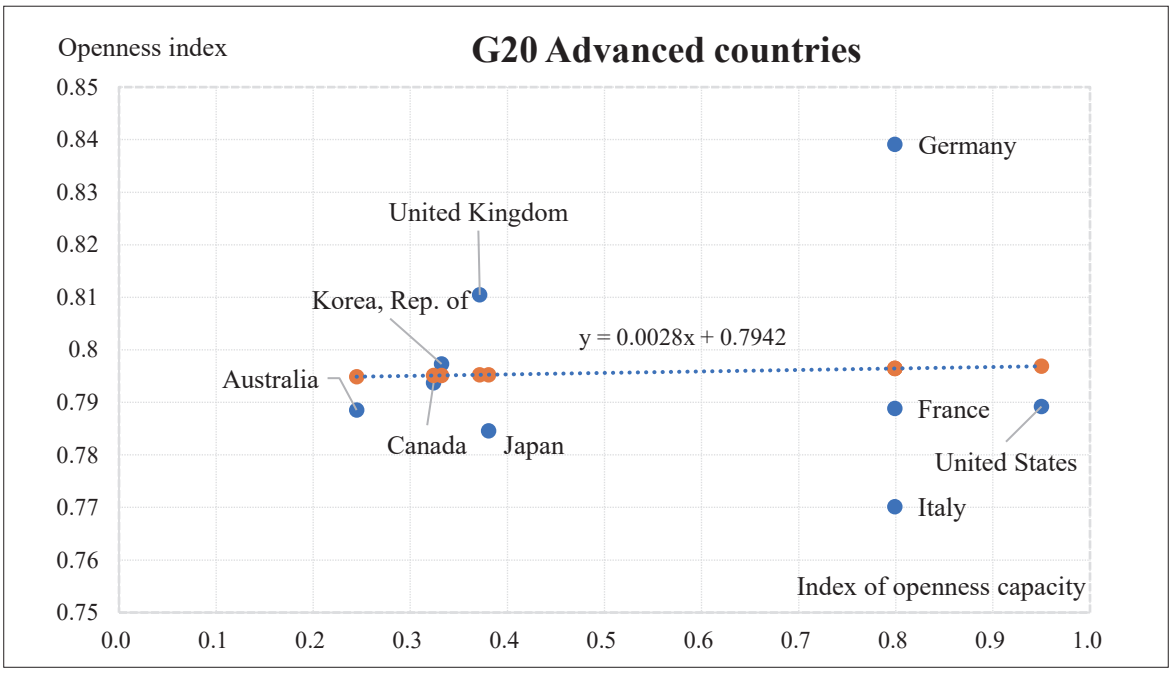

Fig. 2.4 Openness indexes and indexes of state capacity to open up: G20 members, 2016–2018

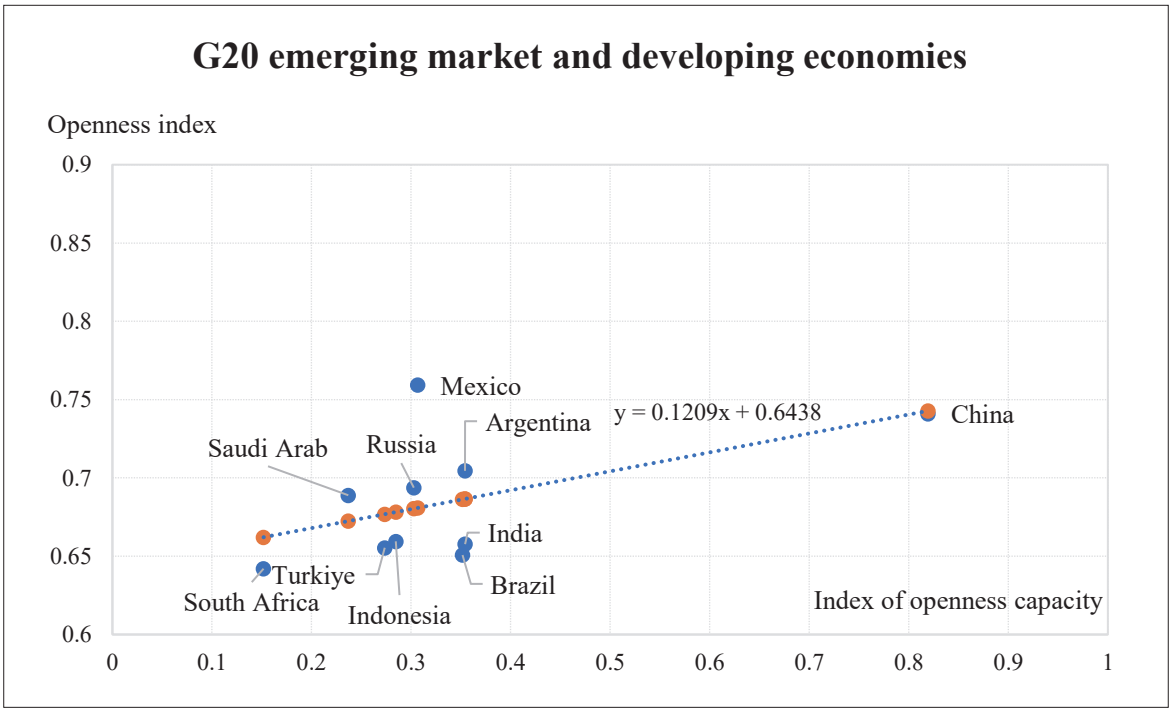

Fig. 2.4 (Continued)

Note: (1) The Indices of State Capacity to Open Up for France, Germany, and Italy are assigned according to EU values; (2) Orange dots represent the fitted values of the Openness Index.

—Enhancing the capacity to open up can increase openness, and this effect is more significant in emerging market and developing countries than in developed countries. For every one-unit increase in the capacity to open up among developed countries, the Openness Index increases by 0.0028 units. For emerging markets and developing countries, each one-unit increase in the capacity to open up leads to a 0.1209-unit increase in the Openness Index.

—The baseline level of openness in developed countries surpasses that in emerging market and developing countries. In the fitted model for the "Capacity to Open Up-Openness" relationship, even when the capacity to open up is zero, the openness level in developed countries is as high as 0.7942, exceeding the figure of 0.6438 in emerging market and developing countries.

—Among the nine G20 developed countries, those with warranted openness (i.e., the actual openness is lower than the fitted value and is supported by their state capacity to open up) include Australia, Canada, France, Italy, Japan, and the US. Specifically, in France, Italy, Japan, and the US, the openness index is lower than the capacity to open up, indicating room for more openness. Countries with nearly warranted openness (i.e., the actual openness is slightly higher than the fitted value) include Rep. of Korea. The openness of Germany and the United Kingdom is not warranted.

——Among the ten G20 emerging market and developing countries, countries with warranted openness include Brazil, China, India, Indonesia, South Africa, and Turkiye. Countries

with nearly warranted openness include Argentina, Russia, and Saudi Arabia. The openness of Mexico is not warranted, as it deviates significantly from the fitted value.

3. Insights on Capacity to Open Up and Warranted Openness

The state capacity to open up is a foundational force determining a country's openness and serves as an important basis for evaluating whether the level of openness is warranted. This chapter makes a preliminary exploration of the connotation and extension of state capacity to open up and its measurement methods. For the first time, we conducted empirical tests on G20 members, and the results fully confirmed the theory of warranted openness. The following insights can be drawn.

(1) High importance should be given to state capacity to open up

In the context of economic globalization, opening up to the outside world is crucial for any country. For a country, having the necessary capacity to open up helps to effectively coordinate international and domestic systems and fully utilize global resources to promote the development of productivity and progress in production relations. It also helps in maintaining world peace, development, justice, equity, democracy, and freedom at a high level, contributing to the building of a community with a shared future for mankind.

(2) The building of state capacity to open up should be strengthened

A country should approach from three layers: openness concept, openness institutions, and resources for openness to build and improve the openness capacity system. It should adhere to the openness concept of win-win cooperation that fully adapts to and meets the needs of both domestic and global situations, independently explore and establish openness institutions that suit its own characteristics, and promote the modernization of its governance capacity. The reform, optimization, and improvement of a nation's openness institutions are an ongoing process. Cultivating resources for openness should involve advancing the transformation of resource structures and the upgrading of international comparative advantages. In the participation of global openness, countries, especially emerging market and developing countries, should give priority to the cultivation of human resources to serve their opening up.

(3) The capacity to open up must be nurtured by opening-up

The capacity to open up should be cultivated through global competition and cooperation. In an increasingly interconnected world, countries open up to each other and engage with each other based on their individual capacities. The fields of openness, the content of interaction, and the

subjects of cooperation often differ among countries, requiring the relevant countries to have diversified capabilities to manage.

The network formed by numerous countries interacting with each other globally becomes an important vehicle for shaping the capacity to open up. Within a relatively closed system of one country or a few countries, it is difficult to improve the state capacity to open up.

(4) Maximizing the utilization of capacity to open up to explore optimal openness

Some countries have actual levels of openness that are lower than their fitted levels of openness, indicating that their capacity to open up has not been fully utilized. A country should maximize the use of its own capacity to open up, striving for the highest level of warranted openness, i.e., optimal openness, in order to gain greater net benefits from openness.

Countries that rank high in capacity to open up should make full use of their strong capacity to open up, enhance the level of global openness, and promote themselves and other countries to achieve optimal openness. This concerted effort can drive the building of a community with a shared future for mankind at higher levels of openness.

NOTES

1. The Institute of World Economics and Politics of Chinese Academy of Social Sciences & Research Center for Hongqiao International Economic Forum, *World Openness Report 2022* (China Social Sciences Press, 2022), 26–28.
2. The chapter focuses on the capacity for cross-border openness of a country or region as a whole. To simplify the text, the terms "country or region" will be subsequently abbreviated to "country." This should not be interpreted as equating "region" with "country" in a political sense.
3. Huang B., "State Capacity: Meaning, Characteristics and Structure Analysis," *CASS Journal of Political Science*, no.4 (2004): 68–77.
4. Han, Q., *Capacity Standard* (Beijing: China Development Press, 1999), 81.
5. M. Andrews, L. Pritchett, and M. Woolcock, "The Challenge of Building (Real) State Capability," *CID Working Papers*, no. 306 (2015), Center for International Development at Harvard University.
6. D. North, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, 1990).
7. UNDP, *Capacity Development Practice Note*, ed. Jennifer Colville (2008), content.undp.org/go/cms-service/download/asset/?asset_id=1654154.
8. International Finance Corporation, "Invest in Capacity Building," chapter 5 of *Strategical Community Investment*: *A Good Practice Handbook for Companies Doing Business in Emerging Market* (2010), 49–58.
9. UNDP, *Capacity Development Practice Note*, ed. Jennifer Colville (2008), content.undp.org/go/cms-service/download/asset/?asset_id=1654154.
10. A. Sen, preface to *Commodities and Capabilities* (Oxford University Press, 1985).
11. UNDP, *Capacity Development Practice Note*, ed. Jennifer Colville (2008), content.undp.org/go/cms-service/download/asset/?asset_id=1654154.
12. *Encyclopedia of China*, 3rd ed., online version, accessed on June 15, 2023.

13. Ibid.
14. International Finance Corporation, "Invest in Capacity Building," chapter 5 of *Strategical Community Investment*: *A Good Practice Handbook for Companies Doing Business in Emerging Market* (2010).
15. Chen Z., *Investing in State Capacity: FDI. Structure and State Building in the Developing Countries* (Shanghai People's Publishing House, 2022), 28.
16. Huang Q., "Investigating into the Basic Theory on State Capacity," *CASS Journal of Political Science*, no. 12 (2007): 45–53; Huang Q., *On State Capacity* (Beijing: Central Compilation & Translation Press, 2013), 182–188.
17. T. Skocpol, "Bring the State Back In: Strategies of Analysis in Current Research," in *Bring the State Back In*, ed. P. Evans, D. Rueschemeyer, and T. Skocpol (New York: Cambridge University Press, 1985), 3–37.
18. J. Migdal, *Strong Societies and Weak States: States-Society Relations and States Capacities in Third World* (Princeton University Press, 1988), 4–5, 20.
19. S. Khemani, "What Is State Capacity?" *The World Bank Policy Research Working Paper*, no. 8734 (2019), Washington, DC.
20. World Bank, *Making Politics Work for Development: Harnessing Transparency and Citizen Engagement* (Policy Research Report, 2016).
21. Hu A. and Wang S., *A Study of China State Capacity* (Shenyang: Liaoning People's Publishing House, 1993).
22. Tang S., Gao L., Li L., and Lu Y., "State Capacity: Out of Theoretical Wilderness," *Academic Monthly* 54, no. 11 (2022): 68–83.
23. F. Fukuyama, *State Building: Governance and World Order in the Twenty-First Century* (New York: Cornell University Press, 2004).
24. T. Besley and T. Persson, "Wars and State Capacity," *Journal of the European Economic Association* 6, no. 2 (2008): 522–530; T. Besley and T. Persson, "State Capacity, Conflict, and Development," *Econometrica* 78, no. 1 (2010): 1–34.
25. Ouyang J. and Zhang Y., "Research on the Quality and Transformation of State Capacity," *Wuhan University Journal* (2014): 96–102.
26. C. Tilly, "War Making and State Making as Organized Crime," in *Bring the State Back In*, ed. Evans (New York: Cambridge University Press, 1985); T. Besley, "State Capacity, Reciprocity, and the Social Contract," *Econometrica* 88, no. 4 (2020): 1307–1335.
27. Huang Q., "Investigating into the Basic Theory on State Capacity," *CASS Journal of Political Science*, no. 12 (2007): 45–53; Huang Q., *On State Capacity* (Beijing: Central Compilation & Translation Press, 2013), 182–188.
28. Ouyang J. and Zhang Y., "Research on the Quality and Transformation of State Capacity," *Wuhan University Journal* (2014): 96–102.
29. F. Fukuyama, *State Building: Governance and World Order in the Twenty-First Century* (New York: Cornell University Press, 2004).
30. T. Besley and T. Persson, "Wars and State Capacity," *Journal of the European Economic Association* 6, no. 2 (2008): 522–530; T. Besley and T. Persson, "State Capacity, Conflict, and Development," *Econometrica* 78, no. 1 (2010): 1–34.
31. Huang B., "State Capacity: Meaning, Characteristics and Structure Analysis," *CASS Journal of Political Science*, no.4 (2004): 68–77.
32. Huang Q., "Investigating into the Basic Theory on State Capacity," *CASS Journal of Political Science*, no. 12 (2007): 45–53; Huang Q., *On State Capacity* (Beijing: Central Compilation & Translation Press, 2013), 182–188.
33. D. Acemoglu, C. Garcia-Jimenc, and J. Robinson, "State Capacity and Economic Development: A Network Approach," *American Economic Review* 105, no. 8 (2015): 2364–2409.

34. Xu, Y. and Chen, Y., "National Good Governance Capability: Why Social Engineering for Poverty Alleviation Succeeds?" *Social Sciences in China*, no. 6 (2022): 106–121.
35. Due to the lack of basic data, the institution on and resources for opening up of France, Germany, Italy, and the United Kingdom (which were EU members) cannot be directly measured, but the EU as a whole has these basic data, and the corresponding openness capabilities can be measured. This chapter uses the European Union as a bridge, first measuring the EU's index on openness capacity, and then assigning its values to France, Germany, Italy, and the United Kingdom.
36. The state capacity to open up, whether actual or potential, is difficult to directly observe and measure and is often evaluated through indirect methods. This chapter sets evaluation indicators based on the connotation and extension of national capacity and selects G20 members. Mainly collects publicly available data published by international organizations, this chapter calculates the state capacity to open up and determines whether the actual openness is warranted.
37. Trade Policy Review Reports of WTO members: https://www.wto.org/english/tratop_e/tpr_e/tp_rep_e.htm#bycountry.
38. The text analysis method focuses on textual information. By defining or identifying specific categories of topics, it converts the distribution of qualitative information into quantitative metrics (such as frequency) to highlight the key features of specific topics.
39. WTO (2023), *Trade Policy Reviews*: *Brief introduction*, accessed on July 25, 2023, https://www.wto.org/english/tratop_e/tpr_e/tp_int_e.htm.
40. The World Bank, *The Changing Wealth of Nations 2021: Managing Assets for the Future* (Washington, DC: World Bank, 2021), http://hdl.handle.net/10986/36400 License: CC BY 3.0 IGO.
41. The construction of the National Wealth Accounts is based on the System of National Accounts (SNA) compiled by the United Nations Statistical Commission. The valuation of production capital and net foreign assets is generally based on the transaction value of the respective assets, while the valuation of natural capital and human capital is typically based on their expected net returns (resource rents or wages) over their useful lifespan, discounted. The World Bank does not separately estimate the EU and its member state, Cyprus, in National Wealth Accounts.
42. The sample countries in this estimation are 19 in total, and they are divided into two sample groups: developed countries (nine) and emerging market and developing countries (ten). The sample period is short, covering only from 2016 to 2018. To obtain better estimation results, future studies could include more sample countries and utilize data from longer time series.

CHAPTER 3

Status Quo and Prospect of Global Openness Policies

In recent years, there has been a decreasing trend in World Openness Policy Index. Profound adjustments occurred in the international trade and investment landscape, accompanied by an increasing number of unstable and uncertain factors. Trade openness policies now center around issues such as economic resilience, digitalization, and climate change, with related restrictive measures becoming more covert and diverse. Investment openness policies, on the other hand, focus on the tightening of national security review systems in developed countries, adjustments to investment agreements, and global tax reforms. To promote global openness, policy formulation should be more focused on cooperation, inclusiveness, and flexibility.

1. The World Openness Policy Index Has Experienced a Significant Decline

Based on the sub-indicators of the World Openness Index, it can be observed that from 2008 to 2022, there has been an overall downward trend in the World Openness Policy Index (as shown in Fig. 3.1). Moreover, the magnitude of this decline is significantly greater than that of the World Openness Performance Index. The primary reason for the divergence in the trends between these two indexes is that the positive factors driving global openness have notably offset the resistance brought about by the tightening of openness policies. This is particularly evident in the increased ease of movement of goods, services, personnel, and information, which has been greatly enhanced by the rapid development of Information and Communication Technology (ICT) and the specialization within the GVCs. Looking forward, in the long term, the negative impact of the tightening of the World Openness Index may further intensify, exerting downward pressure on the Global Openness Performance Index.

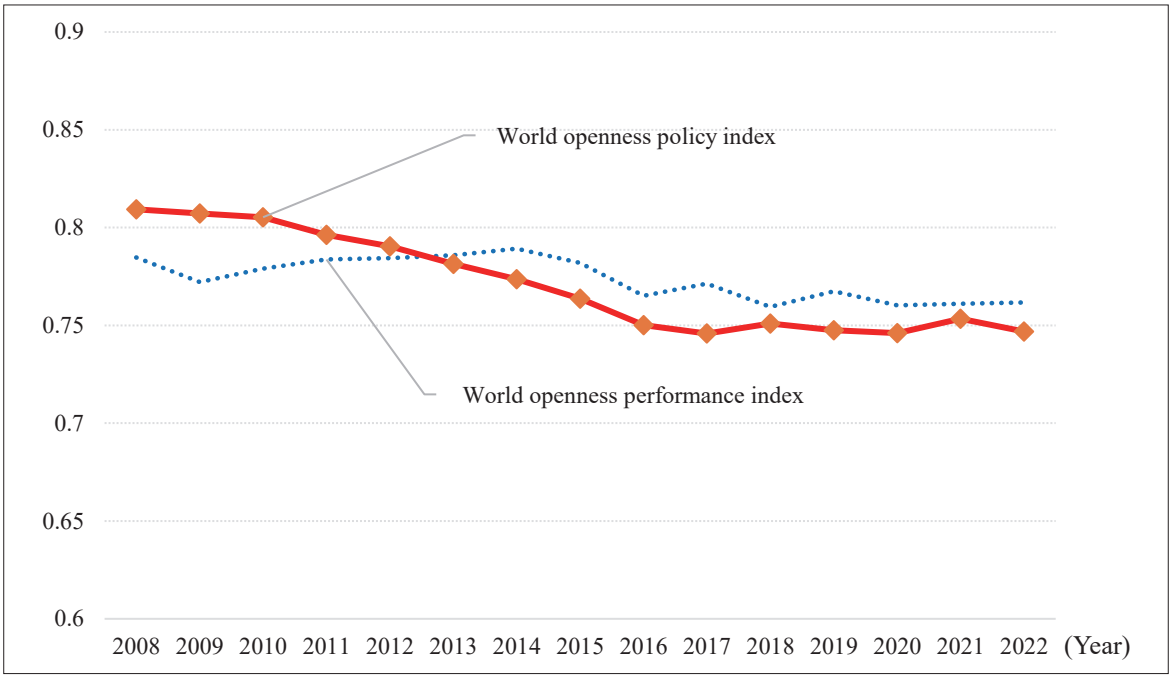

Fig. 3.1 World openness policy index and world openness performance index: 2008–2022

Source: Calculated based on the World Openness Index.

From the perspective of changes in the ranking of individual economies' Openness Policy Index from 2008 to 2022, the largest declines were observed in economies such as the US, Jamaica, and Egypt. The economies with the largest increases in rankings included Rep. of Korea, Cape Verde, and Iceland. European countries generally saw improvements in their rankings. The US was a major factor in the decline of the World Openness Policy Index, mainly due to recent trade tensions that raised tariff levels and increased non-tariff barriers.

Table 3.1 Economies with the largest declines and increases in openness policy index rankings, 2008–2022

Top 10 economies with largest declines in openness policy index rankings		**Top 10 economies with largest increases in openness policy index rankings**	
Ranking		**Ranking**	
1	US	1	Korea, Rep. of
2	Jamaica	2	Cabo Verde
3	Egypt	3	Iceland
4	Brazil	4	Zimbabwe

(Continued)

Top 10 economies with largest declines in openness policy index rankings		Top 10 economies with largest increases in openness policy index rankings	
Ranking		Ranking	
5	Bosnia and Herzegovina	5	Australia
6	Chile	6	Costa Rica
7	Japan	7	Sudan
8	Israel	8	Georgia
9	Norway	9	Lithuania
10	Sri Lanka	10	Colombia

Source: Calculated based on the World Openness Policy Index.

Looking at the sub-indicators of tariffs and non-tariff measures,[1] it is evident that global weighted mean tariff rates have remained relatively stable in recent years, hovering around the 6 percent to 7 percent range. There was a significant increase from 6.2 percent to 7.4 percent between 2018 and 2019. Since 2020, these rates have moderated to around 5.8 percent. Over the period from 2008 to 2022, global non-tariff measures have increased by 17.9 times, with a notably accelerated growth rate, particularly since 2020 (see Fig. 3.2).

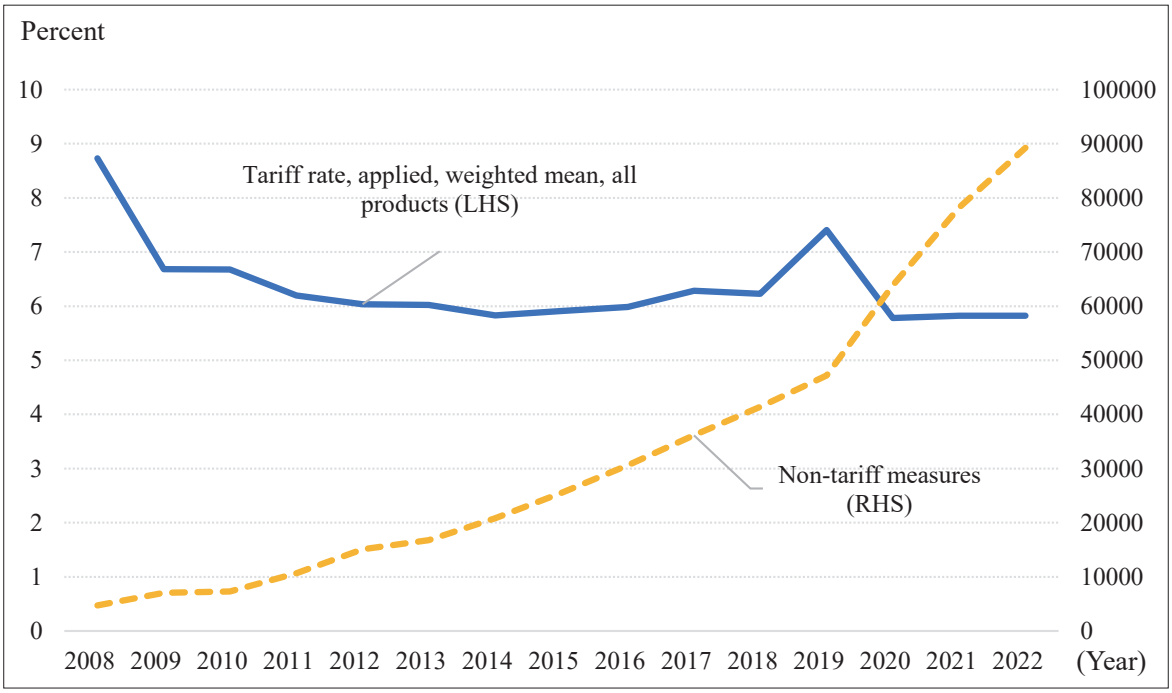

Fig. 3.2 Tariffs and non-tariff measures: 2008–2022

Source: Sub-indicators of the World Openness Index.

Box 3.1 US trade frictions and their implications

In the realm of trade openness policies, one of the most remarkable events in recent years has been the US initiating trade frictions with its major trading partners. These frictions include imposing tariffs of 30 percent on solar panels and 20 percent on washing machines, as well as tariffs of 25 percent on steel and 10 percent on aluminum. Additionally, significant tariffs have been imposed on China.

In January 2018, based on investigations conducted by the US International Trade Commission (USITC) and in accordance with Section 201 of the Trade Act of 1974, the US approved safeguard measures in the form of tariffs on imported solar panels and large residential washing machines. Under Section 201, the US has the authority to impose tariffs to alleviate import pressures in response to severe harm caused to the domestic industry due to a surge in imports. Pursuant to these safeguard measures, the US imposed a 30 percent tariff on solar panels and a 20 percent tariff on washing machines.

In March 2018, based on the results of the "232 investigation," the US initiated tariffs of 25 percent on steel and 10 percent on aluminum. This measure invoked Section 232 of the 1962 Trade Expansion Act, which allows for the imposition of import tariffs on goods deemed to pose a threat to US national security. When the measure was initially implemented, some countries were granted exemptions, but it was later expanded to include economies such as Canada, Mexico, and the EU.

In July 2018, the US, citing the Trade Act of 1988 and based on the results of the "301 investigation," imposed a 25 percent tariff on $340 billion worth of goods imported from China. In response, China also imposed a 25 percent tariff on US$340 billion worth of products imported from the US. In August, the US continued by imposing a 25 percent tariff on US$160 billion worth of goods imported from China, and China reciprocated by imposing a 25 percent tariff on US$160 billion worth of products imported from the US. In September, the US further escalated the trade dispute by imposing a 10 percent tariff on US$200 billion worth of products imported from China, with plans to increase it to 25 percent in 2019. In retaliation, China imposed tariffs ranging from 5 percent to 10 percent on US$60 billion worth of US imports.

In June 2019, the US increased tariffs on US$200 billion worth of goods from 10 percent to 25 percent. In response, China raised tariffs on some items from the US$60 billion list. In September 2019, the US imposed a 15 percent tariff on US$101 billion worth of goods, and China added tariffs to certain products on the US$75 billion list. In December 2019, the US and China announced an impending agreement, leading the US to cancel the 15 percent tariffs on US$151 billion worth of goods imported from China, and China also suspended its planned retaliatory measures. In January 2020, the US and China signed their phase-one economic and trade agreement, which came into effect on February 14, 2020. Both countries agreed to reduce by half the tariffs imposed on each other's goods in the previous round, starting from September 1, 2019.

China and the US are crucial trading partners to each other. The substantial amount of trade affected by the US' tariff imposition has resulted in a significant increase in the weighted average tariff rates for both countries. As of early 2020, the US' tariff rates on Chinese goods had risen sharply from 3.1 percent at the beginning of 2018 to 19.3 percent. China, in response, raised its tariff rates on US goods from 8 percent to 21.2 percent. Among the products China exports to the US, 66.4 percent were affected by these tariffs, while 58.3 percent of US exports to China were similarly impacted.

The negative effects of the US' tariff imposition became evident in 2019. During that year, China's exports to the US and imports from it declined by 12.5 percent and 20.9 percent year-on-year respectively. However, starting from 2020, the demand from the US for Chinese goods saw a significant increase due to the impact of the COVID-19 pandemic. In 2020, China's imports from the US surpassed the 2018 levels, and in 2021, China's exports to the US also greatly exceeded 2018 levels. The US tariff actions have severely harmed Sino-US trade, with the majority of the tariff burden falling on US consumers, thus compromising their welfare. Additionally, the imposition of tariffs has disrupted GVCs, adversely affecting other countries deeply intertwined in trade relations with both countries.

From the perspective of sub-indicators related to trade and investment agreements, the two are significant bilateral and regional openness measures. This manifests itself most vividly in the substantial development of regional trade and investment agreements in recent years, with increasing numbers of agreements and coverage of economies. Between 2008 and 2022, the Trade Agreement Index and Investment Agreement Index increased by 97.3 percent and 17.4 percent, respectively. Specifically, the Trade Agreement Index rose from 0.13 to 0.25, and the Investment Agreement Index increased from 0.47 to 0.55 (as shown in Fig. 3.3).

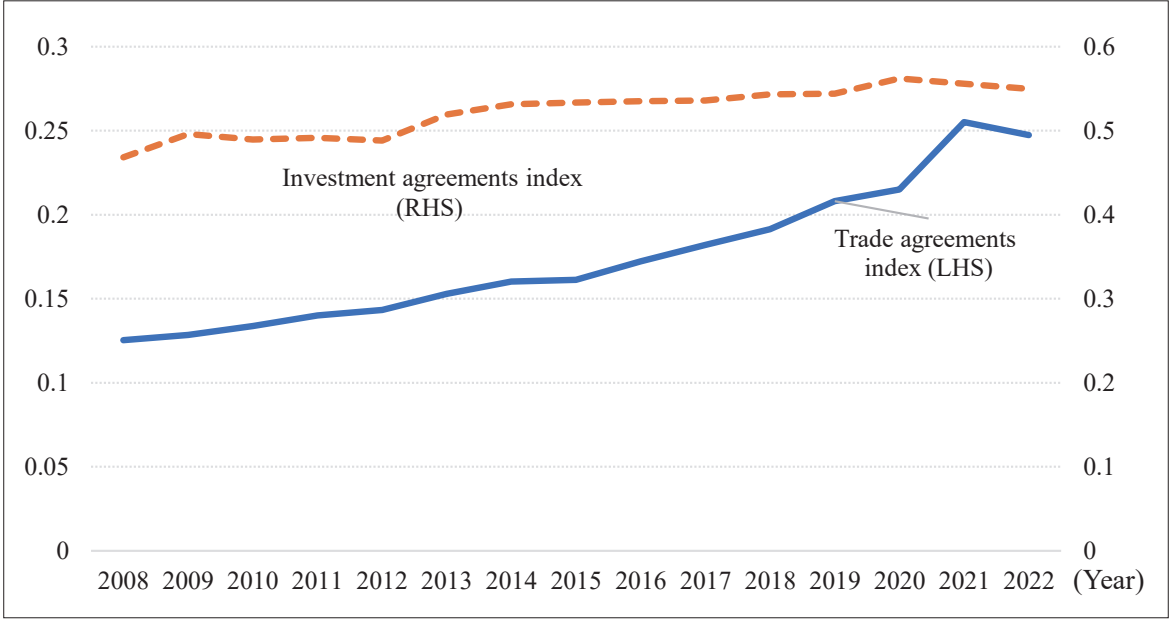

Fig. 3.3 Trade agreement index and investment agreement index: 2008–2022

Source: Sub-indicators of the World Openness Index.

Table 3.2 Recent representative trade agreements since 2018

Agreement	Date of signature	Members	Share in global GDP when signed, percent	Share in global trade when signed, percent
The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)	March 8, 2018	Japan, Canada, Australia, Chile, New Zealand, Singapore, Brunei, Malaysia, Vietnam, Mexico, and Peru	12.9	14.9
The EU and Japan's Economic Partnership Agreement (EPA)	July 17, 2018	Japan, EU	24.4	33.4
US-Mexico-Canada Agreement (USMCA)	November 30, 2018	US, Mexico, Canada	27.3	15.5
Regional Comprehensive Economic Partnership (RCEP)	November 15, 2020	ASEAN 10 countries, China, Japan, Rep. of Korea, Australia, and New Zealand	30.6	28.3

From the perspective of sub-indicators related to financial openness, the international financial crisis triggered by the 2008 "subprime mortgage crisis" in the US led to a worldwide slowdown in financial openness. To mitigate international risks, countries began to tighten their financial regulations, resulting in a steady decline in the Financial Openness Index from 2008 to 2013. After 2013, there was some recovery in financial openness levels, but the pace of improvement was slow. To this day, there remains a significant gap between the current level of financial openness and the pre-financial crisis period (as shown in Fig. 3.4).

From the perspective of sub-indicators for visa openness, between 2008 and 2019, the Visa Openness Index steadily improved, reflecting the convenience of people's mobility. However, in 2020, following the outbreak of the COVID-19 pandemic, many countries implemented control measures affecting cross-border movement. Consequently, the Visa Openness Index exhibited a tendency to plateau (as depicted in Fig. 3.4). The impact of these control measures on individual mobility varied. In 2020, the global number of emigrants increased by 2.7 percent, while the number of outbound students increased by 1.3 percent. In contrast, the number of outbound tourists decreased by a significant 63.0 percent. This indicates that the pandemic had a relatively substantial impact on short-term planning activities like tourism, while its effect on long-term planning activities such as immigration and studying abroad was limited.

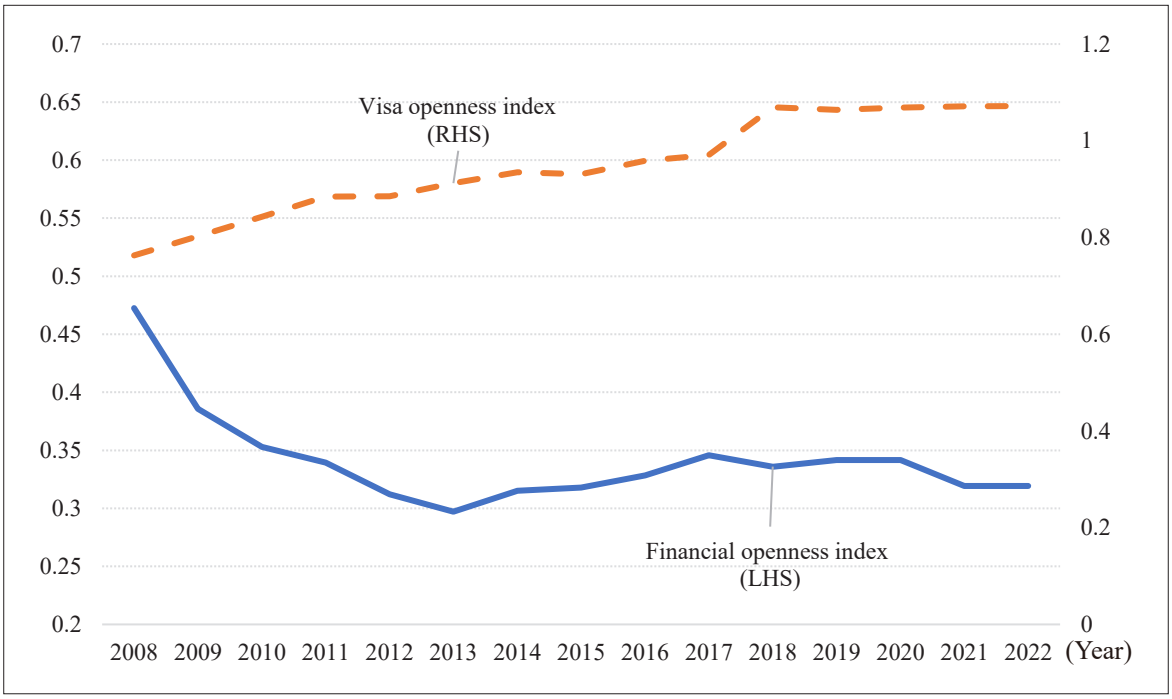

Fig. 3.4 Financial openness index and visa openness index, 2008–2022

Source: Sub-indicators of the World Openness Index.

Box 3.2 The impact of the pandemic on the global air passenger transport industry

Since the beginning of 2020, in an effort to control the pandemic, many countries have closed their borders and imposed restrictions on domestic travel, leading to a severe impact on the international aviation industry (See Fig. 3.5). By the end of March 2020, air transportation had virtually come to a standstill. In April, passenger numbers had declined by 92 percent compared to the previous year, with international travel seeing an average decline of 98 percent and domestic travel declining by an average of 87 percent. For the entirety of 2020, global domestic passenger volume dropped by 50 percent, while international passenger volume fell by 74 percent. Since the beginning of 2021, global air passenger traffic has gradually started to recover. According to data from the International Air Transport Association (IATA), international air passenger traffic has now rebounded to over 90 percent of 2019 levels since 2023.

Benefiting from effective pandemic control measures, the number of domestic flights in China has rapidly recovered. However, the count of international flights is still in need of acceleration. Since 2023, China has been committed to enhancing international air travel convenience, resulting in a steady increase in international flight volumes. According to data from the Civil Aviation Administration of China (CAAC), as of the end of June this year, there were 3,368 weekly international passenger flights to 62 countries, representing a recovery to 44 percent and 86 percent of pre-pandemic levels, respectively. It is anticipated that in the second half of the year, the international air passenger market will accelerate its recovery, with international flight volumes expected to reach 60–65 percent of pre-pandemic levels.

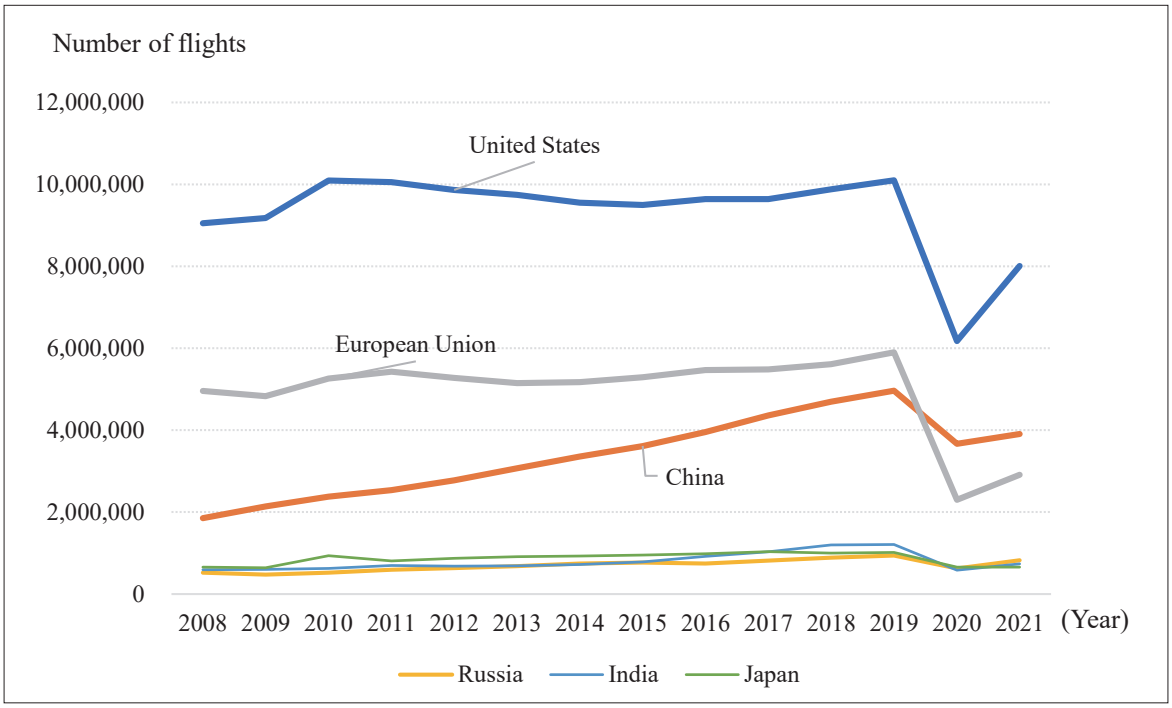

Fig. 3.5 Air passenger traffic for select economies: 2008–2021

Source: World Bank Database.

2. Five Key Factors Influencing the Direction of the World Openness Policy Index

(1) Increasing variability in openness policies due to unequal benefit distribution

Economic globalization is a "double-edged sword." When the world economy is in a downward period, the global economic "cake" is not easy to grow or even shrink, and the contradictions between growth and distribution, capital and labor, efficiency and fairness will become more prominent, which has led to a growing divide between proponents of openness and those against it, subsequently influencing the open-door policies of various governments. For instance, the expansion of populist political parties in Europe has led some European countries to adopt more conservative trade and investment policies. According to the Heckscher-Ohlin model, international trade can improve the overall welfare of all participating nations, but owners of scarce factors of production may suffer, and industries heavily reliant on these scarce factors may contract. According to the new trade theory, intra-industry trade can fully exploit economies of scale, benefiting all participating countries but also leading to the expansion of some industries and the elimination of certain businesses. These theoretical interpretations partially corroborate the trends observed in the World Openness Policy Index. When considering the impact of economic globalization on the world's openness policies, it is crucial to balance fairness and

efficiency concerns. While implementing more proactive openness policies and advancing economic globalization, it is also necessary to take appropriate measures to mitigate and offset related adverse effects.

(2) The influence of north-south economic strength on the direction of opening-up policies

In recent years, changes in the World Openness Policy Index have been largely influenced by advanced economies. However, the influence of developing economies is continuously on the rise. Taking examples of the G7 and BRICS countries, while G7 countries still maintain an advantage in terms of GDP and international trade volume, there has been a trend of declining global shares for G7 and increasing global shares for the BRICS countries in recent years (See Fig. 3.6, Fig. 3.7). Examining the sub-indicators of the World Openness Policy Index, such as tariff and non-tariff measures, trade agreements, and investment agreements, individual advanced economies have selectively increased tariff levels and implemented various non-tariff measures, which have objectively tightened the Openness Policy Index. On the other hand, developing economies have actively reduced tariff levels through unilateral openness and signed more open and inclusive trade and investment agreements with other economies in their regions, to some extent mitigating the unfavorable trend of a tightening World Openness Policy Index.

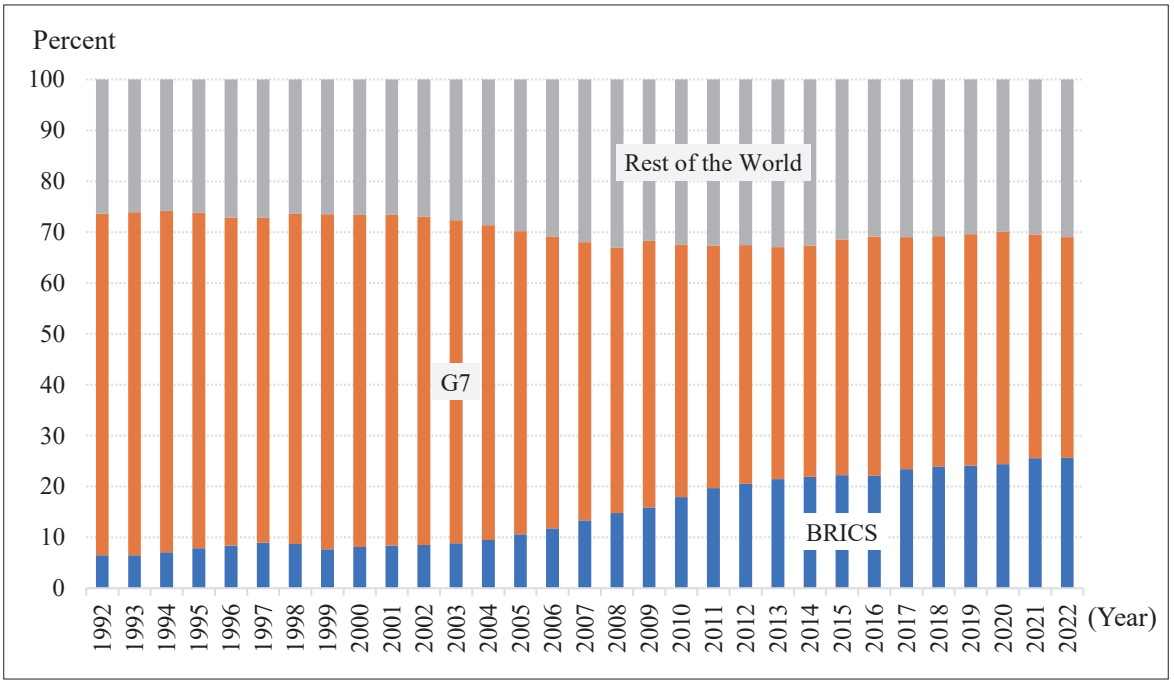

Fig. 3.6 Shares of G7 and BRICS in global GDP: 1992–2022

Source: Calculated based on the World Bank's World Development Indicators (WDI) database. "Rest of the World" refers to other economies within the sample of the World Openness Index.

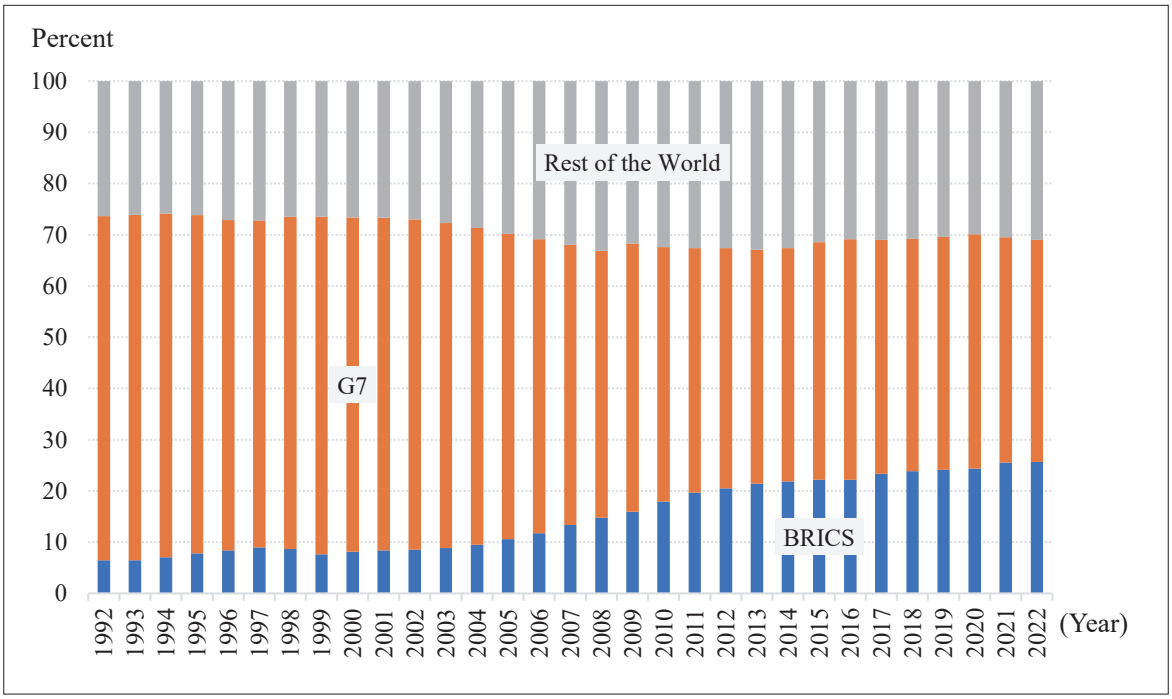

Fig. 3.7 Shares of G7 and BRICS in global trade: 1992–2022

Source: Based on calculations from the World Bank's World Development Indicators (WDI) database. The data for the year 2022 has not yet been officially released for some economies, so preliminary estimates are being used.

(3) Technological advancements enrich the essence of openness policies

The impact of technological advancement has permeated the entire process of formulating world openness policies. The new wave of technological development, represented by information technology, has further reduced barriers to the flow of goods, services, information, and other factors, significantly promoting openness policy performance. It has also driven changes and adjustments in openness policies. In recent years, many newly signed trade and investment agreements have focused on topics such as e-commerce, the digital economy, environmental sustainability, and financial services. The changes brought about by technological innovation are bound to provide more empirical support for the research and analysis of the World Openness Policy Index and its sub-indices, including trade and investment agreement indices, visa openness indices, and financial openness indices. This will become an essential component of observing, analyzing, and assessing world openness policy trends.

(4) Multilateral trade system continues to impact significantly on opening-up policies

For a long time, the multilateral trading system has been the primary channel for global trade

liberalization and facilitation. China has consistently been committed to firmly upholding the multilateral trading system and has been deeply engaged in the reform negotiations of the WTO. China has proposed relevant position documents and proposal documents on WTO reform, participated in the establishment of the Multi party Interim Appeal Arbitration Arrangement, led the negotiation of Investment Facilitation Agreement, promoted the conclusion of the Fisheries Subsidy Agreement, and is actively strengthening international cooperation in digital economy. At the same time, the World Trade Organization still faces some issues, such as excessive emphasis on the principle of consensus, multiple interests and demands that slow down the progress of multilateral negotiations, and the paralysis of appellate bodies that make it difficult for dispute resolution mechanisms to constrain unilateral protectionist measures by some members, which bring certain downward pressure to the openness policy index, which requires to be given full attention.

(5) Short-term confluence of multiple factors impacting World Openness Policies

In recent years, the international economic situation has been complex and turbulent, with several "black swan" and "gray rhino" events occurring, which have had an impact on the openness policies of various countries. For instance, the bankruptcy of Silicon Valley Bank led to financial sector turmoil, and several countries, including India, implemented food export bans or export restriction measures. These short-term disruptions have objectively had adverse effects on world openness policies for their negative impact on global opening-up policies.

3. Advancing World Openness Policies Steadily

(1) Pressure for tightening global opening-up policies continues to exist

IMF projects that the global economic growth rate in 2023 will be only 3 percent, with advanced economies growing at 1.5 percent and emerging market and developing economies growing at 4.0 percent.[2] Meanwhile, the World Bank forecasts a global economic growth rate of only 2.1 percent in 2023, with advanced economies growing at 0.7 percent and emerging market and developing economies growing at 4.0 percent.[3] Against the backdrop of sustained weakness in the global economy, trade and investment openness are also facing significant downward pressure. According to the WTO, global trade growth continues to slow down in 2022 and 2023, and the overall trend of global openness remains unfavorable. The UNCTAD points out that international direct investment in 2023 will continue the downward trend observed since 2022. In recent years, countries have significantly increased foreign investment regulations and restrictive measures, and the trend of strengthening foreign direct investment scrutiny continues.[4]

(2) Advancing trade policy openness in key sectors

The first point is to commit to international cooperation aimed at enhancing trade resilience. According to the WTO, closing off does not increase economic resilience. Therefore, it is important to strengthen international cooperation, promote openness and connectivity, and collectively address global challenges.[5] Countries should take concrete measures to facilitate stable and efficient supply chains, improve cross-border trade facilitation, especially for the cross-border flow of critical medical supplies, food, and consumer goods. They should also maintain and leverage the foundational role of the multilateral trading system, enhance international negotiations and cooperation on key trade issues, and improve the resilience and security of global industrial and supply chains.

The second point is to effectively regulate and reduce restrictive trade measures. The decline in the World Openness Policy Index is primarily due to a significant increase in non-tariff measures. In response to this, it is necessary to address restrictive measures that go beyond reasonable limits in certain advanced economies. This can be achieved by promoting the role of dispute settlement mechanisms like the WTO, conducting effective trade policy reviews, assessing negative effects, enhancing transparency and standardization in trade restriction measures such as export controls, and curbing the trend of protectionism under various pretexts. These efforts aim to maintain a favorable trade environment.

The third point is to pay greater attention to new issues, such as digital and green topics. Currently, countries around the world are increasingly focusing on topics related to innovation, digital economy, smart manufacturing, and green, low-carbon development. Trade policies should strengthen communication and coordination in new areas such as cross-border e-commerce, services trade, and green standards for goods trade. This approach aims to reduce confrontation and containment, foster a healthy development environment, and collectively promote global digital trade development and trade's green transformation, thereby expanding the "cake" of digital and green trade.

(3) Promoting reasonable adjustment of investment policies

The first point is to appropriately utilize the investment security review system. According to UNCTAD statistics,[6] in 2022, 37 countries conducted reviews of foreign investments due to national security concerns, accounting for a total of 68 percent of global foreign direct investment stocks in 2022. To standardize investment security reviews, it is essential to define and safeguard "national security" accurately, enhance international communication and dialogue on security issues, adhere to prudent and necessary principles, avoid overgeneralizing "security" and politicizing economic issues, and prevent disruptions to the rational layout of multinational business operations.

Box 3.3 Investment security review systems in the US and the EU

The US' investment review agency is the Committee on Foreign Investment in the US (CFIUS). It conducts reviews of investments that involve national security risks in the US. CFIUS focuses on factors such as the background of foreign investment companies, the characteristics of the domestic entities being acquired, and the impact of the transaction on US national security. For many years, CFIUS exercised its review authority under the Foreign Investment and National Security Act of 2007. However, in 2018, the Foreign Investment Risk Review Modernization Act (FIRRMA) was officially passed, bringing about significant changes to the foreign investment security review system. The first key aspect of the Foreign Investment Risk Review Modernization Act (FIRRMA) is the expansion of jurisdiction. FIRRMA emphasizes that non-controlling investments in three critical areas—critical infrastructure, critical technology, and sensitive personal data—are now within CFIUS' purview. Even if such investments do not result in control over US companies, they are subject to CFIUS review if they could exert influence on US enterprises or gain access to non-public technical information. The second aspect involves targeted enhancements for specific countries, introducing the concept of "countries of special concern" and mandating regular reports to Congress and CFIUS by the US Department of Commerce regarding Chinese investments in the US. The third aspect underscores the importance of sharing and coordination with allied nations, requiring the establishment of mechanisms for information sharing and coordinated actions with US allies. This includes regular consultations with allied representatives and sharing critical information from ongoing reviews, strengthening cooperation in the investment security review process.

EU member countries each have their own security review systems, and these systems have been continuously strengthened in recent years. In 2017, the United Kingdom, Germany, and France revised their existing security review mechanisms. In 2019, the European Parliament for the first time adopted the Regulation on the Establishment of a Framework for the Screening of Foreign Direct Investments into the Union at the EU level, which came into effect in October 2020. This regulation established coordinating bodies such as contact points and expert groups, defined mechanisms for information exchange and mutual evaluation among member states, providing a communication platform for foreign investment security reviews among EU member countries. According to the regulation, EU member states consider two main factors when conducting security reviews: the sector of investment, including areas like infrastructure, high-tech, critical raw materials, and media, and the attributes of the investor, such as whether it is government-controlled or subsidized and whether it engages in activities that affect national security or public order. Compared to the US security review system, the EU's framework has less binding authority, and member states retain the ultimate decision-making power.

The second point is to accelerate the transformation and adjustment of investment agreements. In recent years, international investment rules have been undergoing significant changes. In July 2023, negotiations on the text of the WTO's Agreement on Investment Facilitation for Development were successfully concluded, which is regarded to be an important step towards reaching the world's first multilateral investment agreement. Bilateral investment agreements are also facing adjustments and reforms, with an increasing number of them incorporating high-

level provisions for investment liberalization and facilitation. There is a growing emphasis on balancing the regulatory authority of host countries with investor protection, particularly in areas such as climate change. The United Nations Commission on International Trade Law is spearheading reforms in investor-state dispute settlement mechanisms. Furthermore, many high-standard regional economic and trade agreements also include advanced investment rules.

The third point is to actively adapt to global tax reform. In the coming years, the international tax framework will undergo fundamental changes due to the implementation of the Base Erosion and Profit Shifting (BEPS) project, an international tax reform initiative undertaken by the Organization for Economic Cooperation and Development (OECD) on behalf of the G20. UNCTAD believes that Pillar Two of the tax reform[7] will reduce tax-sheltered cross-border investments, altering the nature of cross-border investments and their international positioning.[8] Countries should promptly assess the impact on their existing investments, adjust investment promotion policies, guide multinational corporations in modifying existing tax treaty preferences, and strengthen their capacity to address tax-related risks. They need to give attention to issues such as digital taxes and carbon taxes, and enhance global tax coordination.

(4) Properly responding to emergencies

In response to adverse impacts and disruptions on global openness caused by factors such as financial risks, geopolitical issues, and public health security, it is essential to strengthen policy analysis, effectively prevent and respond to "black swan" incidents. This should be done while adhering to a multilateral framework and fully leveraging the roles of international organizations such as the United Nations and the WTO in global governance. Meanwhile, fostering dialogue and negotiation, enhancing the transparency and international coordination of openness policies, and collectively addressing risks and challenges in globalization are also crucial steps.

NOTES

1. The calculation method for the Non-Tariff Measures in this context is the number of non-tariff measures multiplied by the number of products involved.
2. IMF, *World Economic Outlook*: *Near-Term Resilience, Persistent Challenges* (Washington, DC, July 2023).
3. World Bank, *Global Economic Prospect 2023* (Washington, DC, June 2023)
4. UNCTAD, *World Investment Report 2023: Investing in Sustainable Energy for All* (July 5, 2023).
5. WTO, *World Trade Report 2021: Re-globalization for a Secure, Inclusive, and Sustainable Future* (November 16, 2021).
6. UNCTAD, *World Investment Report 2022: International Tax Reform and Sustainable Investmen*t (June 9, 2022).
7. The Pillar Two tax reform aims to establish a global minimum tax system, combat tax evasion by multinational enterprises, and set a bottom line for competition in corporate income tax rates.
8. United Nations Conference on Trade and Development, *World Investment Report 2022*: *International Tax Reforms and Sustainable Investment* (2022), https://unctad.org/publication/world-investment-report-2022.

CHAPTER 4

Global Digital Economy and Evolution of Opening-Up Rules

In recent years, there have been significant developments in new-generation information technologies, from big data and cloud computing to the Internet of Things and artificial intelligence, with digital powering all walks of life, and the digital economy has become an important form of economy following the agricultural and industrial economies, and an important aspect of countries' opening up for development and international cooperation. The construction of rules and governance systems for the digital economy plays a vital role in the development of the digital economy and is of great concern to the international community.

1. Digital Economy Continues to Release Vitality

The scale of the digital economy continues to expand. Various digital technology facilities and application settings are flourishing. The global industrial chain, supply chain, and value chain have experienced significant changes, and the industrial structure has been deeply transformed. As the key application fields of the digital economy, digital trade and digital finance have developed substantially in recent years, with promising prospects.

(1) Digital economy empowering economic growth

Digital economy[1] effectively enhances global economic energy. The Global Digital Economy White Paper (2022) by the China Institute of Information and Communications Technology shows that in 2021, the value added of the digital economy (including industrial digitization and digital industrialization) of the world's 47 major economies amounted to US$38.1 trillion, a year-on-year increase of 15.6 percent, and accounted for 45 percent of GDP.

Box 4.1 Industrial digitization and digital industrialization

1. Industrial Digitization

Industrial digitalization refers to the process of shifting traditional industries into the digital economy. In industrial digitization, enterprises digitize their traditional production processes, business models, management methods, etc., and through the introduction of various information technology and digitization tools, enabling them to achieve digitized management and automated operations covering their production, supply chain, and customer relations.

2. Digital Industrialization

Digital industrialization is not only about digitizing traditional industries but also about cultivating and developing new industries based on the digital economy. Digital industries cover a variety of industries related to digital technology, such as the Internet, e-commerce, software development, and cybersecurity. Based on digital technology, these industries use the Internet and communication technology to provide a variety of digital products and services, creating new business models and opportunities.

3. Relationship between the Two

Industrial digitalization serves as a major pillar and driving force for digital industrialization. With the digital transformation, traditional industries can better adapt to the development trend of the digital economy and improve their innovation ability and competitiveness. Meanwhile, digital industrialization promotes the further development of industrial digitization and provides more opportunities and challenges for the industrial digitization of traditional enterprises through the growth and expansion of digital industries. The mutual integration of industrial digitalization and digital industrialization is the future development trend.

The "top three powers" of the digital economy are clear. The ICT report shows that in 2021, the scale of the digital economy of the US, China, and Germany ranked among the top three in the world, with US$15.3 trillion, US$7.1 trillion, and US$2.9 trillion, respectively. According to the Digital China Development Report 2022 by China's National Internet Information Office, the scale of China's digital economy reached RMB 50.2 trillion in 2022, the total amount of which ranked second in the world, and its share of GDP rose to 41.5 percent.

Industrial digitization, the main driving force for the development of the digital economy. The ICT calculated that in 2021, global industrial digitization accounted for 85 percent of the digital economy, and digital industrialization accounted for 15 percent. The tertiary industry has the most noticeable effect of applying the digital economy, with the value added in the digital economy accounting for 45.3 percent.

New digital infrastructure[2] accelerates the layout. ChatGPT, as a new artificial intelligence digital technology, has received enormous attention from all sectors of society since its release in November 2022, triggering a boom in AI research and development in all countries. The data center is one of the core infrastructures of the digital economy, and Synergy, a US research institute, pointed out that the US accounts for nearly 40 percent of the total number and 50

percent of the capacity of the world's mega data centers currently; followed by China, Ireland, India, Spain, Israel, Canada, Italy, Australia and the UK.

The role of data factors and resources in empowering the digital economy has become more prominent. Data is a key production factor, the foundation, and the important carrier for the development of the digital economy. The International Data Corporation predicts that the global data circle will increase from 33ZB in 2018 to 175ZB in 2025. According to the statistics of the State Internet Information Office, China's data production hit 8.1ZB in 2022, a year-on-year increase of 22.7 percent, with a global share of 10.5 percent, ranking second in the world. Globally, there remains immense potential for effective use and value transformation of data elements.

(2) Digital economy promoting changes in the GVCs

The digital economy brings about changes in business models and industries. The value chain of the digital economy is more value-added, the chain is longer, and it is less limited by time and space, and the efficiency of resource allocation has been significantly improved. The digital economy promotes the integration and innovation of digital technologies, application settings, and business models, giving rise to many new business sectors and new models while strengthening the sharing of knowledge and technology elements among industries, enhancing total factor productivity through technological development, and driving the digital transformation of traditional industries worldwide.

The digital economy helps upgrade the industrial structure and develop an innovative economy. According to the WIPO, digitalization is changing the world and is transforming today's industries by changing the objects, types, and processes of innovation. By 2020, digital innovations have quadrupled in 20 years, growing at an annual rate of 13 percent and accounting for 12 percent of all patent applications in 2020. patents for digital-related innovations grew 172 percent faster than all other patents from 2016 to 2020. In East Asia, Japanese innovators hold 25 percent of the world's ICT-related patents, followed by Rep. of Korea (18 percent) and China (14 percent).[3]

(3) Digital trade has become a new hotspot

The booming development and wide application of the digital economy have given rise to digital trade, with data as the key production factor, digital services as the core, and digital ordering and delivery as the main feature.

Global digital services trade is thriving. Since 2016, digital services exports have accounted for more than 50 percent of global services exports and have shown a steady increase. According to WTO predictions, the global transaction scale of B2C (merchant to consumer level) cross-border e-commerce is expected to increase from US$780 billion in 2019 to US$4.8 trillion in 2026, with a compound annual growth rate of up to 27 percent.

The global cross-border e-commerce market is growing. According to McKinsey, the global cross-border e-commerce transaction value in 2021 was US$1.25 trillion. Another international data and statistics agency, Statista, estimated that global retail e-commerce sales exceeded US$5.7 trillion in 2022, a year-on-year increase of 16.3 percent, and are expected to reach record peaks in the coming years. China, the US, Japan, Germany, and the United Kingdom are the world's top five e-commerce sales countries, and Rep. of Korea, India, France, Indonesia, and Canada also rank among the world's top e-commerce sales, with greater potential in e-commerce development.

In recent years, China's digital trade has been developing rapidly, with both scale and quality improving. Data from China's Ministry of Commerce shows that the scale of China's digitally deliverable services trade reached 2.5 trillion yuan in 2022, a 78.6 percent increase over five years ago, and the gap with the US, the top country in digital services trade, has been narrowing. China is the world's largest cross-border e-commerce retail export economy. In 2022, the import and export of cross-border e-commerce reached 2.1 trillion yuan, an increase of 30.2 percent compared to two years ago. In the past five years, the import and export of China's cross-border e-commerce has increased by nearly ten times.

Box 4.2 Relevant terms on digital trade

Drawing on the expression of the *Digital Trade Measurement Manual*, we define digital trade as "trade with data as the key production factor, digital services as the core, and data ordering and delivery as the main characteristics."

Digital trade includes trade in digital ordering and trade in digital delivery. In terms of classification, it can be roughly divided into five categories: digital product trade, digital service trade, digital technology trade, data and information trade, and cross-border e-commerce.

Among them, digital product trade refers to the trade of transmitting and receiving images, text, videos, audio, and other information content in digital format through information communication networks, including digital games, digital anime, digital content publishing, digital advertising, digital music, digital film, and television.

Digital technology trade refers to the trade that is highly related to digital technology and can provide digital empowering technology services for other fields, including computer software services, communication technology services, big data services, cloud computing, blockchain technology services, industrial internet services, etc.

Digital service trade refers to the trade that is carried out through interactive communication through information and communication networks, delivering cross-border services in whole or in part through digital forms, including the digital delivery part of traditional services such as internet platform services, digital finance and insurance, online education, remote healthcare, and management and consulting.

Data and information trade refers to the trade in data and information itself.

Cross-border e-commerce refers to the trade of goods and services through e-commerce platforms for cross-border transactions.

(4) Digital finance contributes to high-quality economic development

In recent years, with the mutual integration and penetration of finance and science and technology, the use of digital technologies such as blockchain, big data, artificial intelligence, and other digital technologies in the financial industry has become more diversified in application scenarios, and new digital financial models and formats have gradually been formed on the basis of traditional finance by integrating new technologies and new modes, and have been continuously expanded. In addition to the digital transformation of traditional financial institutions, it has also given rise to new forms of business, such as digital currency, digital banking, digital insurance, digital payment, and decentralized finance.

The development of digital currency has accelerated. Digital currencies can be categorized into private digital currencies and central bank digital currencies according to the issuing parties. Central bank digital currencies are legal tender, and the research and development of central bank digital currencies in several economies have entered the new development era, with a report from the Bank for International Settlements showing that 86 percent of the world's central banks are researching central bank digital currencies in 2020. Since 2021, China's digital RMB pilot areas have been increasing, and the application scenarios are gradually expanding with a wider range of applications.

The pace of digital payment has accelerated. Digital payment effectively combines the Internet, terminal equipment, and financial institutions to form a new type of payment system. From the perspective of digital payment providers, Chinese companies have leading advantages. According to Juniper Research, an international market research organization, the top five digital payment companies in the world are Alipay, PayPal, WeChat Pay, Google Pay, and UnionPay China. From the proportion of digital payment use, according to Statista statistics, the countries with the highest proportion of digital payment use in 2021 are China, Rep. of Korea, and Vietnam, respectively, 39.5 percent, 29.9 percent, and 29.1 percent, while the proportion of use in the US, Germany, and Italy is relatively low, respectively, 17.7 percent, 14.5 percent, and 8.3 percent.

2. Global Digital Economy Rules Are Being Shaped

The global digital economy is booming, new modes and issues are constantly arising, the digital economy rule system has yet to be formed, and the concepts and practices of digital governance in major economies are still clearly distinct. All parties need to work together to strengthen cooperation, expand the space for coordination and integration of rules, and promote the formation of an open and inclusive system of rules for the global digital economy.

(1) Digital economy rules continue to expand the areas being covered

Digital trade rules are progressing faster. At the beginning of the digital economy, e-commerce was the most active area of the digital economy, with remarkable achievements in technological innovation, scale growth, and economic radiation. Early digital economy rules were mainly focused on e-commerce, covering the legality of e-commerce, tariffs on electronic transmissions, trade facilitation, consumer protection, and other aspects. At the multilateral level, in 1998, the WTO issued a Declaration on Global E-Commerce, announcing that members would maintain the current practice of not imposing tariffs on electronically transmitted transactions. In December 2017, negotiations on e-commerce were incorporated into the WTO's work agenda. In January 2019, the WTO formally launched plurilateral negotiations on e-commerce. At the regional level, e-commerce rules in free trade agreements are developing rapidly, and basically, all bilateral and multilateral FTAs that have been signed or are under negotiation in recent years contain provisions or chapters on e-commerce.

Digital elements and services have become important trading items in international trade, and issues such as digital market access and digital trade liberalization have become essential elements of rulemaking, focusing mainly on reducing restrictions on the cross-border flow of data, lowering barriers to access to digital services, safeguarding the rights and interests of relevant subjects, and maintaining cybersecurity. Regional trade agreements are becoming an important vehicle for digital trade rulemaking, and the US-Mexico-Canada Agreement, reached in 2018, has proposed for the first time a special chapter on "digital trade." Most of the free trade agreements signed globally now contain specific provisions or chapters on e-commerce (digital trade) related to digital trade.[4]

Digital economy agreements are popping up. With the rapid development of the digital economy and its penetration into all areas of economic operation, the relevant rules cover an increasingly wide range of topics, including digital taxation, financial technology, digital currency, artificial intelligence, digital inclusiveness, and place greater emphasis on the issues of international mutual recognition, coordination, and inclusiveness among countries in terms of digital technology, standards related to the digital economy, and domestic digital governance and regulatory frameworks. In recent years, several specialized digital economy agreements have already taken effect, such as the Digital Economy Partnership Agreement jointly signed by Singapore, New Zealand, and Chile, the Singapore-Australia Digital Economy Agreement, the Korea-Singapore Digital Partnership Agreement, and the United Kingdom-Singapore Digital Economy Agreement.

(2) Coordination of rules for cross-border data flowing continues to advance

Reducing barriers to data flow is an urgent need for the development of the digital economy, and the difficulty lies in the balance between cross-border data flow, individual privacy protection,

and national security guarantees. At present, the data governance concepts of major digital economy countries are obviously in disagreement, and cross-border data flow has not yet formed international unified rules, but the coordination of rules based on common ground continues to advance.

The US advocates the free flow of cross-border data. The US advocates the free flow of data across borders and promotes the construction of a system of rules for the liberalization of digital trade based on its strong technological advantage in the digital economy. The US has adopted a model of industry self-regulation, supplemented by government regulation, for the protection of the cross-border flow of personal data. In recent years, it has focused on promoting the formulation of rules and standards for the free flow of cross-border data through free trade agreements. 2012 US-Korea Free Trade Agreement included cross-border data flow provisions in a bilateral agreement for the first time. The US-Mexico-Canada Agreement states that "the Parties consider the Asia-Pacific Economic Cooperation (APEC) system of cross-border privacy rules to be an effective mechanism for facilitating the transfer of information across borders and for the protection of personal information." At the same time, the US continues to exercise strict control over important data related to national defense and security, such as adopting restrictive measures on the cross-border flow of data in key areas through foreign investment security reviews and export controls. The US government has also enacted the Clarifying Lawful Use of Data Outside the Border Act to ensure the legality of government access to data stored on extra-territorial servers by service providers within its borders and to strengthen its control over global data.

The EU stresses privacy protection. With the goal of "fundamental rights protection plus the construction of the internal market," the EU has constructed a set of high-standard data protection mechanisms, the most representative of which is the General Data Protection Regulation, which strictly controls the transfer of personal data from the EU to the outside of the EU, and cross-border transfers of personal data are realized through three main mechanisms. First, a mechanism based on a determination of adequacy (also known as a whitelist); second, a mechanism for the adoption of appropriate safeguards, including the signing of standard contracts, the adoption of binding corporate rules, certification mechanisms, codes of conduct, etc.; and third, as necessary for gaining the permission of the data subject, fulfilling the contract, etc. The EU also approved the Regulation on the Free Movement of Non-Personal Data in 2018, which regulates the flow of data that does not involve the identification of individuals and aims to supplement the GDPR to build a complete system for the flow of data. To meet security and law enforcement demands, the EU has clarified the requirements for extra-territorial authority of data, and foreign companies (digital platforms) entering the single market must do so on the premise of complying with EU rules.

China is committed to building balanced rules and striving to build the rules on cross-border data flow so as to balance development and security. It promotes the openness and development of the digital economy while also focusing on data regulation and security.

China actively participates in the construction of rules on the cross-border flow of data, and its commitment to the cross-border flow of data in signed FTAs is mainly reflected in the relevant provisions of the RCEP Agreement.[5] The Comprehensive and Progressive Trans-Pacific Partnership Agreement and the Digital Economy Partnership Agreement, both of which China is actively promoting accession to, contain high-standard rules on the cross-border flow of data. China is actively carrying out pilot projects on the management of the cross-border flow of data in the Pilot Free Trade Zones in Beijing and Shanghai and the Free Trade Port in Hainan; accelerating the improvement of the relevant domestic supporting legislation, and has successively introduced the Cybersecurity Law, the Data Security Law, the Personal Information Protection Law, and the Regulations on the Security and Protection of Critical Information Infrastructure to form the core legal system in the field of the digital economy; and, based on the above, introducing in 2022 the "Data Outbound Security Assessment Measures, which provides important supporting implementation rules for cross-border data flow; the Measures on Standard Contracts for Personal Information Outbound, which will be issued in 2023; and the promotion of international cooperation in the field of data security, and the proposal of the Global Data Security Initiative, which has been widely valued by the international community.

Progress has been made in the coordination of international rules on cross-border data flow. In the early days, the positions of major economies on the free flow of cross-border data diverged greatly, and policies and regulations were obviously divided, but the rules have evolved and developed, and the common points of all parties have gradually become clearer, which is mainly shown in the recognition of the "reasonable" flow of data, which provides the possibility of coordinating the rules of global data flow. The rule framework of "free flow of cross-border data with public policy exceptions or security exceptions" has gradually gained support from all parties when negotiating and formulating cross-border data flow rules based on bilateral and multilateral economic and trade agreements. It has become the direction of rules negotiation to consider and agree on exceptions based on the existing common ground.

Box 4.3 Adoption of adequacy decision for the EU-US data privacy framework

On 10 July 2023, the European Commission adopted an Adequacy decision for the EU-US Data Privacy Framework for the security of personal data of EU citizens exported to the US. The agreement imposes new restrictions on electronic surveillance by US intelligence agencies and provides Europeans with new ways to file complaints if they consider that their personal information has been used unlawfully by US intelligence agencies.

The European Commission believes that the US ensures a level of protection under the framework comparable to that in the EU for personal data transferred from the EU to US companies, so personal data can flow securely from the EU to US companies participating in the framework without the need for additional data protection measures.

Box 4.4 International and regional organizations promote consensus on cross-border data flows

The OECD revised its Guidelines on Privacy Shield and Transborder Transfers of Personal Information (the Guidelines) in 2013 while clarifying that member countries have the right to national rule making on privacy shielding and other matters beyond the Guidelines' minimum standards, to promote consensus more effectively.

In 2011, APEC established the Cross-Border Privacy Rules (CBPR) based on the APEC Privacy Framework adopted in 2005, which allows companies to demonstrate their compliance with internationally recognized standards of data privacy protection by joining the CBPR. The Group of Twenty (G20) proposed the "free flow of trusted data" in the 2019 Osaka Declaration on the Digital Economy. The Group of Seven (G7) re-emphasized the "free flow of trusted data" in the 2022 Digital Ministers' Meeting Declaration and proposed a Program to Promote the Free Flow of Trusted Data.

(3) The Rules on digital intellectual property become more balanced and inclusive

The protection of digital intellectual property rights has become an important part of the ETA negotiations, mainly including topics such as copyright protection of digital content, non-compulsory localization of source code, protection of trade secrets in computers, the electronic trademark system, and the liability of Internet Service Providers. At present, under the basic consensus on the protection of digital intellectual property rights, there are still differences on specific topics.

Both the US and the EU emphasize the protection of digital IPRs but with different degrees and emphases. In terms of digital intellectual property rules, the US and EU mainly advocate safeguarding the right of non-compulsory transfer of key technologies in emerging industries (products) such as cloud computing and artificial intelligence and protecting the copyright of digital media products.

The US implements strict protections on digital intellectual property rights, especially in "source code or algorithm protection," with a prominent aspiration. For example, the USMCA's rules on digital intellectual property are based on the TPP and CPTPP.[6] For a higher level of commitment, the public infrastructure clauses of TPP and CPTPP have been removed, "key protection" has been introduced, and the liability of ISPs for IPR infringement and the obligations of IPR protection have been strengthened.

The EU emphasizes the protection of copyright in digital content, protecting the rights of copyright holders and balancing the interests of users and content creators.

In 2019, the EU launched the Directive on Copyright in Digital Single Market, an overhaul of EU copyright law that includes new provisions on the "special liability of online content-sharing platforms" and the "link tax," which will legally constrain tech giants such as Google from profiting from unregulated use of free media content.

China has stepped up its efforts to improve its digital intellectual property rights system. Emphasis has been placed on giving full consideration to data security, public interest, and individual privacy, understanding the unique attributes of data and the objective law of the property rights system, respecting the creative work and relevant inputs of data processors, and giving full play to the role of data in supporting the digitization of industries and high-quality development. The Outline for the Construction of a Strong Intellectual Property Country (2021–2035) and the 14th Five-Year Plan for the Protection and Application of National Intellectual Property Rights both propose the implementation of data intellectual property rights protection projects and in-depth research on related theories and practices. Pilot projects on data intellectual property protection have been carried out in Zhejiang province, Shanghai, and Shenzhen, promoting replicable and extendable experiences and practices in local legislation, certification, and registration. Zhejiang province and Beijing have incorporated data intellectual property rights into local regulations, and Shenzhen has promoted the registration process of data intellectual property rights.

There is an opportunity to reach a consensus on international rules on digital intellectual property rights. To safeguard the competitiveness of digital products and the rights and interests of their holders, economies share a common demand for a favorable digital intellectual property environment, and the rules on digital intellectual property can build on this to reach some agreements. For example, in non-compulsory localization of source code and other digital technologies, some current ETAs have already taken the approach of retaining exceptions, and further harmonization of the coverage of the exceptions may facilitate the formation of a consensus on the rules. Regarding the liability of Internet service providers, there is a convergence between the US and Europe on the "notice-and-takedown" obligation, i.e., if ISPs fulfill their IPR protection obligations such as "notice-and-takedown," they are not liable for IPR infringement by third parties (platform users).

(4) New breakthroughs in tax rules under the digital economy

Under the context of the digital economy, the traditional tax system has been challenged and shaken. Digital economy tax rules mainly include two aspects: electronic transmission tariff and domestic digital tax. Formulating new tax rules in accordance with the characteristics of the digital economy has become the focus of major economies, and major international organizations have made efforts to seek global solutions and have made positive progress.

The issues of electronic transmission tariffs and domestic digital taxes are in disagreement. Different economies have various levels of development of the digital economy and have different interests in electronic transmission tariffs and digital service taxes,[7] with three kinds of advocates have been formed: first, advocating the exemption of electronic transmission tariffs and digital service tax, represented by the US; second, advocating the exemption of electronic transmission tariffs but excluding the tax of digital services; and third, advocating the exemption

of electronic transmission tariffs and digital service tax, represented by India, Brazil, South Africa, and Indonesia.

China improves digital tax governance. It is in favor of drawing on international experience in digital economy taxation, adhering to the principle of statutory taxation, providing greater support for taxation, improving the tax collection and management system, and strengthening the collaborative and common governance of digital taxation, so as to better promote the high-quality development of the digital economy.

There has been progress in international consensus. Under the active coordination of all parties, international rules on tariff-free electronic transmission and domestic digital tax have achieved a certain degree of consensus. Multi-bilateral rules still maintain the "tariff-free electronic transmission" proposed in the 1998 WTO Declaration on Global Electronic Commerce, which is accepted in the FTAs signed by major digital economies; the G20/OECD Inclusive Framework on Base Erosion and Profit Shifting issued a statement which calls for a "two-pillar" program[8] to address the tax challenges of digitizing the economy, reaching a certain consensus on addressing the tax challenges of digitization of the economy.

3. Future Trends in the Global Digital Economy and Opening-Up Rules

The global digital economy is developing strongly, and digital industrialization, industrial digitization, data value exploitation, digital technology development, and digital infrastructure continue to evolve. At the same time, the global digital economy rules are fragmented and under-supplied, and there is an urgent need to alleviate the global digital divides, regulate cross-border data flows, improve the protection of digital intellectual property rights, and refine the rules of digital taxation.

(1) Strong development of the digital economy, opportunities and challenges co-exist

The integration of digital industrialization and industrial digitization has become a trend. Digital industrialization provides the underlying technology for the digital economy and is the core driving force for the development of the digital economy. Industrial digitization is booming; digital information technology and traditional manufacturing technology will be deeply integrated, and digital technology and data resources will help the industrial transformation and upgrade; industrial digitization in the digital economy will be an increasingly high share. Digital industrialization and industrial digitization will promote each other and push "manufacturing" towards "intelligent manufacturing." In the future, more "digital production services plus digital business models plus digital financial services" will emerge from modernized industrial clusters. Accompanied by technological innovations in artificial intelligence, quantum communications,

the Internet of Things, and other fields, future digital technology is likely to achieve systematic breakthroughs, promoting the further development of the digital economy.

The global data market has huge room for development. The development of the digital economy requires the activation of data elements and the establishment of a perfect, fair, and credible data market. The future data market is expected to go beyond the "data exchange" model and produce a scenario-based data trading model for governments and industries. After the establishment of the data market, its massive data resources will enter the market in various forms to feed and promote the development of the digital economy. At the same time, it should also be noted that the related problems of data market development, such as monopoly operation, irregular operation, and information leakage, for which governments should strengthen regulatory cooperation and promote standardized development.

The problem of the digital development divide has been highlighted. There is an imbalance in the development of digital technology among different regions and countries. A small number of advanced countries have mastered key global digital technologies but are reluctant to share their technological achievements with other countries for a variety of reasons, including technological protection and the concept of generalized security, thus deepening the global digital technology divide. Most developing countries are lagging in terms of digital infrastructure and technology and are facing deep digital divides and capacity deficits. According to the International Telecommunication Union, about 5.3 billion people globally use the Internet in 2022, accounting for 66 percent of the world's population. In Europe and North America, more than 80 percent of the population uses the Internet, while in Africa, the proportion is only 40 percent, much lower than the global average. In the future, digital industrialization, industrial digitization, data value exploitation, digital technology development, and digital infrastructure will continue to be iteratively upgraded and developed, and at the same time, it is also necessary for countries to work closely together and take practical measures to solve the problem of the global digital development divide.

China's digital economy will reach a new level. China will endeavor to promote the high-quality development of the digital economy, will speed up the promotion of the deep integration of the digital economy and the real economy, and will create internationally competitive digital industry clusters. It will fully unleash the potential of digital elements, accelerate the construction of the digital government, and speed up the transformation of the economic development mode. The digital economy's innovative development in various regions has led to the emergence of typical practices of digital transformation.

Box 4.5 Making Shanghai an international digital capital

Shanghai is promoting comprehensive digital transformation in all areas of economy, life, and governance and accelerating the creation of an international digital capital with world influence.

Accelerating the digitization of its economy, vigorously developing the digital economy, and promoting the digital transformation of its industries. With digital empowerment, Shanghai's aviation, aerospace, shipping, automotive, and other industries are constantly upgrading, and more parks focusing on industrial digitization have come into being. In 2022, the added value of Shanghai's core industries in the digital economy reached RMB 537 billion, accounting for 12.3 percent of the GDP.

Accelerating the digitization of life and leading the world in digital life services, Shanghai is actively guiding the participation of market players to promote the digital transformation and construction of key areas such as medical care, traveling, schooling, tourism, sports, and pension. Many indicators, including digital administrative services, public services, and digital life services, have stepped into the national and global leading ranks.

Accelerating the digital transformation of governance and shifting from reactive to proactive services, Shanghai uses intelligent means such as big data and AI to provide diversified, personalized, attentive, and high-quality services for market players and the public.

(2) Global digital governance has a long way to go

The market calls on governments to strengthen cooperation in rule-making for the digital economy. There is a need to strengthen collaboration among major economies, including sharing countries' experiences in digital governance and exploring issues such as mutual recognition, harmonization, and inclusiveness of regulatory frameworks. Countries should work together to combat all kinds of illegal and infringing behaviors in the development of the digital economy, protect the legitimate rights and interests of market players, create a fair and transparent international environment, jointly address regulatory issues in the ordering, production, delivery and after-sale segments of the digital trade, and jointly plug loopholes in regulatory rules on cross-border data flows, digital intellectual property rights protection, and user privacy protection. In formulating domestic digital economy rules and in external negotiations, countries should consider both their own interests and the overall global interests, consider both digital economy development and data security, endeavor to balance local and global interests, and actively coordinate the relationship between digital development and digital security. All parties should strengthen international cooperation on digital governance under the framework of the United Nations, WTO, and G20, take into full consideration the demands of all parties on the basis of the existing common ground, and endeavor to reach a consensus on the rules of the global digital economy.

China actively participates in global digital economic governance. For one thing, it has endeavored to build a digital economy institutional system that is in line with internationally accepted rules and eliminate domestic institutional obstacles that hinder the development of the digital economy. Digital economic and trade rules are actively implemented on the basis of elevation standards with active promotion of the accession to CPTPP and DEPA for enhancing

the level of institutional openness. On the other hand, China is participating in global digital economy governance, such as implementing the Ministerial Decision on the E-commerce Work Plan of MC12, promoting the better role of the WTO in the digital era, and improving related rules and increasing the supply of global digital economy.

NOTES

1. There is no common and authoritative international standard of measurement and statistical criteria for the digital economy, but it has reached an international consensus that the growth of the digital economy is faster than the growth of the total economy.
2. Digital infrastructure is an infrastructure system driven by data innovation, based on communication networks, and with data arithmetic facilities at its core, mainly involving new-generation information and communication technologies such as 5G, data centers, cloud computing, artificial intelligence, the Internet of Things, blockchain, and other types of digital platforms.
3. World Intellectual Property Organization, *World Intellectual Property Report* (April 2022).
4. According to the TAPED (Trade Agreements Provisions on Electronic Commerce and Data) database, by June 2021, a total of 188 signed Preferential Trade Agreements (PTA) around the world contain specific provisions on digital trade, of which 113 contain specific e-commerce provisions, and 83 contain e-commerce (digital trade) chapters.
5. Article 14(2) of Chapter 12 of the RCEP provides that a Party shall not make the conduct of business in the territory of that Party conditional on requiring covered persons to use computing facilities in the territory of that Party or to place facilities within the territory of that Party.
6. Both the TPP and CPTPP require "non-compulsory localization of source code" but at the same time state that the software to which "non-compulsory localization of source code" applies is limited to "mass market software or products containing such software, excluding software used in critical infrastructures."
7. Broadly speaking, domestic digital taxes also include consumption taxes, value-added taxes, and other indirect taxes, which are not discussed here.
8. Pillar I breaks through the physical constraints of the current international tax rules and redistributes the profits and taxing rights of large multinational enterprises (MNEs) to the market countries to ensure that they are more equitably liable for global tax payments in the context of the digital economy. Pillar II combats tax evasion of multinational enterprises through the establishment of a global minimum tax regime and establishes a bottom line for competition in corporate income tax rates.

CHAPTER 5

Global Cooperation in Opening-Up of Green Trade

The impact of climate change on human ecology, global politics, and economy continues to escalate, and the world needs an urgent transition to green and low-carbon. In the context of global cooperation to combat climate change, the relationship between trade development and environmental protection has become the focus of many countries and international organizations. Green trade has become a widely discussed topic. The international trade rules show a clear trend towards "greening." Carbon rules are becoming an important part of global economic and trade rules, and the game surrounding the right to formulate low-carbon rules will become more intense. It is urgent for all parties to build consensus, strengthen cooperation, promote international opening-up and cooperation through green trade, and jointly combat climate change.

1. Green Trade Becomes the Focus of Global Society

The impact of the cross-border flow of goods and services in international trade on the environment is one of the key concerns of the multilateral trading system and various economic and trade agreements. As global climate change becomes increasingly severe, countries are actively exploring the path of green and low-carbon development, participating in global climate governance, and continuously strengthening communication and cooperation among them.

(1) Strengthening international cooperation is an essential option for addressing climate change

In recent years, climate change and extreme weather have occurred frequently, posing serious challenges to the survival and development of humankind. It is imperative to practice true multilateralism, strengthen international cooperation in areas such as addressing climate change,

adhere to green and low-carbon development, and accelerate the modernization of human beings living in harmony with nature. Currently, more than 130 countries have announced that they will reach the net-zero emissions target by mid-century. In September 2020, China announced its "dual-carbon" goal, i.e., to strive to reach the peak of carbon dioxide emissions before 2030 and to achieve carbon neutrality by 2060.

Main economies keep a fast pace in mutual cooperation on climate change. China is establishing and developing a climate change partnership with the EU and carrying out a great deal of practical cooperation on key issues such as renewable energy, carbon capture and storage. China and the US have been steadily advancing their cooperation on climate change, such as issuing the China-US Joint Statement Addressing the Climate Crisis in April 2021, which states that both sides are committed to cooperating with each other and working together with other countries to solve the climate crisis.

Developing countries are also actively responding to climate change issues. In 2021, China and the heads of delegations of 53 African countries and the African Union Commission jointly issued the Declaration on China-Africa Cooperation on Climate Change, emphasizing joint efforts to address climate change, contribute to sustainable development, and jointly build a community of life for man and nature.

(2) Green trade has become an important topic of extensive international discussion

As early as 1994, the Uruguay Round of General Agreement on Tariffs and Trade (GATT) negotiations has come to the Decision on Trade and Environment. The WTO set up the Committee on Environment and Trade (CET), which is specifically responsible for environmental and trade issues. Eighteen members formed the "Friends of Environmental Goods" and formally launched the Environmental Goods Agreement (EGA) negotiations in the form of open plurilateral negotiations in July 2014, with the aim of reducing or eliminating tariffs and non-tariff barriers to environmental products and promoting free trade in environmental products. As of December 2016, a total of 18 rounds of negotiations had been conducted. Members involved in the negotiations account for about 90 percent of the global market share of environmental goods trade, but the negotiations have been stalled due to the wide divergence of views among members and the presidential election in the US. After Biden came to power in 2021, the US government promised to actively promote the EGA negotiations, but the negotiations have not yet started.

The APEC is one of the earliest organizations to promote cooperation on environmental goods and services, and members have committed to further expanding the APEC environmental goods list. A number of important international institutions are actively promoting green trade rules, with the IMF proposing an international minimum carbon price program and the OECD proposing an inclusive framework for explicit and implicit carbon pricing. High-standard economic and trade agreements, such as the Comprehensive and Progressive Trans-Pacific

Partnership (CPTPP), have a special chapter on the environment and other chapters covering a wide range of trade-related environmental issues.

(3) The international community has reached a certain consensus on the promotion of green trade

The term "green trade" has appeared many times in domestic and international policy documents.[1] In the policy documents of relevant United Nations agencies, green trade mainly refers to the coordination of environment and trade, such as Agenda 21, the Rio Declaration on Environment and Development, the Report of the World Summit on Sustainable Development—Political Declaration, and the Report on Sustainable Development, all of which emphasize that trade and the environment are mutually reinforcing and coordinated. The *Greening International Trade: Pathways Forward*,[2] published by the United Nations Environment Programme in 2021, has repeatedly emphasized green trade and explicitly proposed the construction of an environment and trade agenda 2.0, including strengthening trade-related environmental policies, promoting the upgrade of environmental regulations in trade policies and agreements, and advancing the cooperation of environment and trade. Policy documents such as the EU's "Adapting to Climate Change: Towards a European Framework for Action"[3] paid high attention to green trade, focusing on green trade measures and trade in green products.

2. Green Trade Becomes an Important Part of Global Trade

The pace of global green and low-carbon transformation is accelerating, and more and more countries regard the development of green trade as an important means to promote economic transformation, improve international competitiveness, and discourse power in the low-carbon field. Represented by environmental products, green trade is playing an important role in the development of international trade.[4] At the same time, green trade is facing profound changes brought about by rules such as carbon tariffs.

(1) Green trade maintains steady growth generally

According to the WTO list of environmental products, the world's import-export volume of green trade totaled US$8.84 trillion in 2022, with an average annual growth rate of 0.85 percent over the period 2013–2022 (see Fig. 5.1). The fluctuation of the scale of green trade is basically synchronous with the global trade in goods, and its share is stable between 20 percent and 23 percent. In 2022, the global trade in goods rebounded strongly, and the share of green trade declined slightly, accounting for about 18.2 percent of the total world trade. China's import-export volume of green trade totaled US$1.08 trillion, accounting for 12.2 percent of the global share, an increase of 2.3 percentage points compared with that of 2013.

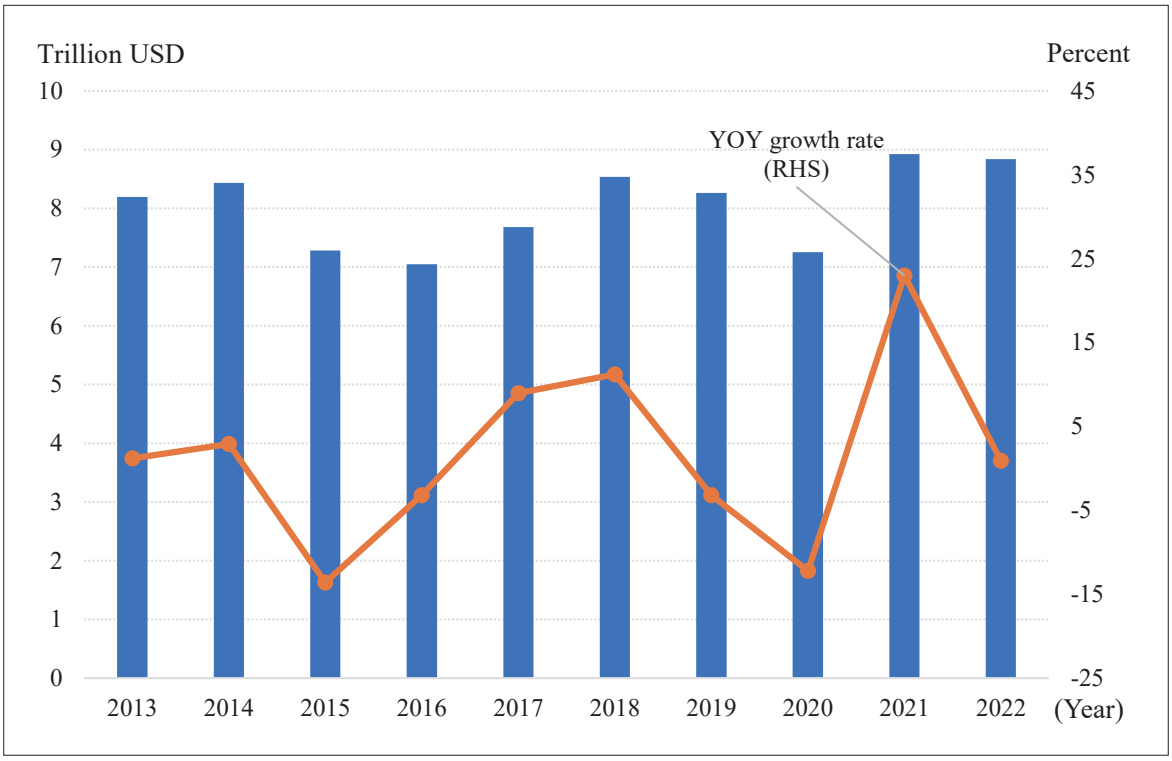

Fig. 5.1 Global green trade: 2013–2022

Source: Calculated based on the Global Trade Flow database.

(2) The regional pattern of green trade is basically stable

From the perspective of global green import and export, the EU, the US, and China have always ranked among the top three in the world, accounting for about 40 percent of the total. Developed countries such as Japan, the United Kingdom, and Rep. of Korea have consistently ranked among the top in the world.

According to the total import-export volume of global green trade, in 2022, the top ten countries (regions) in terms of green trade scale are, in order, the EU, the US, China, Japan, the United Kingdom, the Republic of Korea, Singapore, Canada, India and Mexico (see Fig. 5.2), accounting for 14.6 percent, 13.6 percent, 12.2 percent, 4.5 percent, 3.8 percent, 3.7 percent, 2.9 percent, 2.6 percent, 2.5 percent and 2.1 percent of total global green trade imports and exports respectively, together accounting for 62.5 percent of total global green trade. China, the EU, and the US are the top three countries (regions) in terms of global green trade exports, together accounting for 40.7 percent of the total. The EU, the US, and China are the top three countries (regions) in terms of global green trade imports, together accounting for 40.1 percent of the total.

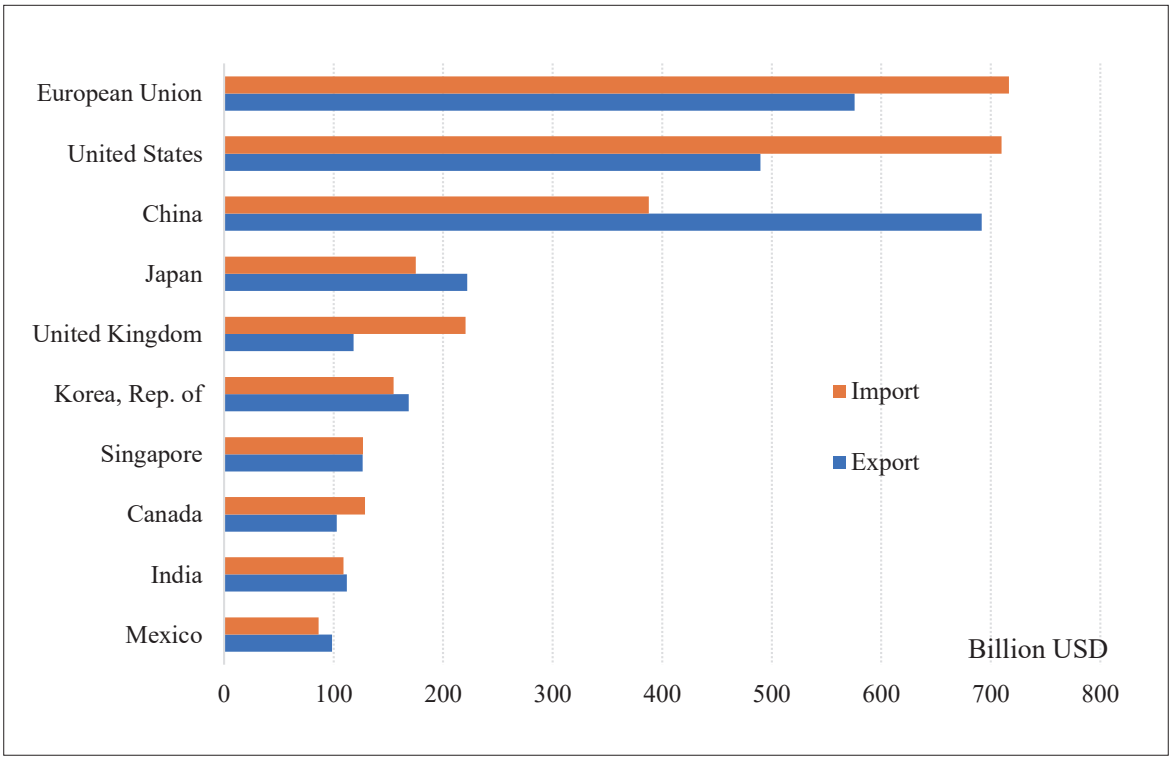

Fig. 5.2 Global green trade: Top ten economies, 2022

Source: Calculated based on the Global Trade Flow database.

(3) Green trade is dominated by environmental technology products

In terms of product categories, the import-export trade volume of environmental technology, carbon capture and storage, and other environmentally-friendly products ranked the highest. In 2022, the total import-export volume of these three categories of products remained US$6.2 trillion, US$4.2 trillion, and US$3.1 trillion, respectively (see Fig. 5.3), accounting for 69.7 percent, 47.2 percent, and 35.3 percent[5] of the total, respectively. In terms of growth rate, the top categories are other environment-friendly products, carbon capture and storage, and environment-friendly technology products. From 2013 to 2022, the average annual growth rates of the total import-export volume of the above three categories of products were 4.7 percent, 4.4 percent, and 3.8 percent, respectively.

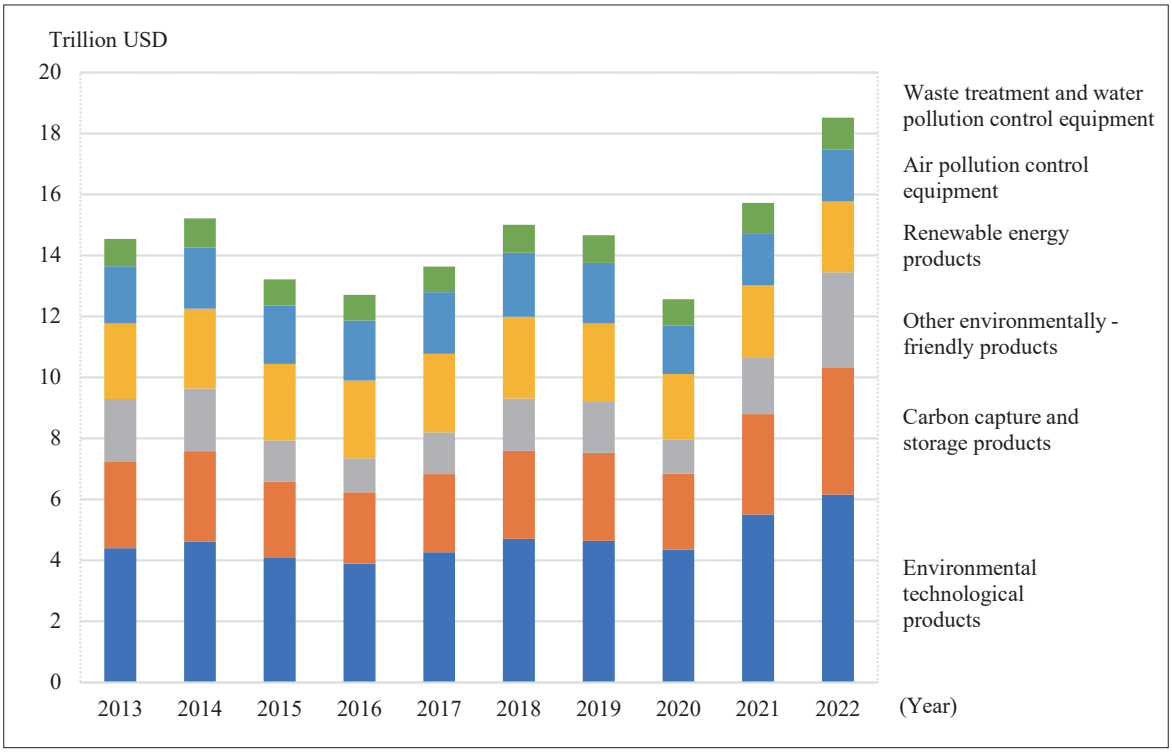

Fig. 5.3 Global green trade by product categories: 2013–2022

Source: Calculated based on the Global Trade Flow database.

(4) Green trade faces profound changes brought about by carbon rules

Institutions on carbon pricing are being established. In order to establish effective economic instruments to reduce greenhouse gas emissions, the international community has begun to promote carbon pricing, which has profoundly changed the cost structure of global green trade. Carbon Emissions Trading (ETS) and carbon tax are two important carbon pricing tools. As of April 2023, a total of 73 carbon pricing mechanisms are in operation globally, covering about 23 percent of global greenhouse gases. Some countries and regions have announced that they will launch their new ETS or carbon tax schemes. For one thing, several countries and regions have begun to establish carbon trading systems within their regions. According to the World Bank, the total trading volume of the global carbon market reached US$95 billion in 2022, an increase of about 13 percent year-on-year, with revenues from ETS accounting for 69 percent of the total income and those from carbon tax accounting for 31 percent. The more maturely developed carbon markets mainly include the EU Carbon Emissions Trading System (EU-ETS), the US Regional Greenhouse Gas Initiative (RGGI), and the New Zealand Carbon Emissions Trading System (NZ-ETS). China's national carbon emissions online trading market was officially launched in July 2021, with expanding industry coverage. For another

thing, the Netherlands, Denmark, Finland, and other Nordic countries started to levy carbon tax relatively early, treating carbon tax as a separate tax, and have already constructed a carbon tax system. Japan, Italy, and other countries implicitly include the carbon tax in existing taxes such as environmental tax and energy consumption tax. Carbon tax policies in countries such as the United States and Canada are implemented only in specific regions of the country, or states (provinces) develop their own collection plans, so the implementation of the policy is still subject to greater uncertainty.

Carbon rules have become a key area in the international rules game. At present, the international low-carbon trade and economic rules have become an important issue in global politics and economic and social development, and the focus of attention and game of many parties. The EU has proposed the world's first Carbon Border Adjustment Mechanism (CBAM), which is to be formally implemented in 2026. In January 2023, the EU, together with New Zealand, Kenya, and other countries, established the Climate Change Trade Ministers' Coalition, which focuses on policy discussions at the intersection of trade and climate issues. The US is also in the process of proposing carbon tariff legislation. For example, in June 2023, Democratic and Republican senators co-sponsored a bill called the PROVE IT Act, which would require the Department of Energy to collect and compare average product emissions intensity data from the US and other major economies of products covered by the bill to demonstrate the low-carbon advantage of US products. Japan, the United Kingdom, Canada, and other countries tend to be proactive in their stance and attitude towards carbon tariff legislation. As more and more countries establish carbon emissions trading mechanisms or introduce carbon taxes, and as more and more carbon border adjustment measures are applied, the resulting disputes and controversies will be inevitable.

3. China's Green Trade Development Has Achieved Remarkable Success

China has made a series of deployments for the development of green trade, such as the Guiding Opinions of the CPC Central Committee and the State Council on Promoting the High-Quality Development of Trade in November 2019, which explicitly proposed to promote the coordinated development of trade and the environment. In February 2021, the Guiding Opinions of the State Council on Accelerating the Establishment of a Green, Low-Carbon, Cyclical, and Comprehensive Development of the Economic System put forward the establishment of a green trade system and the active optimization of the trade structure, vigorously developing trade in high-quality, high value-added green products. Over the years, China has been at the forefront of global green trade.[6] In 2022, the scale of China's green trade reached US$1,079.28 billion, ranking third in the world, and it is also the world's top green trade exporter and third largest importer.

(1) The scale generally maintains its growth

From 2013 to 2022, China's green trade increased from US$814.43 billion to US$1,079.2 billion, with an increase of 32.5 percent over this period and an average annual growth rate of 3.2 percent. Among them, exports grew from US$495.79 billion to US$691.64 billion, with an average annual growth rate of 3.8 percent, accounting for 19.2 percent of China's total exports of goods. Imports grew from US$318.64 billion to US$387.64 billion, with an average annual growth rate of 2.2 percent, and accounted for 14.3 percent of China's total imports of goods (see Fig. 5.4).

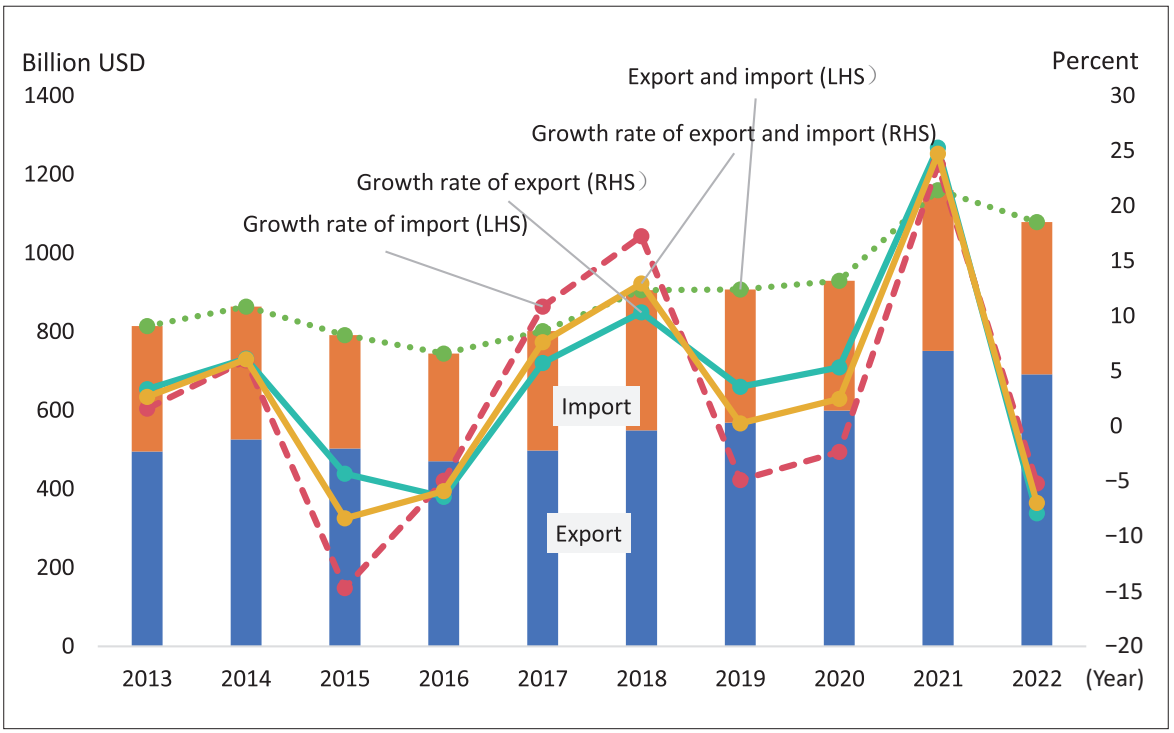

Fig. 5.4 China's green import and export: 2013–2022

Source: Calculated based on the Global Trade Flow database.

(2) The global share has been steadily expanding

Over the past decade, China's share of total global green trade has increased from 9.9 percent in 2013 to 12.2 percent in 2022, with its share of global green trade exports increasing from 12.1 percent to 16.0 percent and its share of global green trade imports increasing from 7.8 percent to 8.6 percent (see Fig. 5.5).

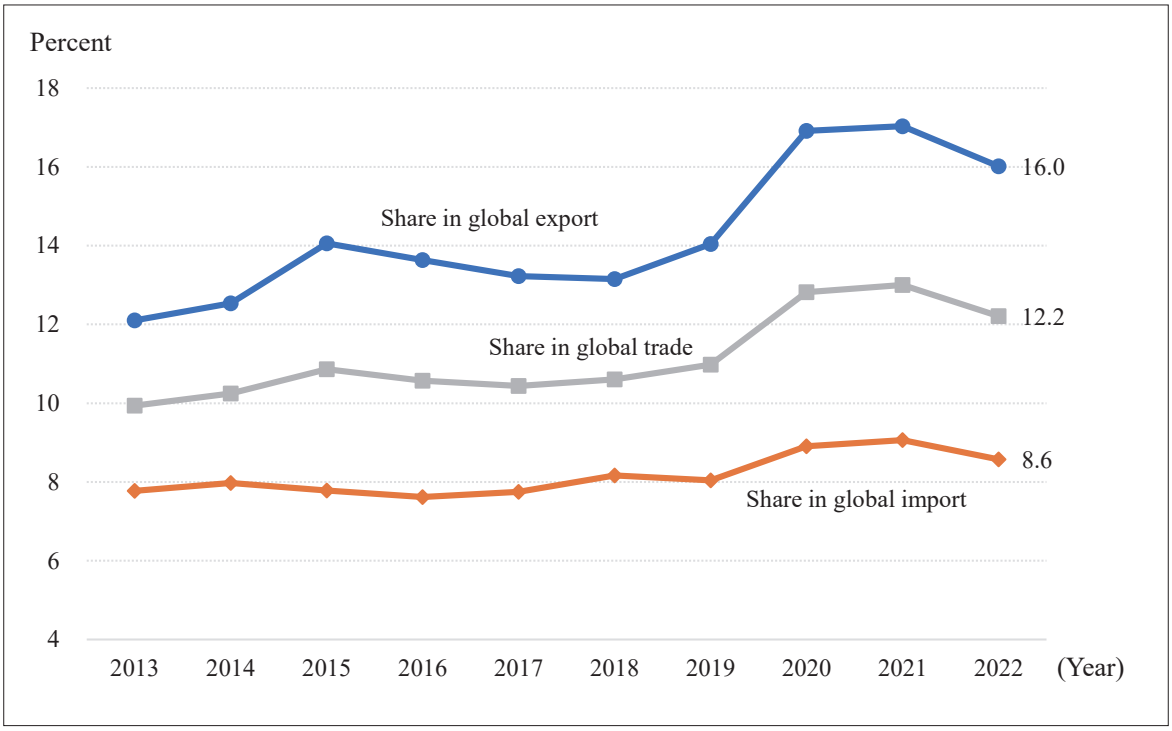

Fig. 5.5 China's share in global green trade: 2013–2022

Source: Calculated based on the Global Trade Flow database.

(3) Environmental technology products are the majority

In terms of green trade scale, the top three categories in China are environmental technology, carbon capture and storage, and renewable energy products, with total import and export amounts of US$812.63 billion, US$423.15 billion, and US$214.69 billion, respectively. In terms of the share of global green trade, the import and export value of China's environmental technology products in 2022 accounted for 13.2 percent of the global trade in similar products, followed by air pollution control equipment (12 percent), carbon capture and storage products (10.1 percent), waste treatment and water pollution control products (8.9 percent), other environmental-friendly products (7.0 percent), and renewable energy products (6.9 percent) (see Fig. 5.6).

(4) High concentration in export markets

In 2022, the US, China's Hong Kong SAR, and Japan were the top three export destinations for China's green trade, with export values of US$125.11 billion, US$54.53 billion, and US$32.99 billion, accounting for 18.1 percent, 7.9 percent, and 4.8 percent respectively of China's total green trade exports (see Fig. 5.7). In recent years, the share of developed countries in China's total green trade exports has gradually declined, while the share of developing countries has increased.

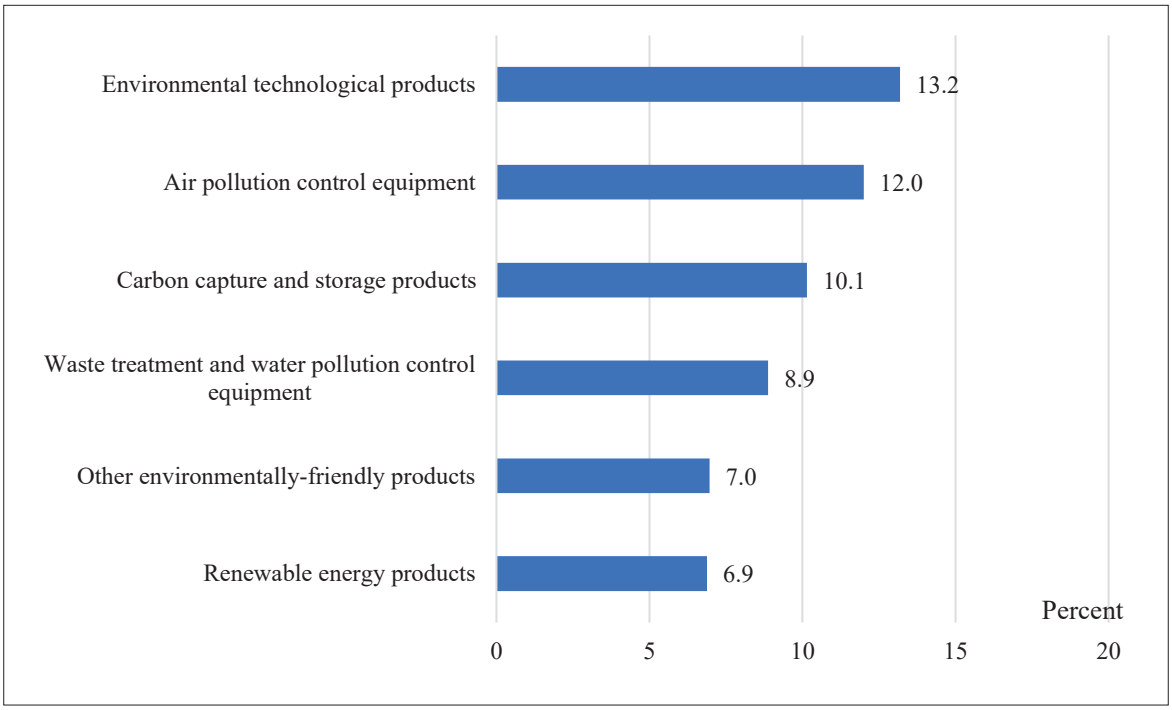

Fig. 5.6 China's share in global green trade by category: 2022

Source: Calculated based on the Global Trade Flow database.

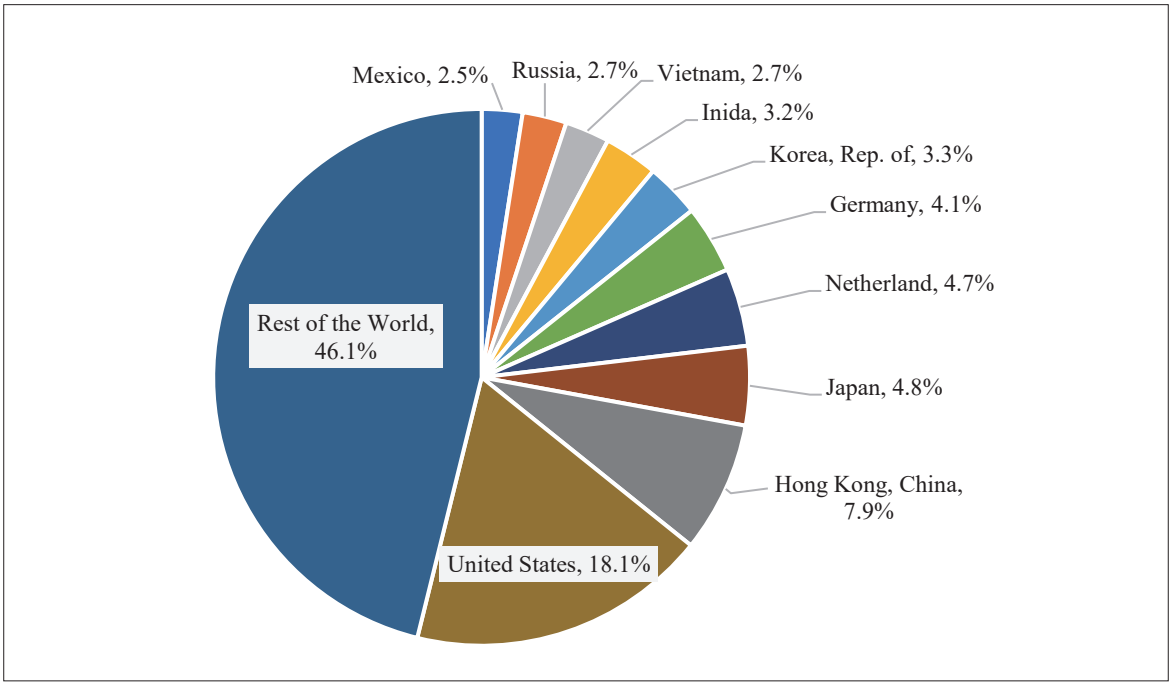

Fig. 5.7 Shares of top 10 destinated markets in China's green export: 2022

Source: Calculated based on the Global Trade Flow database.

(5) Import markets become more diverse

In 2022, Japan, the US, and Germany are the top three sources of China's green trade imports, with imports of US$47.98 billion, US$45.79 billion, and US$41.98 billion, accounting for 12.4 percent, 11.8 percent, and 10.8 percent of China's total green trade imports respectively, and a combined share of 35 percent (see Fig. 5.8). In recent years, the proportion of China's imports from all three countries has declined, while the proportion of imports from Malaysia, Australia and Russia has risen, with a trend towards diversification of import markets.

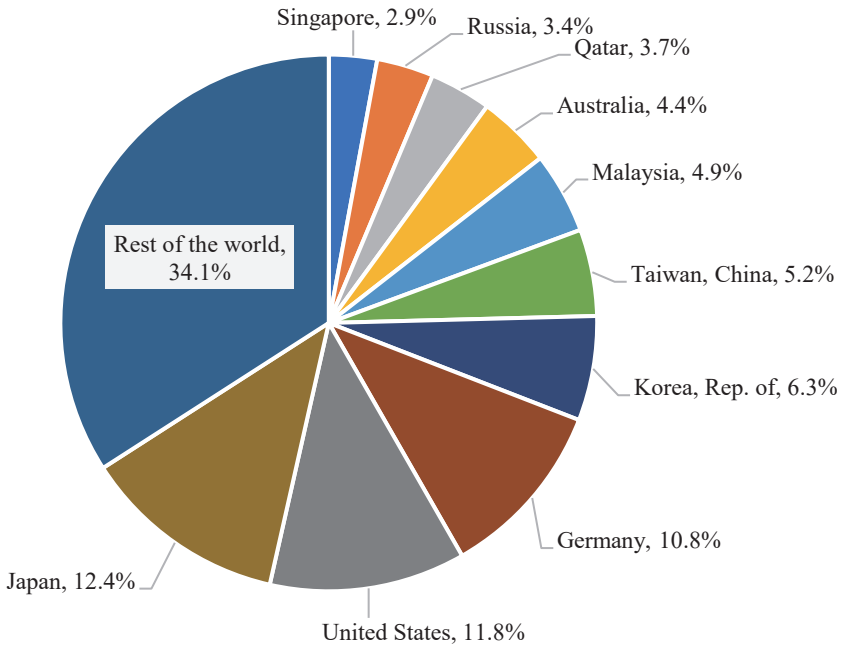

Fig. 5.8 Shares of top 10 source economies in China's green import: 2022

Source: Calculated based on the Global Trade Flow database.

Box 5.1 Seizing opportunities for low-carbon development, Sichuan vigorously develops green trade

Sichuan is an important water conservation area in the upper reaches of the Yangtze and Yellow Rivers and a core area for ecological construction, with abundant clean energy resources and favorable natural conditions for the development of green trade. Recently, Sichuan has gained its own clean energy and industrial advantages, seized the opportunity for low-carbon development, built a green trade support policy system, and vigorously developed green trade.

Actively build green industrial parks. At the end of 2022, Sichuan issued the Measures for Evaluation of Green Foreign Trade and Circular Economy Industrial Parks in Sichuan Province to support the early and pilot implementation of Pilot Free Trade Zones, national economic development zones, foreign trade transformation bases, and other platforms, and comprehensively utilize energy saving, emission reduction, carbon sequestration, carbon sinks, and other means to realize the green closed loop between projects, enterprises and industries within the platform. For the first time, it has selected two provincial-level green foreign trade circular economy industrial parks, which are the Chengdu Economic Development Zone and the Yibin Lingang Economic Development Zone.

Create a green industrial chain. Sichuan promotes the inclusion of the lithium battery material industry in the national foreign trade quality and efficiency improvement demonstration project. Shehong Economic Development Zone, aiming to create a "lithium capital," focuses on creating a green and low-carbon industry, promotes the greening and decarbonization of production processes in enterprises, drives upstream and downstream enterprises to implement green partner and supplier management, and creates a green industrial chain by building a green supply chain information management platform. Sichuan supports the development of the green intelligent automobile industry and integrates anesthesia, power saving, and zero-loss emissions into the entire production process, creating a truly "resource-saving, environment-friendly" green factory.

Supporting the green transformation and upgrading of foreign trade enterprises. Sichuan has made efforts to build green factories and promote the greening and low-carbonization of enterprises' production processes. It arranges provincial green low-carbon trade funds and provides special support for green low-carbon advantageous industries and foreign trade enterprises in carrying out the "carbon footprint" international certification, market development, international logistics, foreign trade services, and other aspects. It vigorously promotes energy equipment, crystalline silicon photovoltaic, power batteries, new energy vehicles, vanadium and titanium, and a large number of other low-carbon products to enter the global market. In 2022, the import and export volume of the above industries in Sichuan province reached 74.6 billion yuan, an increase of 148.5 percent year-on-year, of which the import and export of lithium materials increased by 577 percent year-on-year, which is in a leading position in the country.

4. Deepening International Open Cooperation in Green Trade

Deepening international cooperation in green trade and promoting the communication and docking of international low-carbon rules will be conducive to raising the level of global green trade development and boosting the timely achievement of carbon peaking and carbon neutrality.

China will continue to practice the concept of ecological civilization, accelerate the construction of a Chinese-style modernization in which human beings coexist harmoniously with nature, and promote global green development cooperation with its own green transformation.

(1) Upgrading the development of green trade

Optimize the structure of global trade in green products and services. China supports enterprises to adopt low-carbon green materials and technological processes to carry out green design and manufacturing, supports trade in technologies, equipment, key components, and raw materials for the green industrial chain supply chain, increases trade in green and low-carbon products such as environmental protection and new energy, and encourages trade in green consumer goods. China actively develops trade in knowledge and technology-intensive services such as energy-saving technology, low-carbon technology, green design, environmental services, energy conservation, and environmental protection and strictly controls trade in high-energy-consuming and high-emission products.

Strengthening international cooperation on green industrial chains. We must drive upstream and downstream industries and related industries to achieve low-carbon development by green trade, strengthen international cooperation in green manufacturing, actively promote the construction of a green and low-carbon industrial supply chain cooperation system, and promote the efficient and synergistic development of high-end elements and the real economy. We must coordinate industrial development and green transformation, enhance the supply capacity of green products and services, and build a green industrial system. We must adhere to the principles of intensive, green, and intelligent development, improve the utilization efficiency of new infrastructure, enhance the greening level of new infrastructure, encourage enterprises to implement green procurement, promote green packaging, collaborate to promote green supply chain management, develop green and low-carbon transport and enhance the greening of modern logistics.

Enhance technology exchange and cooperation. We must reduce the market access costs of green products and technologies, accelerate the global diffusion of green products and technologies, stimulate the increase and improvement of top-level designs for addressing climate change, increase green technological innovation in energy conservation, environmental protection, clean production, clean energy, and other fields, and actively carry out international scientific research cooperation and technological exchanges to achieve breakthroughs in green and low-carbon technological innovation. We must encourage enterprises, universities, research institutes, and relevant international organizations to carry out exchanges and cooperation in green technology innovation, deepen international cooperation on technologies, equipment, and services in the fields of energy conservation, environmental protection, and clean energy, promote the exchange and sharing of green technologies and green service, strengthen the protection of intellectual property rights for green and low-carbon technologies and products, promote developed countries to fulfill their international obligations, provide financial, technological and capacity-building support to developing countries, and upgrade the level of green development.

(2) Create a more open environment for green trade development

Deepen multi-bilateral and regional cooperation. We must jointly safeguard the international system with the United Nations at its core, promote the full implementation of the United Nations Framework Convention on Climate Change and its Paris Agreement by all parties, actively participate in negotiations on emissions reduction in international shipping and aviation, fully implement the consensus on multi-bilateral and regional cooperation, effectively promote international exchanges and regional cooperation in the field of green trade, strengthen cooperation with international organizations and institutions, and promote institutional communication, technical exchanges, project cooperation and personnel training in the field of green and low-carbon trade development. High-standard green "Road and Belt" will be jointly built.

Promote international mutual recognition of green product certification and labeling. We must promote the certification of carbon labels for goods imported and exported from various countries, promote the coordination and mutual recognition of carbon footprint methodologies for batteries and other products, strengthen international cooperation on green power certification, promote the establishment of an international green power certificate system, strengthen the research and development of international standards for green power certificate issuance, measurement and trading, actively promote the development of international technical quality standards and norms, continuously improve the international cooperation and exchange system for inspection, testing and certification and accreditation, and strengthen international cooperation on green standards.

Deepening international cooperation in green finance. We must promote practical cooperation in climate investment and financing, encourage the development of green financial products and services such as green credit, green bonds, green insurance, and green-themed public funds, and provide financing support for key areas such as energy conservation and environmental protection, clean production, clean energy, ecological environment, green infrastructure, and green services.

We must deepen international cooperation in green finance, actively construct an international cooperation mechanism for green finance, and strengthen docking in green finance assessment standards, environmental and governance information reporting and disclosure. We must strengthen international seminars on green finance, jointly promote innovation in green investment and financing products and services, actively participate in the research and formulation of international green financial standards, and strengthen international coordination of the green financial standard system.

(3) Strengthening the institutional foundation for the development of green trade

Improve the institutional system for promoting green trade. We must explore the establishment of a green trade evaluation index system, promote the relaunching of the WTO Environmental

Products Agreement (EPA) negotiations and the expansion of APEC environmental products, and support enterprises to launch more high-quality green and low-carbon products. We must improve the green trade promotion system, support green technology research and development and the construction of public platform carriers for green trade, and promote the transformation and landing of green and low-carbon technological innovations that are technologically advanced, effective, feasible, and replicable. We will support the organization of exhibitions on the theme of green trade and create a high-level, internationalized green trade promotion platform.

Establish a sound mechanism for the marketization of national carbon trading. We will give full play to the role of the national carbon emissions trading market, further improve the supporting system, and gradually expand the scope of trading industries. We will strengthen the statistical and accounting capacity for carbon emissions, deepen research on accounting methods, and promote the establishment of a unified and standardized accounting system for carbon emissions. We will guide foreign trade processing and manufacturing enterprises to carry out clean energy substitution and reduce carbon emissions per unit of product. We will promote the construction of markets for carbon emission rights, energy consumption rights, and electricity trading in a coordinated manner, strengthen the connection and coordination among market mechanisms, and incorporate carbon emission rights and energy consumption rights trading into public resources trading platforms. We will improve and promote the trading of green power certificates, promote green power consumption, facilitate the international mutual recognition of green certificates, accelerate the linkage of the international carbon market, and promote mutual recognition between China's carbon market projects and those of the international carbon market.

NOTES

1. Different documents have different understandings of "green trade": some understand green trade as the trade of green products, which is part of trade; some understand green trade as the greening of trade, focusing on the coordination of environmental policies and trade policies development; others understand green trade as the greening of product supply chains.
2. United Nations Environment Programme, Forum on Trade, Environment and the SDGs (TESS), and Global Governance Center, *Greening International Trade: Pathways Forward* (2021), https://wedocs.unep.org/20.500.11822/36281.
3. European Commission, "Adapting to Climate Change: Towards a European Framework for Action," White paper (2009), https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX percent3A52009DC0147.
4. At present, academic circles and policy documents have not yet reached a consensus on the concept and connotation of green trade. This report is based on green trade in a narrow sense. When conducting a comparative analysis, it uses the environmental product list and product classification compiled by the WTO Secretariat. Trade in environmental products represents green trade. The WTO Environmental Products Agreement negotiations were initially based on the environmental products list released by APEC in 2012, covering 54 low-energy, low-carbon green products with 6-digit customs codes (HS Code). Subsequently, the WTO Secretariat proposed a list for each economy. On the basis of this, a list of

products containing 427 6-digit HS codes was formed, and these products were divided into six categories: environmental protection technology, renewable energy, carbon capture and storage, air pollution control, waste treatment, water pollution, and other environmentally friendly categories.

5. According to the classification of the list compiled by the WTO Secretariat, the classifications of most products with tax codes in the list overlap; that is, products with the same tax code are classified into several environmental product categories at the same time. Therefore, there will be inconsistencies between the classified aggregate data and the total environmental product trade data.
6. China has consistently ranked third in global green trade. In 2020 and 2021, China surpassed the EU and the US for two consecutive years to become the world's largest economy in green trade, with its about 13 percent contribution to the world. In 2022, China's green trade has declined, falling back to third place in the world.

CHAPTER 6

Stability and Development of Global Industrial and Supply Chains

The world is undergoing profound changes unseen in a century and has entered a new period of unrest and reformation. The stable development of industrial and supply chains has become an important issue of concern to all countries. Countries must foster a consensus on cooperation, continue to expand the scale of trade and investment, strengthen coordination in key industries and fields, and establish a secure, reliable, and more flexible industrial and supply chain system in a more open environment. Countries must raise the level of digitization and greening of industrial and supply chains so as to promote the sustainable development of the world economy.

1. Adjustment to Global Industrial and Supply Chains Has Been Accelerating

(1) Dependence on global industrial and supply chains has been deepening

The global industrial and supply chains continue to grow wider and deeper. The world economy is still in the wave of globalization. The expansion of market access, liberalization and facilitation of trade and investment, and changes in transportation and information communication technologies have expanded the depth and breadth of industrial and supply chains; capital, technology, labor, and professional knowledge have become important factors affecting the depth of global industrial and supply chains. In particular, intermediate products trade, intermediary services, and corresponding financial arrangements gradually play a dominant role in global industrial and supply chains. According to Global Trade Flow data, from 2010 to 2022, global export of intermediate goods increased by 83.8 percent, making its share in global export of goods increase to 57.7 percent from 50.9 percent, contributing an increase of 42.7 percentage to the growth of global export in goods.

Inter-regional trade and intra-regional trade continue to development.[1] Since 2000, developing economies in Asia, Central and Eastern Europe, and Latin America have been increasingly integrated into global industrial and supply chains. During this period, the adjustment of the global industrial chains presented two distinctive features. First, trade between advanced economies and emerging economies strengthened. In particular, trade among the industrial chains in Europe, North America, and Asia has significantly increased. According to OECD TiVA data, Asia's share in intermediate goods exports of Europe and the Americas increased from 10.4 percent and 22.7 percent in 2000 to 15.7 percent and 32.4 percent in 2020, respectively. The second is the growing importance of intraregional trade in Europe and Asia. Europe has been the region with the highest level of regional economic integration and is particularly prominent in complex value chains. According to OECD TiVA data, intra-regional trade accounted for 64.8 percent of European intermediate product exports in 2020 and 68.2 percent of intermediate product exports in the information technology sector. The growth of intra-regional trade in Asia is pronounced, with its share in Asian exports of intermediate goods rising from 44.4 percent in 2000 to 50.4 percent in 2020. The data shows that more and more Asian countries are deeply integrated into regional and global industrial and supply chains.

(2) The pattern of global industrial and supply chains has been basically formed

The industrial chains of North America are centered on the US, with deepening intra-regional integration. According to the OECD TiVA data, the proportion of intermediate products Canada and Mexico exported to the US exceeded 60 percent of their total intermediate product exports in 2020, while the proportion of intermediate goods they imported from the US was around 50 percent. Other American states that have a closer trade relationship with the US in intermediate products include Peru, Costa Rica, Colombia, Brazil, Argentina, and so on. Outside the American region, there is a close link between the North American industrial chains and the Asian industrial chains, with "computer, electronic and optical products," "textiles, clothing, leather, and related products," "electrical equipment," "base metals," etc. According to OECD TiVA data, approximately 32.4 percent of intermediate products from American economies were exported to Asian economies, an increase of nearly 10 percentages compared to 2000. In 2020, the share of intermediate products of US information technology sector exported to Asia was 38 percent.

The degree of industrial chains integration within the European region is relatively high. In industries such as "food, beverages, and tobacco," "wood and cork products," "paper products and printing," and "motor vehicles, trailers, and semi-trailers," the industrial chains within Europe are more closely related, with intra-European trade accounting for more than 60 percent of European total trade in some industries. In "Computer, electronic and optical products," "machinery and equipment that not be classified," "textiles, clothing, leather, and related products," etc., the proportion of intermediate goods trade between European countries

and countries outside the region is relatively high, and the industrial chains between them are more closely related. Resource-based economies and some developing economies show relative surpluses in trade with European economies, indicating that their dependence on the European industrial chains is mainly from demand side. On the other hand, economies with a high degree of participation in the global industrial chains, such as the US and Singapore, show relative deficits in their trade with Europe, which means that their dependence on the European industrial chains is mainly related to supply dependence.

The industrial chains in Asia present a gradient feature. Mineral products, textile and apparel, and electromechanical products are the three most representative industries in the Asian industrial chains. Most mineral product trade is a one-way trade flow (one-way flow from the exporting country to the importing country), with crude oil, natural gas, and jewelry as the main categories. The industrial chains of textile, apparel, and electronic products are mostly a two-way trade flow, and some Asian economies have complex competition and complementary relationships in this industrial chains. The industrial chains of textile and apparel among Asian economies present a "wild goose formation (V shape)" type. The industrial chains of electronic products are relatively longer. Some Asian economies have close trade exchanges with each other in intermediate products, with generally more cooperation with division of labor than direct competition. In terms of high-tech electronic products, other economies in the region are highly dependent on Japan, Rep. of Korea, China's Taiwan (TAP), Europe, and the US.

(3) Challenges to the resilience of global industrial and supply chains

The new generations of information technology, biotechnology, new energy, new materials, and other fields are becoming important areas for the accelerated adjustment of global industrial and supply chains and are receiving great attention from all countries. Major economies have introduced various types of science and technology development plans, with policy support, rule adjustments, institutional arrangements, and other methods, to capture the high ground in the science and technology sector. The EU passed the Chips Act in 2022 and planned to invest more than 43 billion euros. In the Chip and Science Act of 2022, the US proposed to allocate US$52.7 billion to support the development of the chip industry. Germany's National Industrial Strategy 2030, Japan's Integrated Innovation Strategy 2019, etc., have specified key technology development areas such as the new generation of the information technology, biotechnology, and green technology. It is noteworthy that some countries are under an abused concept of national security, which has seriously affected the security and stability of global industrial and supply chains, resulting in increased operational risks and significant cost increases in the global supply chains. Economies are paying more attention to the security issues in supply chains of key technologies and core components. In terms of industries, products with security risks in the supply chains are mainly electromechanical and audio-visual equipment, optical, medical, and other instruments, and base metals and base metal products (see Fig. 6.1).

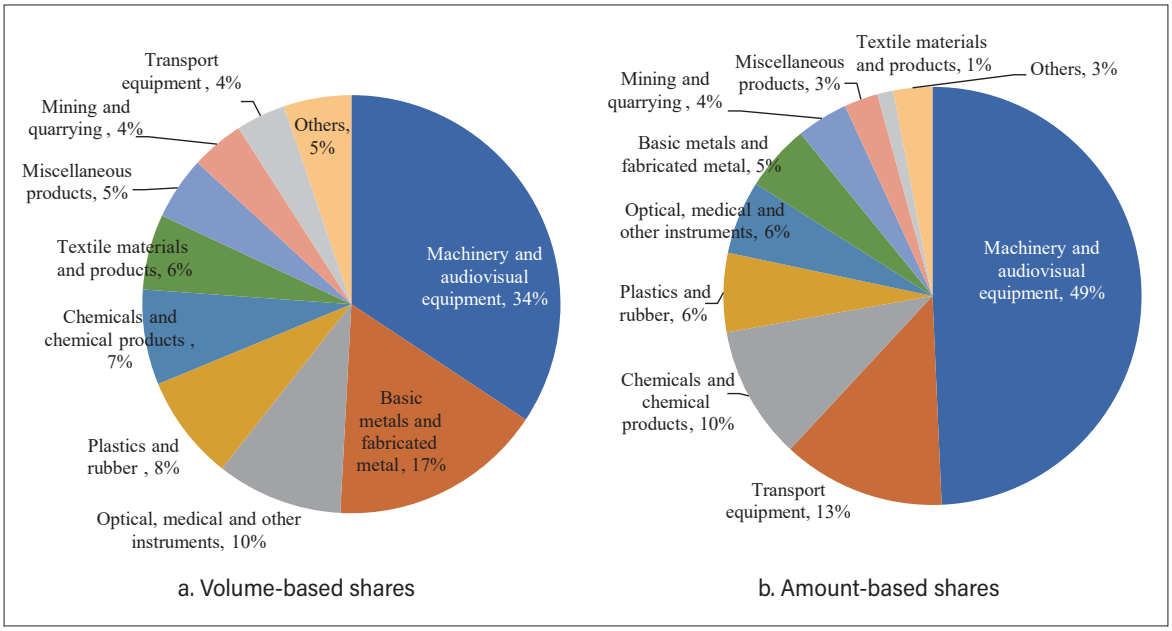

Fig. 6.1 Distribution of key intermediate goods with security risks in industrial and supply chains

Source: UN Comtrade database.

Note: Shares of each industry are averaged over 2017–2021 to reflect long-term trends and exclude short-term fluctuations.

In short, global industrial and supply chains, while becoming increasingly interdependent, have been subject to accelerated adjustment under the combined influence of many economic and political factors. Currently, with rivalry and competition between major countries escalating and the geopolitical situation remaining tense, multinational enterprises have increasingly felt the urgency of dispersing the risks of the industrial and supply chains. They have taken the initiative to adjust the layout of industrial and supply chains, which, to a certain extent, has caused the fragmentation and shortening of global industrial and supply chains.

Box 6.1 Comparison of industrial and supply chain risks between China and the US

In terms of economic factors, production risk is higher than sales risk in China, while sales risk is higher than production risk in the US. It is because China is in the midstream and downstream positions of the global industrial and supply chains, while the US is in the relative upstream positions. China's production relies more on importing intermediate goods, while the US needs to export the intermediate goods it produces.

In terms of political factors, changes in international political relations and the dominant control of the country over key links in the industrial and supply chains directly affect the relevant industrial and supply chain risks.

Since 2017, the US has taken a series of sanctions measures, such as export control against China, which has substantially increased China's risks in production and sales compared to when only economic factors are considered. In 2022, the US has placed 61 Chinese entities on the Entity List in four rounds and 64 on "the Unverified List" in two rounds as the US claimed that these companies have been involved in relevant weapons research and development or other civil-military integration activities, engage in business with Iran, or involve human rights issues. The list covers high-tech industries such as artificial intelligence chips, semiconductor equipment, aerospace, and electronic information.

The supply cut-off measures taken by the US against China's relevant high-tech fields and enterprises are not only detrimental to China but also detrimental to the US and the world. First, the cut-off of supply will make related enterprises in the US lose the huge Chinese market and high profits, which damages the US industrial interests. Second, the cut-off of supply will lead to the inability of Chinese enterprises to deliver their products on time and the disruption of the global industrial and supply chains, which will in turn affect the US consumer market and result in supply disruption, price increases, and damaging the interests of US consumers. Third, the supply cut-off will not only affect US enterprises but also affect related global enterprises, which cause significant increases in risks and uncertainties in the global economy, trade, and investment.

Taking the semiconductor industry as an example, due to the complex technology involved in chip-making, the huge capital investment, and the shorter upgrading cycle, the semiconductor industry must allocate resources worldwide and fully utilize the comparative advantages of countries in the global industrial division. It is not in line with the laws of the market if only a few countries can participate in the industry. It results in a waste of resources and ineffective investment and hinders the progress and healthy development of the high-end chip industry as the US impedes global scientific and technological progress.[2] According to the estimation of American scholars, there may be a 35 percent to 65 percent increase in chip prices if the US realizes the localization of the chip industry.[3] According to a study by the IMF, trade disruptions, technological "decoupling," and economic and trade conflicts caused by "de-sinicization" could trigger a 5 percent drop in global GDP.[4]

2. Direction of Evolution in Global Industrial and Supply Chains

(1) Strengthened localization and alliance

The demand for supply chain localization has intensified in various economies. The US, Japan, the EU, and others are promoting the reshoring of supply chains in key industries such as medical equipment. For example, since 2020, the US has introduced the Global Emergency Act, the Defense Production Act, the Clean Energy Act, and the America COMPETES Act of 2022 and has attempted to relocate key supply chains back home and to cultivate domestic supply chains of key products such as medical equipment, new energy vehicles, and chips through measures such as tax breaks, subsidies, and increasing investment. Japan has implemented a

243.5 billion yen supply chain reform program to support Japanese companies in moving back to home country. However, due to the limitations of factor endowment, domestic market size, and technology, it is impossible for a single country to engage in all the production processes of the industrial and supply chains. Some developed countries have attempted to promote supply chain alliances for strategic products. In October 2022, the US introduced a new regulation on export control to restrict the export of items used in the manufacture of local semiconductor equipment to China. In June 2023, the Netherlands imposed export restrictions on lithography, further forming a "chip alliance" with the US and Japan.

(2) Accelerated pace of regionalization and diversification

Diversification can disperse risks and avoid security risks caused by individual countries artificially disrupting the industrial and supply chains through measures such as sanctions. Regionalization can reduce transportation costs through industrial chain clusters, shorten logistics time, improve logistics efficiency, and minimize the impact caused by natural disasters and pandemics.

In recent years, the number of Regional Trade Agreements (RTAs) notified to the WTO has grown rapidly. In January 2022, the RCEP came into force. In June 2023, RCEP entered into force for all 15 member countries. RCEP member countries have been actively promoting the implementation of the agreement on the ground, demonstrating the determination and actions of all parties to support an open, free, fair, inclusive, rule-based, and development-oriented trade system. This has injected strong momentum into Asia-Pacific regional economic integration, accelerated the pace of trade and investment integration among member countries, and further deepened the industry and supply chain cooperation, making it more diversified and resilient.

(3) Evident advantages of digitization and intelligence

New-generation information technologies, such as big data, 5G, artificial intelligence, cloud computing, virtual reality, and the Internet of Things, are conducive to the construction of a long-lasting, flexible, and resilient digitalized and intelligent industrial and supply chains, which can quickly identify the risks at each supply level, promote cooperation at different levels and effectively respond to uncertainty risks. Specifically, digitization has the following three advantages in enhancing the resilience and security of industrial and supply chains.

Digitization can enhance the response speed of the industrial and supply chains to shocks, break the temporal and spatial restrictions on the flow of the factors of production, reduce the enterprises' transaction costs of industrial and supply chains, raise the resilience of industrial and supply chains, significantly improve economic efficiency, and consolidate the development advantages of regions.

Currently, countries are accelerating the improvement of digital economic governance systems, vigorously developing digital industry, and actively promoting the digital transformation of traditional industries. Since 2021, the US has successively issued a series of bills, such as the Interim National Security Strategy Guidance, the Strategic Competition Act of 2021, and the 2021 American Innovation and Competition Act, to support digital fields such as artificial intelligence, 5G, and autonomous driving. The EU, Japan, and others have also provided funding and resource support for the research and development of emerging technologies such as artificial intelligence and quantum communication through relevant plans such as the 2030 Digital Compass and the Economic Security Promotion Act. In 2023, China released the "Plan for the Overall Layout of Building a Digital China," which specifies eight major areas, including the digital economy, digital society, digital government, and digital culture, as well as major projects such as new infrastructure construction, data resource development and utilization, key core technology research, and digital industry innovation and development.

(4) Acceleration of the green transition and low carbonization

Under the pressure of climate change, environmental pollution, and geopolitical conflicts, major economies have taken the green transition of economy and energy as an important way to enhance the resilience and security of industrial and supply chains. The pace of the green transition of industrial and supply chains has been accelerated. In 2023, the EU issued the Green Deal Industrial Plan, the Net-Zero Industry Act, and the Critical Raw Materials Act to enhance the position of the green industry in the macro-industrial strategy. In green energy, energy storage, and related fields such as hydrogen energy, solar energy, advanced biofuels, and battery R&D and manufacturing, the EU has increased financial investment and stepped up green technology R&D and application. Developing countries accelerate energy transition, realize transition and development through green transition, and enhance the competitiveness of industrial and supply chains. Since 2021, the Gulf countries represented by Saudi Arabia and the UAE have continued to promote the development of clean energy industries such as solar energy, wind energy, and hydrogen energy through multiple ways such as increased investment, technological innovation, and international cooperation, to create the second growth pole in addition to oil and gas, and to boost low-carbon and sustainable development of the economy. In 2022, China issued Action Plan for Industrial Carbon Peaking, highlighting its support for the automotive, machinery, electronics, textile, telecommunications, and other industries to integrate the green and low-carbon concept into the whole process of product design, raw material procurement, production, transportation, storage, use, and recycling and disposal, accelerating the establishment of a unified green product certification and identification system of green products, and promoting the green and low-carbon development of the entire industrial and supply chains.

3. Enhance the Resilience of Global Industrial and Supply Chains through Openness

In order to enhance the resilience and security of global industrial and supply chains and deal with the risk of chain rupture when faced with various emergencies, countries should work together to promote more openness in the world economy, jointly maintaining the international public goods attributes of industrial and supply chains, fully leverage their characteristics and advantages, and optimize the layout of industrial and supply chains. Countries should grasp the opportunities in the new round of technological revolution, expand the development space of industrial and supply chains, and establish safer, reliable, and more resilient industrial and supply chain systems in an open environment.

(1) Commitment to a more open world economy

For all countries, it's important to adhere to and carry out true multilateralism, focus on global issues, and strengthen the construction of global public goods. It's pivotal to support international institutions such as the WTO and APEC and strengthen communication and consultation with them on important issues such as the digital economy and the green economy to facilitate fairer and more reasonable rules and standards. It's essential to promote global connectivity, strengthen the construction of new cross-border infrastructure, facilitate unimpeded modern logistics, and form stable transportation channels for energy, resources, and products. It's imperative to raise the level of bilateral and regional openness and cooperation among countries, continue to carry out upstream and downstream coordination in industrial and supply chains, and stabilize the confidence and determination of multinational enterprises in expanding their global trade and investment layout.

(2) Commitment to optimizing industrial and supply chain layout

For all countries, it's important to fully leverage countries' characteristics and advantages in terms of resource endowment, openness, market potential, and other factors and promote effective collaboration in global industrial and supply chains. It's pivotal to support more developing countries to deeply integrate into the global industrial and supply chains to realize sustainable development. It's essential to deepen intra-regional industrial cooperation, strengthen multi-level cooperation in different industries and production segments, optimize the global and regional linkage of raw materials, manufacturing and processing, technical standards, and other segments, and promote the orderly international transfer of capital-, technology- and labor-intensive industries to form a relatively stable pattern of global industrial and supply chains.

(3) Commitment to expanding the space of industrial and supply chains

For all countries, it's important to focus on the digital economy and information technology and encourage countries to actively cultivate new products, new business forms, and new modes to build efficient, collaborative, and flexible industrial and supply chains. It's pivotal to give attention to breakthrough technologies and emerging industries that impact the world. It's essential to create an open platform for cooperation on innovation resources and strengthen technology talent exchange and technical exchanges in emerging technology fields to better leverage technological innovation to lead and ensure the resilience of the industrial and supply chains. It's imperative to establish industrial coordination mechanisms in electronic information, the automobile industry, the pharmaceutical industry, and other sectors to create a favorable environment for industrial development. It's crucial to fully leverage the decisive role of the market in resource allocation, strengthen global macroeconomic policy coordination, and reduce the disturbance of political factors on the security of industrial and supply chains.

NOTES

1. Jiang X., Yang Y., and Wang S., "The Spatiotemporal Evolution of Global Trade Network Pattern from 1985 to 2015 and Its Implications for China's Geopolitical Strategy," *Geographical Research* 37, no. 3 (2018): 495–511.
2. Wei Z., (2023). "Evaluating Biden's Scientific Strategy against China," *Journal of Contemporary World*, no. 5 (2023): 31–36.
3. A. Varas, R. Varadarajan, J. Goodrich, and F. Yinug, "Strengthening the Global Semiconductor Value Chain," 2021, https:// www.semiconductors.org/wp-content/uploads/2021/05/BCG-x-SIA--April-2021_1.pdf.
4. D. A. Cerdeiro, R. Mano, J. Eugster, D. V. Muir, and S. J. Peiris, "Sizing Up the Effects of Technological Decoupling," *IMF Working Paper*, no. 2021/069 (2021).

CHAPTER 7

Global Openness and National Economic Security

Opening up is a necessary and powerful means for a country to maintain its sovereignty, security, and development interests. In the era of globalization, a country's openness and security issues are inseparable from global openness, development, and security. Economic security shows mutual, systemic, and global characteristics. "Prosperity and loss are shared by all." We should stand from the perspective of building a community with a shared future for mankind, take into account the positions and interests of all countries, adhere to genuine multilateralism, promote global openness, and achieve global security.

1. Choice of Openness Level from the "Security-Development" Perspective

For any country, the opportunities and challenges brought by opening up always coexist. To fully seize the opportunities and properly address the challenges, it is essential to coordinate the relationship between development and security and find the "golden intersection" between the two at different times and stages of development.[1]

The *warrantedness* of openness refers to the attribute that openness is warranted by the openness capability of the subject concerned. The realistic ability of an economy to handle the risks and challenges during the process of opening up is one important component of openness capability. In summary, the **warranted openness** of an economy is the level of openness that is warranted by that economy's openness capability. The maximum level of openness that can be warranted by the openness capability is the economy's maximum warranted openness, which we define here as its **optimal openness**.

Chinese scholars have constructed a general analytical framework in *A Theoretical Outline for National Security Studies for the New Era*.[2] Drawing on this model, this section focuses on the decision-making process for an economy's openness to the outside world and explores the

warranted openness and optimal openness of an economy from the "Security-Development" perspective. Through theoretical model analysis (see Box 7.1), the following conclusions are reached.

First, the key to an economy's participation in opening up is the choice openness level, which itself is the result of a trade-off between security and development.

Second, the openness level of an economy should not exceed to its optimal openness. At this point, the security capability is precisely matched to the development output, and the utility is maximized. Any openness level higher than this is unwarranted and would lead to a deficit in national economic security.

Third, for different economies at different stages of development, the optimal openness varies due to differences in political and social conditions and economic endowments.

Box 7.1 Theoretical model for choice of openness from the "security-development" perspective

This Report assumes that an economy, when participating in the globalization process, needs to determine its actual level of openness x, which ranges between 0 and 1, with higher values indicating a higher level of openness. A value of 0 represents extreme closure, while a value of 1 represents extreme openness. It is assumed that the economy faces a trade-off between security and development in the process of opening up.

Assume that when the level of openness of an economy is x, the development result it outputs is Y(x), and the corresponding security it gains is S(1–x). Y(·) represents the production function for development result, and S(·) represents the production function for security. For simplification, both Y(·) and S(·) are assumed to be linear functions. Fig. 7.1 illustrates the input-output relationship between development and security during the opening process of an economy. The NP line represents the output curve for a country's development result, where the horizontal axis (from left) represents the level of openness x, and the right vertical axis represents the development output Y(x). Its slope represents the marginal development gains that can be produced by increasing openness. The MQ line represents the output curve of the country's security, where the horizontal axis (from left) represents the level of openness x, and the left vertical axis represents the security output S(1–x). Its slope represents the marginal security gains brought about by reducing openness.

There may be three scenarios as follows.

(1) In the first scenario, when the country's openness level is at point F, it produces development result FH and security FG. At this point, the segment GH of development result is not secured, putting the country in a state of insufficient security. The utility level is FG.

(2) In the second scenario, when the country's openness level is at point A, the security produced can secure a development result up to level AD. However, the actual development result is only AB. In this case, the country is in a state of excessive security, and the utility level is AB.

(3) In the third scenario, when the country's openness level is at point C, its security CE is exactly equal to its development result CE. The country is in a state of balanced security, and the utility level is CE.

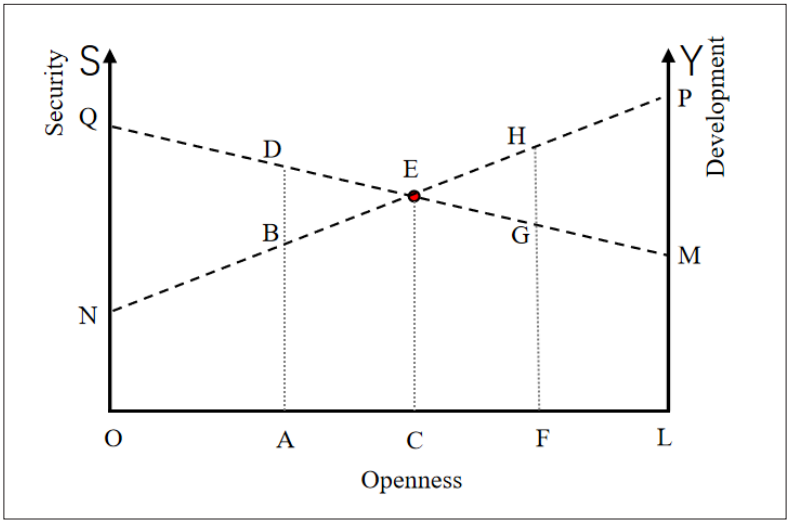

Fig. 7.1 Schematic diagram of openness decision-making from the "security-development" perspective

Through comparing the utility levels under these three scenarios, it becomes evident that a country's optimal level of openness should be at point C, where the utility level is highest. Any deviation from this point will result in either an excess or shortage of security.

In summary, only when the country's openness level is at point C, the security produced is equal to its development result, achieving maximum total utility. **Therefore, the openness level at point C is the optimal openness.** Correspondingly, for any point on segment OC, the country's security is sufficient to guarantee its development result, and the openness level is warranted by the openness capability. **Therefore, the openness range along segment OC is considered as warranted openness.**

2. New Trends in Open Development from the "Security-Development" Perspective

(1) Trade and investment barriers continue to increase

A sharp increase in unilateral restrictive measures. IMF experts, based on "Global Trade Alert" data,[3] have calculated that over the past decade, there has been a sharp increase in unilateral restrictive measures taken by various countries against cross-border trade and investment. In 2022, restrictive measures on global goods trade, services trade, and cross-border investment increased by 14 percent year-on-year, reaching 2,845 items (see Fig. 7.2). Among these, investment restrictions accounted for 239 items, which is 3.8 times the number in 2021. Digital services trade is also facing increasing restrictions, adversely affecting emerging industries as well as global industrial and supply chains.

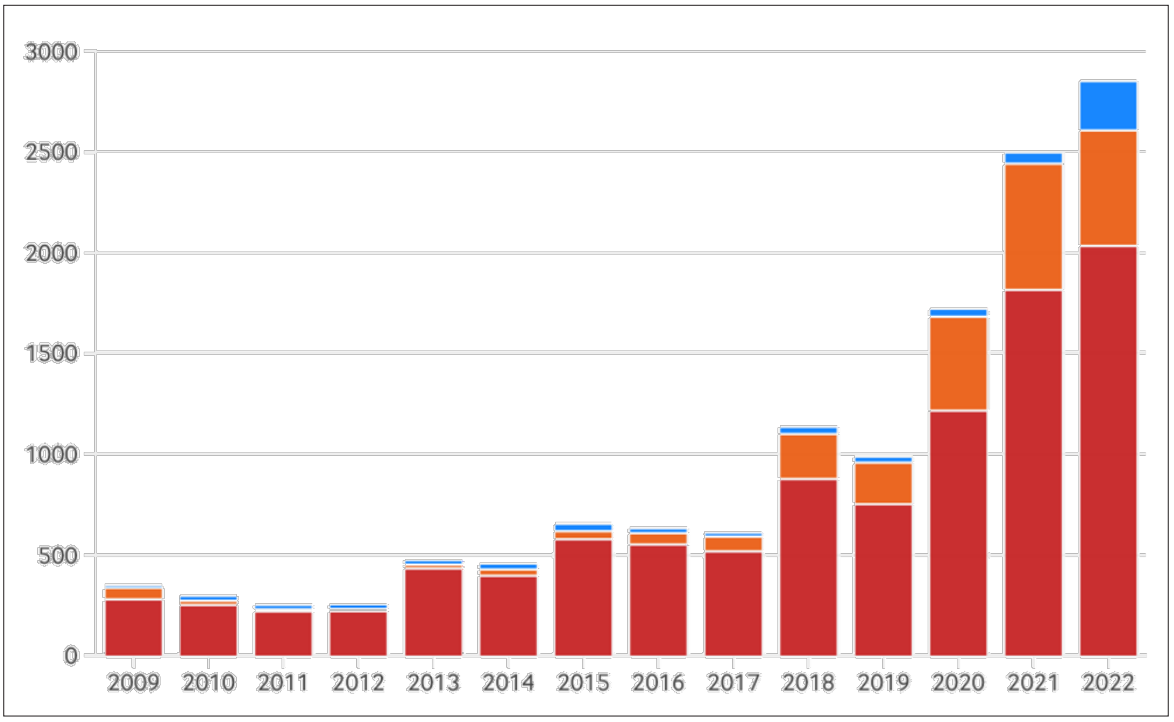

Fig. 7.2 Global trade and investment restrictive measures: 2009–2022

Source: Calculations by IMF experts based on "Global Trade Alert" data, quoted in the following website: https://www.fdiintelligence.com/content/data-trends/protectionism-trade-restrictions-reach-an-alltime-high-82637.

Note: The three parts from the bottom to the top of the above bar charts indicate measures of trade in goods, services, and international investment, respectively.

Security regulatory measures keep increasing. In the field of global trade and investment, an increasing number of countries have introduced regulatory measures on the grounds of national security. These measures specifically include strict scrutiny of foreign direct investment in critical infrastructure and sensitive technological sectors, as well as implementing import restrictions and export controls on certain countries or products. The generalization of national security not only results in more trade and investment barriers but also imposes additional limitations on the development of the digital economy.

(2) Global openness pays more attention to both efficiency and security

Countries around the globe are beginning to seek diversified supply chains and collaborative partners to ensure the safe supply of critical industries and technologies and enhance resilience to risks and challenges. For example, as of August 2023, the WTO has received a total of 595 notifications regarding RTAs, with 361 RTAs currently in effect. At the same time, the demand for strategic resources among countries is continually increasing, leading to an increasingly stark

contradiction between supply and demand for these resources. With the acceleration of trade exchanges, personnel flows, and information exchanges, countries are becoming more dependent on strategic passages. For example, the Suez Canal handles 30 percent of global container traffic. The blockage of the canal in 2021 directly led to the obstruction of global trade valued at US$9.6 billion. Therefore, ensuring the security of strategic passages and avoiding the impacts of terrorism, piracy, geopolitical shifts, and force majeure events is an urgent task faced by countries around the world.

(3) Security-related demands become more diverse

Energy security: Countries need to ensure the security of traditional energy supplies, reduce dependence on external energy sources, and enhance energy self-sufficiency and efficiency. At the same time, they should adjust their energy mix and consumption patterns, promote renewable, clean, and low-carbon energy sources, and advance energy-saving and green development initiatives. Energy-rich countries hope to boost income by securing energy exports and gradually promote the transformation of economic structure to avoid the "resource curse." Energy-scarce countries hope to lower the costs and risks associated with energy imports, improve energy efficiency and cleanliness, and reduce dependence on external markets.

Food security: Due to the influence of environment, resources, and economy, the food self-sufficiency rates of countries vary greatly, which, to a large extent, mismatch with global population distribution. For example, Africa accounts for about 17 percent of the world population but has many countries with self-sufficiency rates below 50 percent. Around 45 percent of Africa's wheat and 80 percent of its rice are imported. Therefore, countries have different priorities and demands in terms of promoting the transformation of agricultural and food supply systems, enhancing agricultural productivity, and elevating food security.

Technology transfer and intellectual property: Technologically backward countries require massive investments in technology. Once high-tech countries generalize national security and tighten export controls and investment restrictions on high-tech products, the technological gap between the two groups will widen.

Data and cybersecurity: Rules of the digital economy must strike a balance between ensuring the efficient flow of data and protecting data privacy and other aspects of security. Different countries have different positions and policies on issues such as data governance, cybersecurity, and data flow, leading to a trend of differentiation and fragmentation of global rules in the digital field.

Environmental security and sustainable development: Developing countries face the pressures of globalization and industrialization, striving to find a balance between economic development and environmental protection. Developed countries, having achieved industrialization, are increasingly focused on green trade, sustainable investment, and the global economy's green transformation.

(4) Demand for multi-level cooperation on open security continuously increases

On the global level: Global issues such as climate change, energy security, cybersecurity, and public health require global cooperation and countermeasures. Economic and trade rules on a global scale must be built upon a comprehensive, precise, and balanced foundation, creating a global cooperation framework and dispute resolution mechanisms. This is crucial for addressing global security challenges and should involve multilateral institutions in formulating universally applicable and binding rules.

On the regional level: Due to factors like geographical location, historical background, cultural characteristics, and levels of development, countries within the same region often have closer economic ties, as well as more specific and specialized cooperation needs and security challenges. For instance, European countries may focus more on environmental standards, Asian countries on market access and technological progress, and African countries on development and technical assistance. Therefore, economic and trade rules at the regional level need to be flexible and targeted, fully consider the interests and needs of all parties involved, and build regional cooperation frameworks and dispute resolution mechanisms that can effectively address regional security challenges.

Box 7.2 Typical case studies on openness and security issues

Case Study One: China's Reform and Opening-Up Policy Promotes Economic Development and Regional Security

China's reform and opening-up policy has significantly improved its comprehensive strength. From 1979 to 2022, its real GDP increased 40-fold, calculated in constant US dollars, and its share of the global GDP rose from 1.5 percent to 18.2 percent. In the 21st century, China has gradually become the most critical global manufacturing hub, with an ever-expanding foreign trade scale. In 2022, China's share of global goods exports was 14.7 percent, leading globally for 14 consecutive years, and its total import and export value remained the highest globally for six consecutive years.

Since its reform and opening-up, China has actively shared the fruits of its economic development with the region, promoting regional economic prosperity and stability and enhancing regional security. China proposed the BRI and has driven the establishment of institutions such as the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank, offering a new platform for promoting regional connectivity and achieving mutual development. China also contributed to forming the RCEP with 14 major East Asian and South Pacific countries, establishing the world's largest and most developmentally potent free trade area. About 35 percent of China's total foreign trade is with its free trade partners, which cover Asia, Oceania, Latin America, Europe, and Africa.

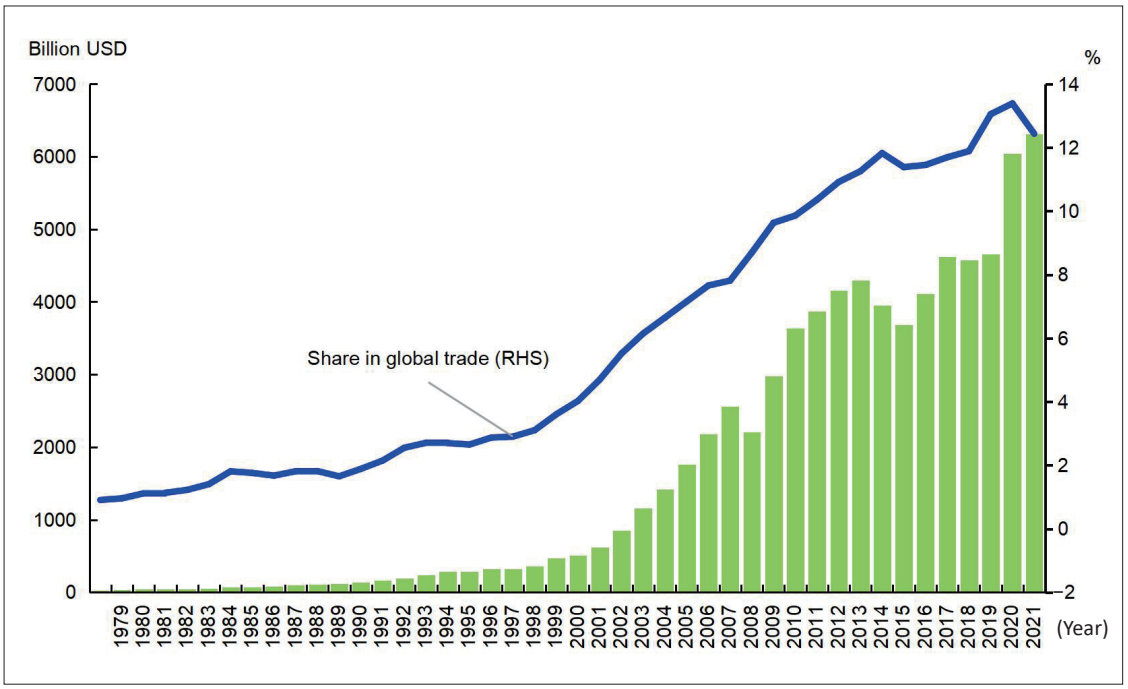

Fig. 7.3 China's share in global trade in Goods: 1979–2022

Source: World Bank Database.

China has offered its own solutions to global problems. China has proposed several important initiatives and ideas, such as building A Global Community of Shared Future, Global Development Initiative (GDI), Global Security Initiative (GSI), Global Civilization Initiative (GCI), advancing the reforms of the global governance system, and constructing an open world economy. China has actively engaged in the United Nations as a main channel and has deeply participated in the formulation of international rules in emerging fields such as cybersecurity, climate change, and space exploration. It has strengthened policy coordination with other developing countries and expanded cooperation and dialogue with the US and Europe. By focusing on emerging sectors, China aims to enhance the voice and influence of developing countries.

The history of China's reform and opening-up shows that openness is beneficial to national security and regional development.

Case Study Two: US Tariff Cuts Boost Economic Development and Security Levels

Historically, the US promoted economic growth and improved security by cutting tariffs. During World War II, the US government began to develop ambitious plans for multilateral agreements to rapidly reduce tariff barriers, eliminate discriminatory trade policies worldwide, and expand international markets after the war.[4]

In 1944, the average import tariff for taxable products in the US was 33 percent, which was reduced to 13 percent by 1950. Goldstein et al. (2007) found that, compared to non-member countries, bilateral trade between the US and member countries increased on average by 136 percent within two years after signing the treaties.[5] In 1945, the US signed 32 reciprocal trade agreements with 27 countries, reducing the tariff rates of 64 percent of imported goods and thus lowering the US tariff rate by 40 percent compared to the 1930 level. The research of Subramanian et al. (2007) showed that the GATT facilitated the development of global trade after the war and promoted economic recovery worldwide.[6] Long-term significant reductions in tariffs also led to a steady decline in the US inflation rate from the normal level of 6 percent in the early 1980s to below 2 percent before 2019, significantly increasing the implementation space of US fiscal and financial policies (Hufbauer 2022). During the era of agreed tariffs guided by the concept of free trade, the US not only promoted its own development by reducing tariffs but also contributed to global economic growth.

According to research estimates by York (2023), the tariffs imposed by the US in recent years could only bring in a tax revenue of US$73.9 billion over ten years. In the long run, this will lead to a 0.21 percent decline in GDP, a 0.14 percent reduction in wage levels, and a loss of 166,000 jobs.[7]

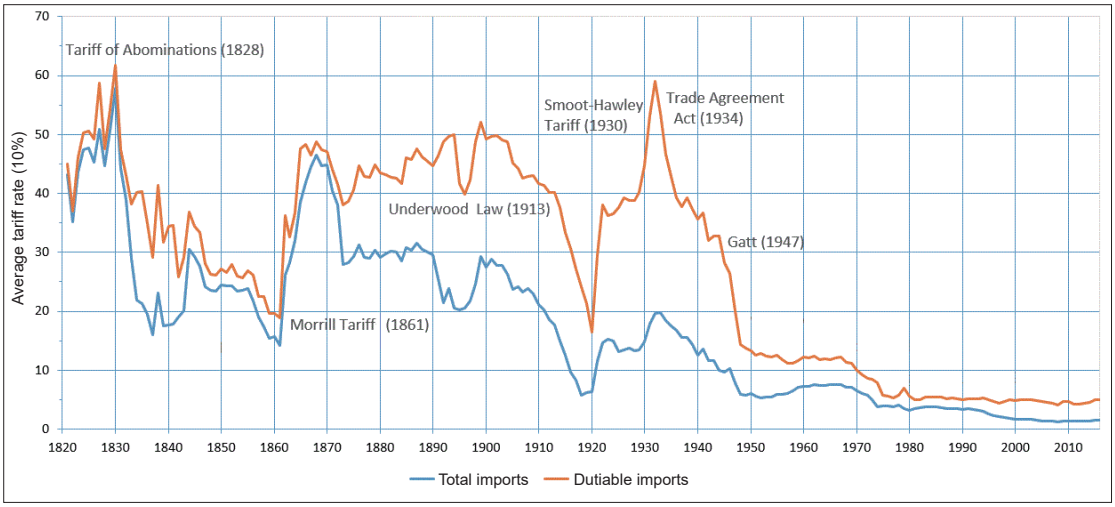

Fig. 7.4 US average tariff rates: 1821–2016

Source: US Department of Commerce, Bureau of the Census, *Historical Statistics of the US 1789–1945*, US International Trade Commission, dataweb.usitc.gov.

3. Coordinated Advancement of Openness and Security in a More Inclusive World

Economic security is the foundation of national security. To establish an open concept of economic security, we should seek security dynamically in expanding opening up. From a global perspective, seeking security through openness has become an international norm. Countries

are opening up to each other to promote economic globalization, and the world economy is increasingly interdependent. Theoretically speaking, open systems are safer than closed ones. According to the "Law of Entropy," open systems lead to order and generate new vitality, while closed systems lead to disorder and eventual decay. From a developmental perspective, expanding openness is a necessary path for the prosperity of all nations globally.

Firstly, uphold the principles of openness, inclusiveness, equality, justice, and win-win cooperation. Oriented towards openness, we should adhere to multilateralism and firmly maintain free trade and the multilateral trading system. We should oppose unilateralism and protectionism, promote interconnectivity, and encourage integrated development. With equality as the basis, we respect the social systems and developmental paths of all countries and push for a more equitable and rational global economic governance system. With cooperation as the driving force, we uphold the principles of extensive consultation, joint contribution, and shared benefits, fostering win-win cooperation.

Secondly, enhance the role of existing multilateral mechanisms. We should firmly support the United Nations' central role in international affairs, safeguard multilateralism and the function of the UN, and expand the voice of developing countries in international matters. It is also imperative to accelerate the reform process of the WTO and swiftly restore the functioning of the dispute resolution mechanism. Within the existing framework of the multilateral governance system, we need to improve measures that secure the economic safety of all countries.

Thirdly, explore the establishment of new global security governance platforms. We need to foster synergies between global economic governance and security governance frameworks, exploring the establishment of new platforms such as the International Security Fund Organization. With a targeted approach, we strive to bolster the security of developing nations, facilitate a balanced and fair distribution of the benefits of globalization among various countries and social groups within each country, and achieve a dynamic equilibrium between high-quality development and elevated levels of security at a global scale.

Box 7.3 Three paths for coordinating the advancement of openness and security

Unilateralism path: Under this path, each country makes completely independent decisions, choosing warranted openness based on its own balance of "security-development." The path of unilateralism will bring huge social costs, leading to a significant retreat in globalization. On the one hand, the independent decision-making by countries will result in inconsistency in warranted openness, manifested as disparities in international standards like tariff rates and industry entry. This inconsistency can cause inefficiencies in resource allocation in the process of globalization, affecting the quality of openness. On the other hand, in the global division of labor, a single country's decisions can have strong externalities. For instance, if one country withdraws from the global cooperation system due to national security considerations, it will act as a man-made supply cut-off for the upstream and downstream participants in the related supply chain, bringing the risk of negative spillover.

Plurilateralism path: Under this path, a few countries form economic alliances in specific areas. Members of the alliance jointly determine their warranted openness based on the "security-development" balance within their "small circle." While achieving internal openness within the alliance, this path might bring about the effect of "each following its own set." This could affect the level of openness between alliances, even leading to conflicts and escalating geopolitical risks.

Multilateralism path: Under this path, major economies enhance communication and cooperation, aiming to achieve a global balance of "security-development." Taking into account the positions and interests of all parties, they promote multilateral cooperation to achieve more warranted openness on a global scale. This path can enhance trust among countries, deepen international cooperation, and reduce the global security governance deficit. It helps to coordinate the advancement of openness and security, propelling globalization to overcome its "bottleneck" to achieve global openness and common security.

NOTES

1. The Institute of World Economics and Politics of Chinese Academy of Social Sciences & Research Center for Hongqiao International Economic Forum, *World Openness Report 2022* (China Social Sciences Press, 2021), 23.
2. Zhang Y. and Feng W., "A Theoretical Outline for National Security Studies for the New Era," *Social Sciences in China*, no. 7 (2021): 140–162.
3. M. Bolhuis, Chen J., and B. Kett, "Disruption in Trade Threatens Losses to Global Living Standards as Severe as Those from COVID-19," 2023, https://www.imf.org/en/Publications/fandd/issues/2023/06/the-costs-of-geoeconomic-fragmentation-bolhuis-chen-kett.
4. Yu M., Zheng C., and Huang H., "The Historical Evolution and Implications of US Trade Policy," *Journal of Chang'an University*: *Social Sciences Edition* (2019).
5. J. Goldstein, D. Rivers, and M. Tomz, "Institutions in International Relations: Understanding the Effects of the GATT and WTO on World Trade," *International Organization* 61, no. 1 (2007): 37–67.
6. A. Subramanian and Wei S., "The WTO Promotes Trade, Strongly but Unevenly," *Journal of International Economics* 72, no. 1 (2007): 151–175.
7. E. York, "Tracking the Economic Impact of US Tariffs and Retaliatory Actions. Tax Foundation," accessed July 7, 2023, https://taxfoundation.org/research/all/federal/tariffs-trump-trade-war/.

CHAPTER 8

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[1] (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.[2] 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

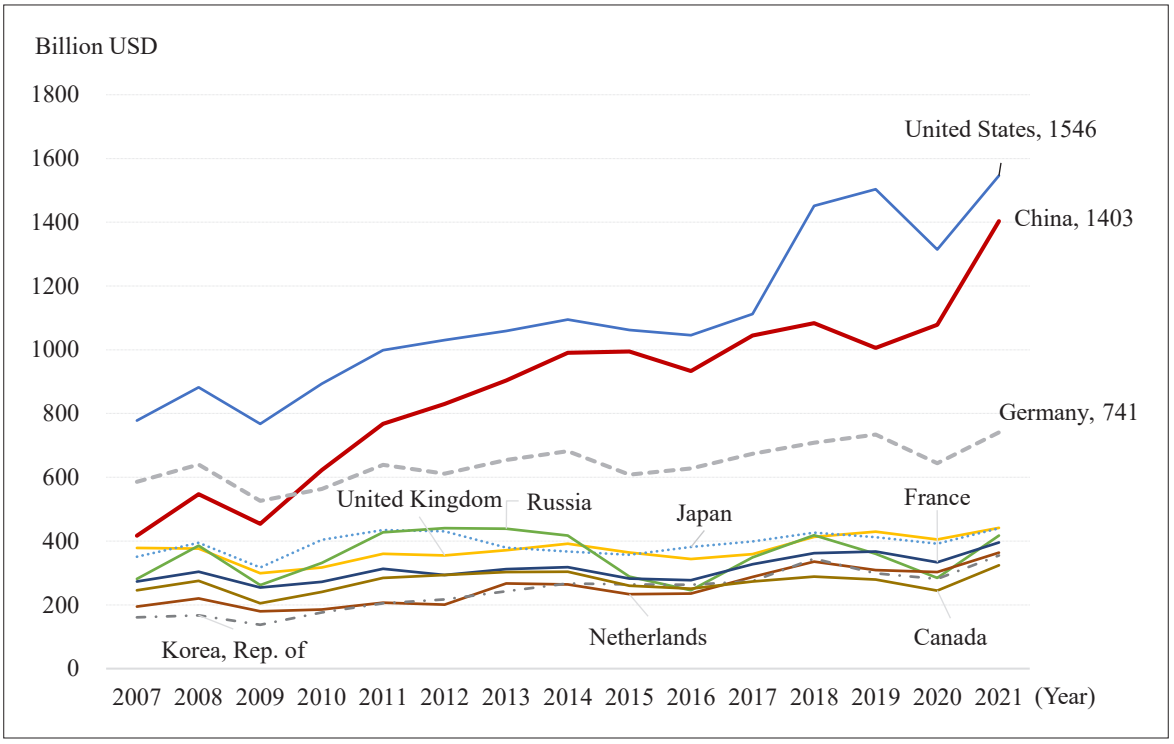

Fig. 8.1 Trade in GVCs: Top 10 economies in 2021, 2007–2021

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

The US, China,[3] 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[4] 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).

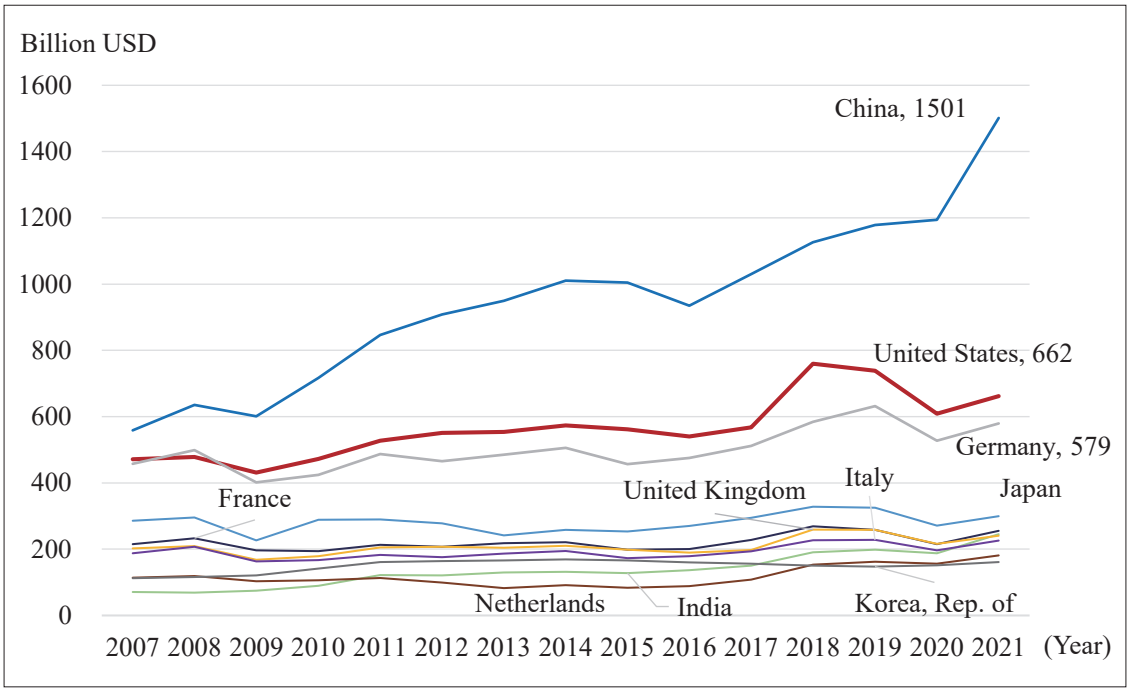

Fig. 8.2 Traditional trade: Top 10 economies in 2021, 2007–2021

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[5] 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).

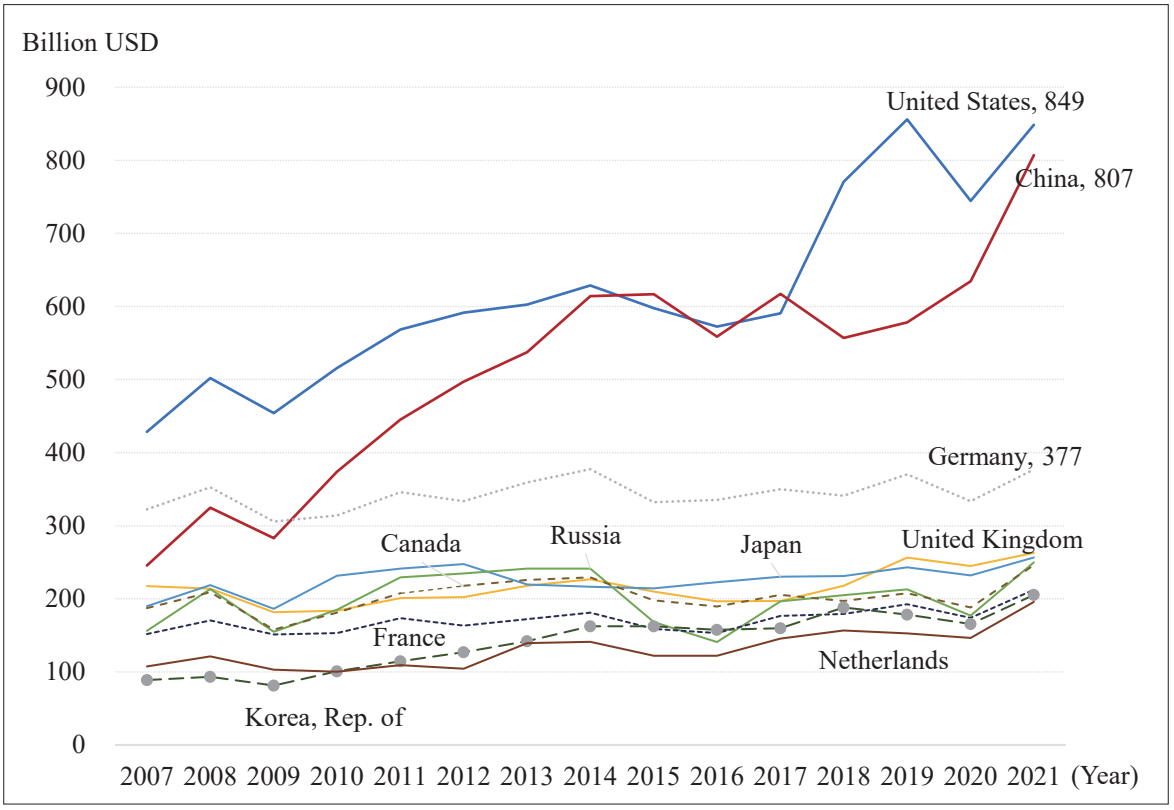

Fig. 8.3 Trade in simple GVCs: Top 10 economies in 2021, 2007–2021

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[6] (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.

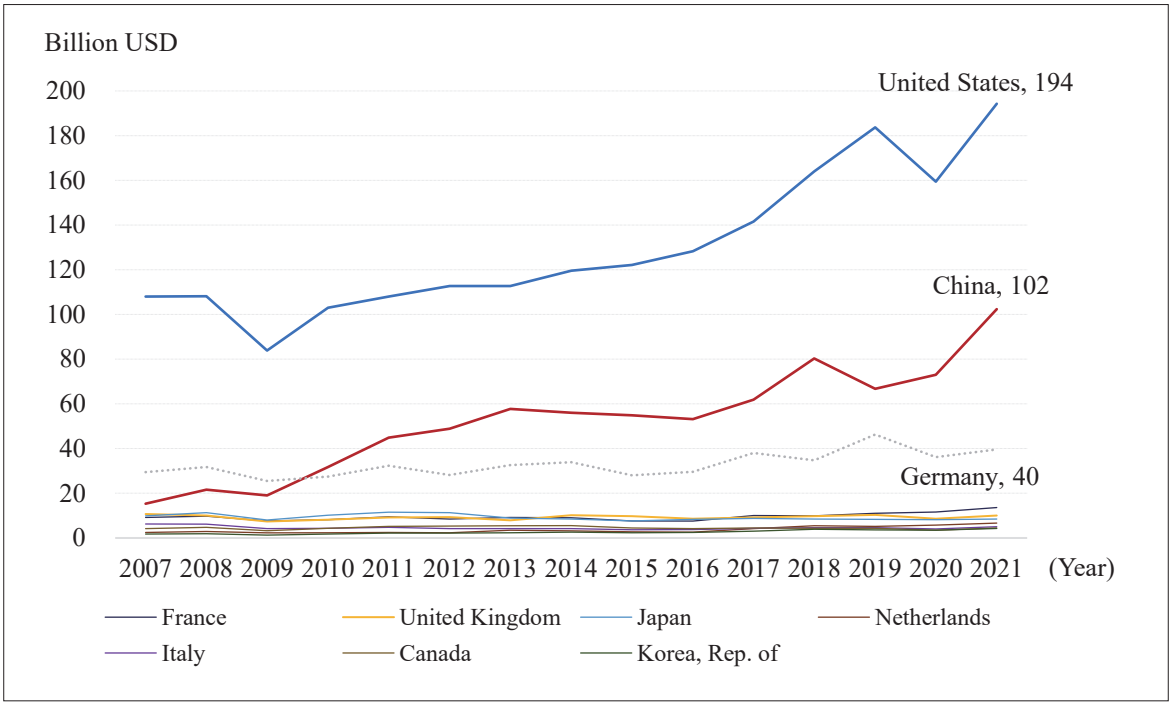

Fig. 8.4 Complex GVCs ultimately flowing back: Top 10 economies in 2021, 2007–2021

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,[7] 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.

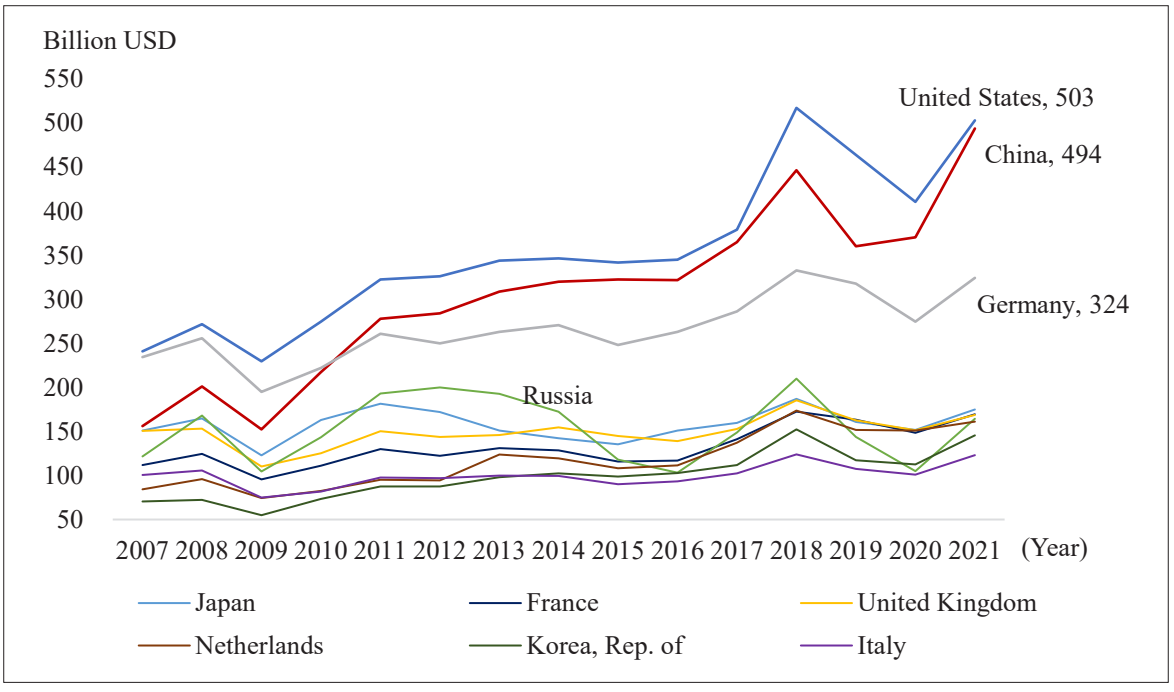

Fig. 8.5 Complex GVCs ultimately flowing to other economies: Top 10 economies in 2021, 2007–2021

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,[8] 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.[9] 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[10] are mainly located upstream in the global production network and mainly export intermediate goods and services; economies with high backward GVCs participation[11] 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[12]). 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.

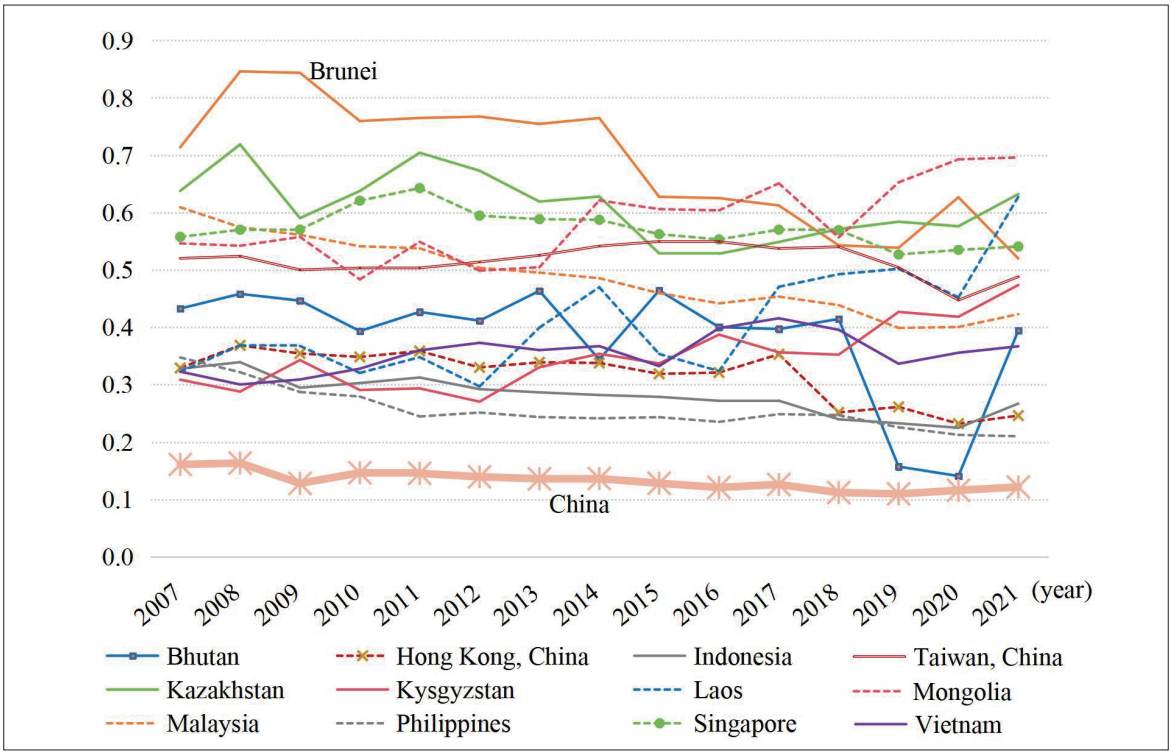

Fig. 8.6 Overall forward GVCs participation: Selected Asian economies, 2007–2021

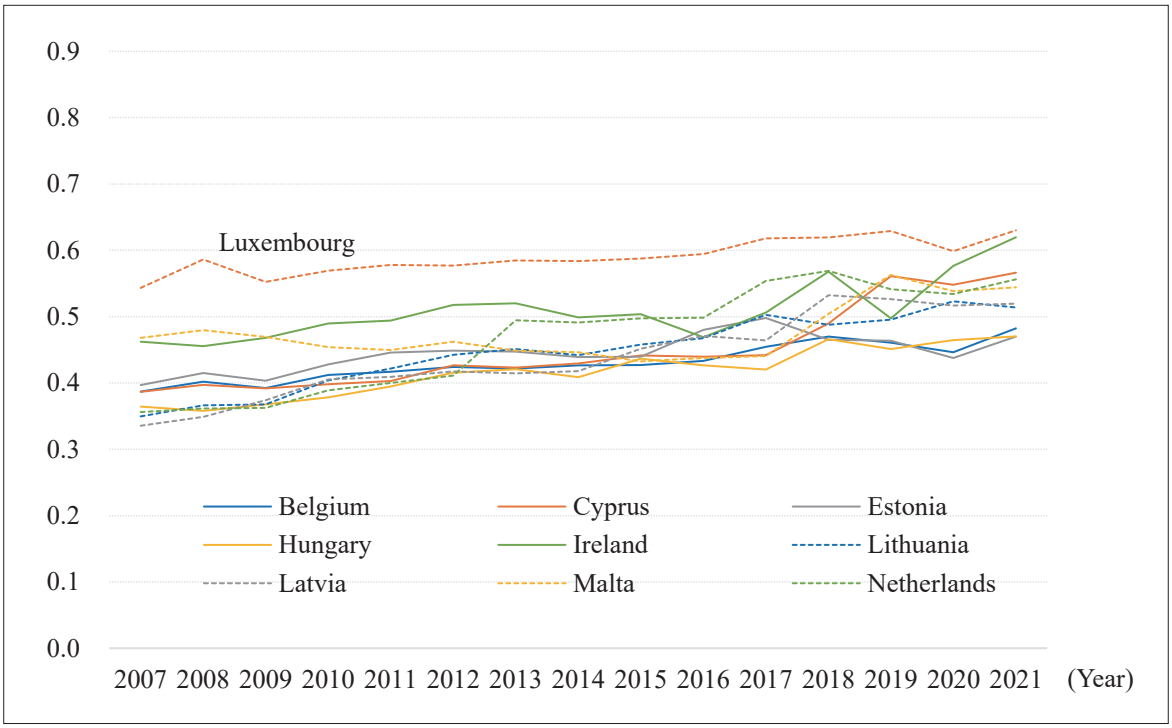

Fig. 8.7 Overall forward GVCs participation: Top 10 European economies, 2007–2021

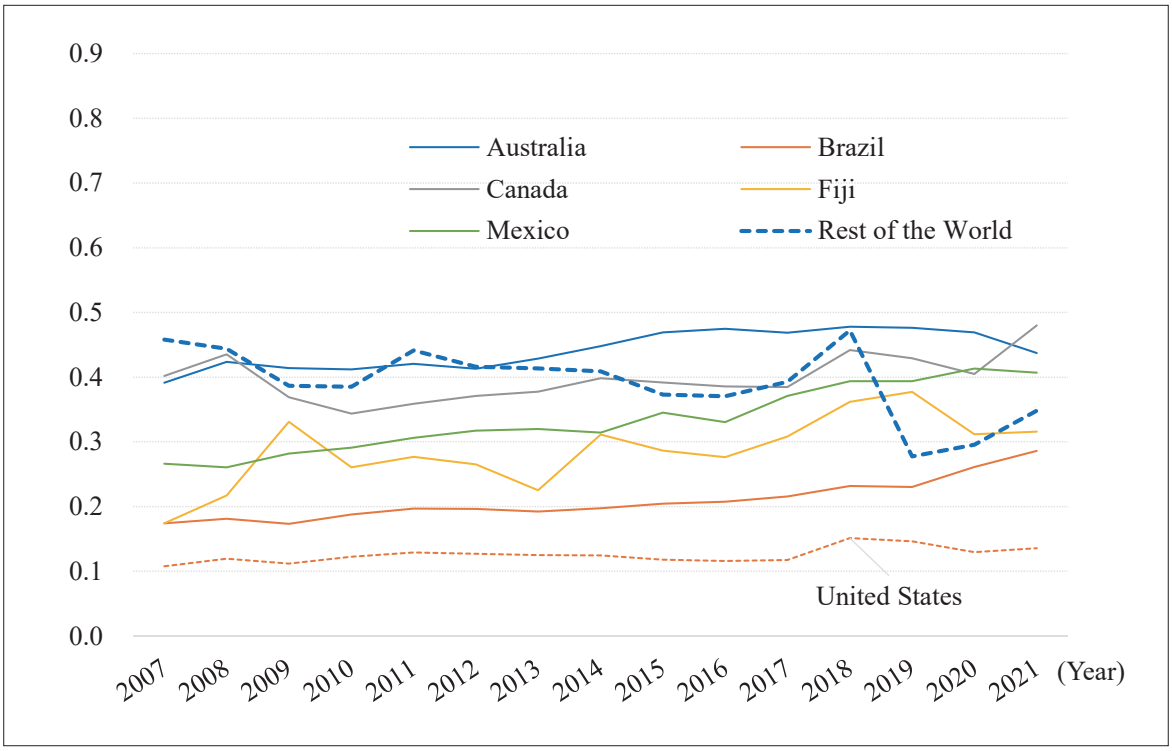

Fig. 8.8 Overall forward GVCs participation: US and other selected economies, 2007–2021

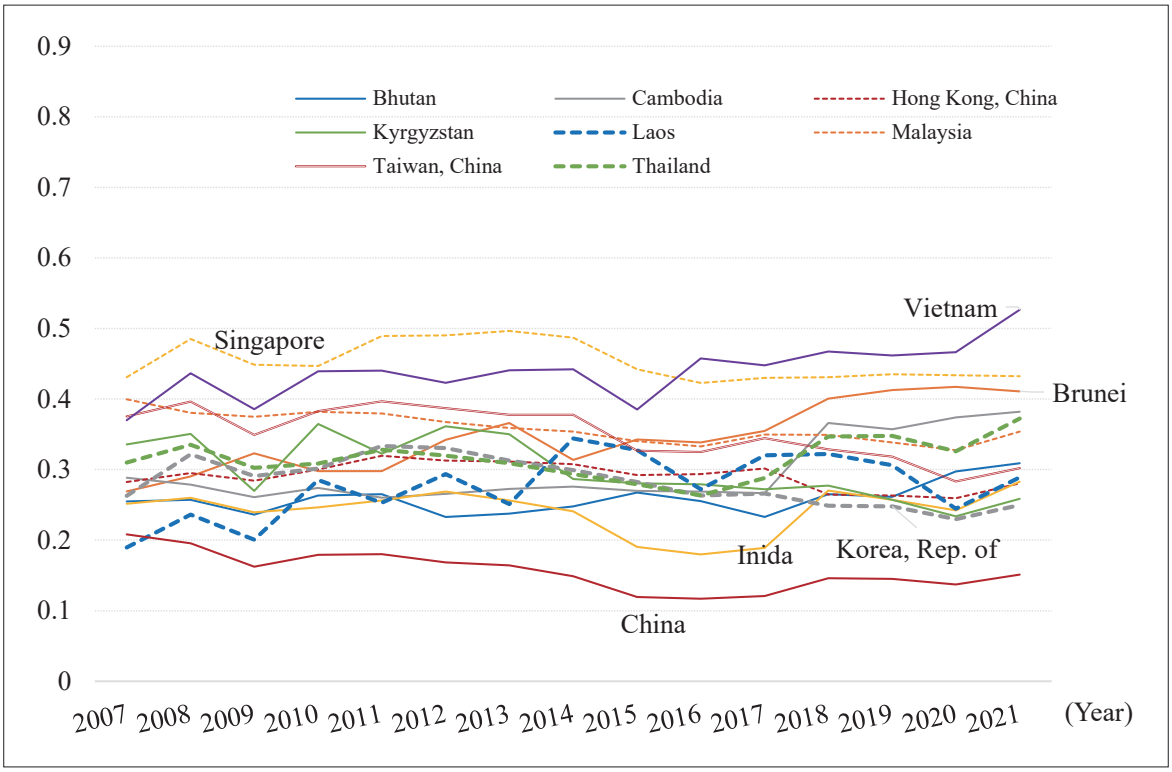

Fig. 8.9 Overall backward GVCs participation: Selected Asian economies, 2007–2021

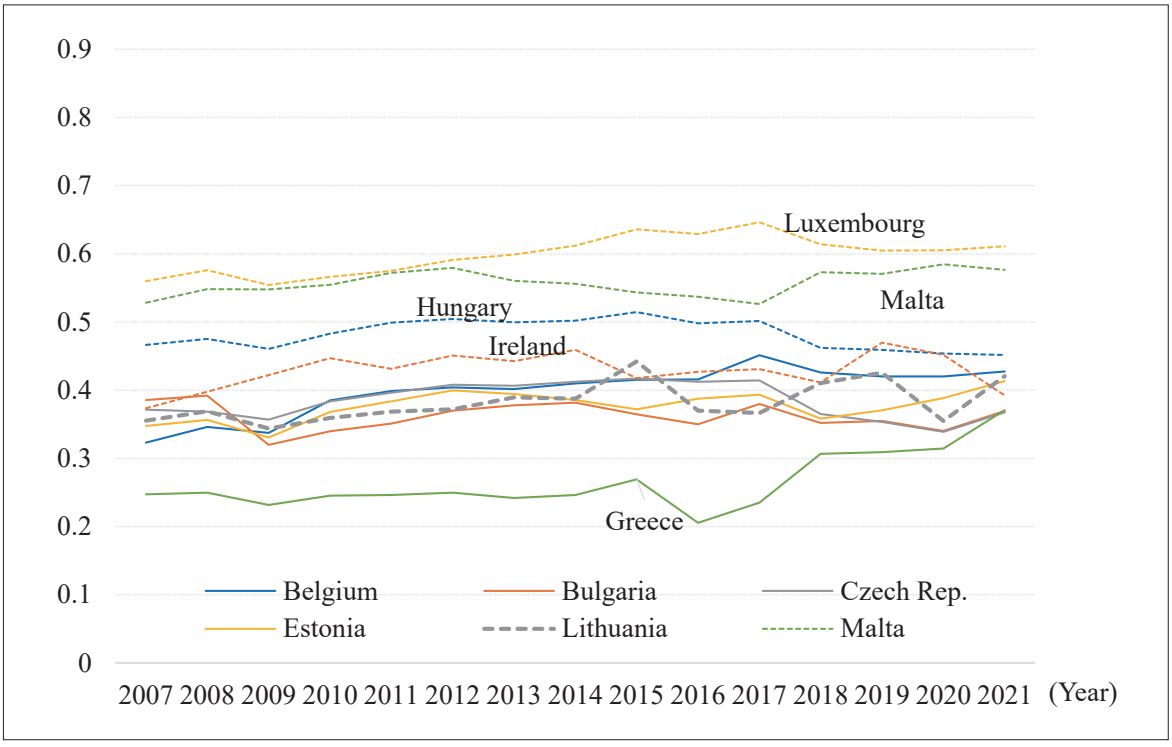

Fig. 8.10 Overall backward GVCs participation: Top 10 European economies, 2007–2021

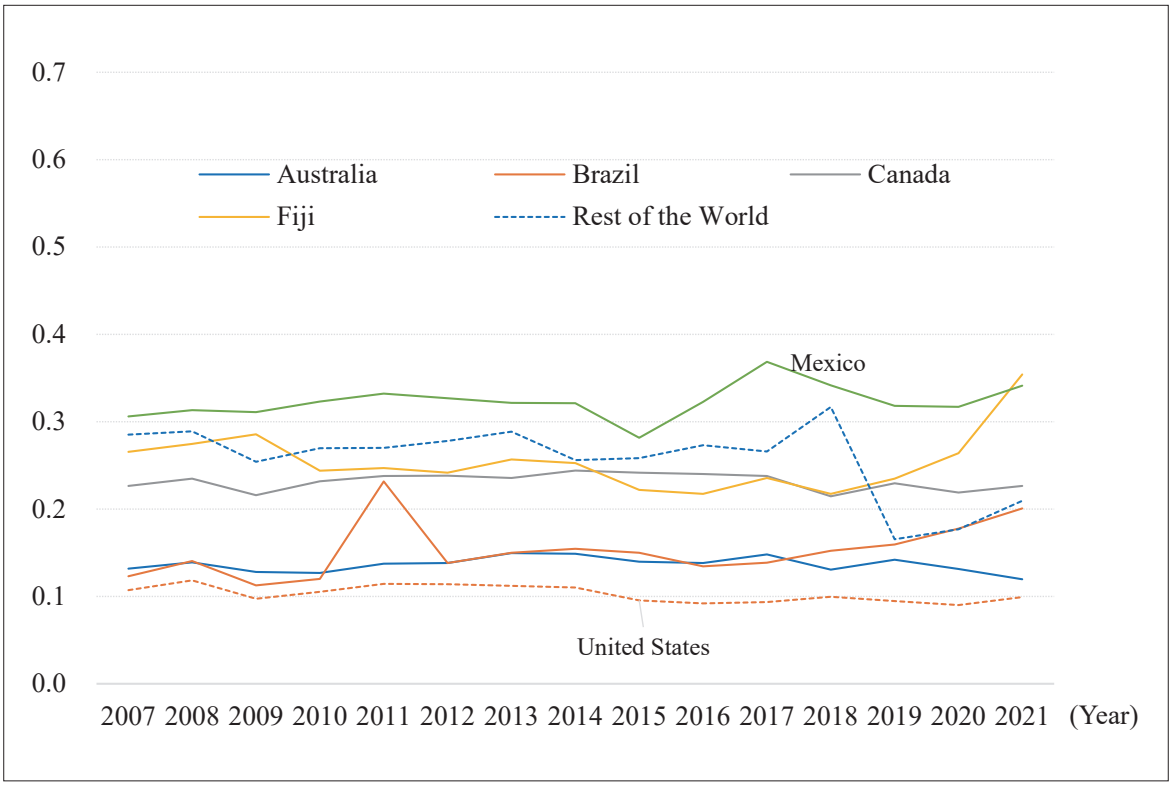

Fig. 8.11 Overall backward GVCs participation: US and other selected economies, 2007–2021

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

The assessment and measurement of revealed comparative advantage (RCA)[13] 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

	Top 5 in 2007					Top 5 in 2021				
Industry	**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

	Top 5 in 2007					Top 5 in 2021				
Industry	**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.

CHAPTER 9

The United Nations 2030 Agenda and BRI

The United Nations 2030 Agenda for Sustainable Development is a programmatic document guiding global development cooperation and is highly aligned with the BRI. This year marks the 10th anniversary of the BRI. Over the past decade, China has signed more than 200 Belt and Road cooperation documents with more than 150 countries and over 32 international organizations, focusing on policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and people-to-people bond, which has enriched the practical content of global development cooperation.[1] The BRI has become a road of solidarity for global partnership, a road of win-win cooperation for enhanced connectivity, openness, and cooperation, and a road of hope for global sustainable development. It is the broadest and largest open international cooperation platform in the world today.

1. The BRI Contributes China's Solution to the UN 2030 Agenda

The 2030 Agenda includes 17 Sustainable Development Goals (SDGs) and 169 targets.[2] Since it was proposed in 2015, more than half of the process has been completed, and some progress has been made. However, the current situation is unstable and uncertain, the global development deficit is more prominent, and the prospect of achieving the 17 SDGs on schedule is not optimistic.[3] As pointed out in the 2021/22 Human Development Report published by the United Nations Development Programme (UNDP), for the first time ever, the Human Development Index (HDI) has declined for two years in a row, back to its 2016 levels.[4] In July 2023, the United Nations released the SDGs Report 2023: Special Edition, indicating that only about 12 percent of the 140 targets have made significant progress, and 30 percent have either seen no movement or even regressed.[5] Under current trends, 575 million people will be living in extreme poverty in 2030.

In this context, the BRI, as an important international public good provided by China to the world, has taken on more prominent contemporary significance in the implementation of the UN 2030 Agenda.

(1) Inject certainty into sustainable development

The BRI is a practical action to achieve sustainable development. The BRI aims to increase the supply of international public goods, channel more resources to support the sustainable economic and social development of developing countries, and remove development bottlenecks. With the same purposes, principles, and visions, the BRI and the 2030 Agenda bring out the best in each other. At the Belt and Road Forum for International Cooperation in 2017 and 2019, President Xi Jinping announced a series of cooperation initiatives covering many areas, including economic and trade cooperation, science and technology, finance, food security and agriculture, education, health care, climate change, disaster reduction, water resources, capacity building, and people-to-people exchanges. These major measures are effectively aligned with the United Nations 2030 Agenda for Sustainable Development, forming policy synergy to promote global common development and injecting more certainty into sustainable development.

Box 9.1 Some of the practical cooperation measures announced by China at the two Belt and Road Forums

Finance. China will scale up financing support for the BRI by contributing an additional RMB 100 billion to the Silk Road Fund and encouraging financial institutions to conduct overseas RMB fund business with an estimated amount of about RMB 300 billion. The China Development Bank and the Export-Import Bank of China will set up special lending schemes, respectively, worth RMB 250 billion equivalent and RMB 130 billion equivalent to support Belt and Road cooperation on infrastructure, industrial capacity, and financing. China will also work with the AIIB, the BRICS New Development Bank, the World Bank, and other multilateral development institutions to support Belt and Road-related projects. China will work with other parties concerned to jointly formulate guidelines for financing the Belt and Road-related development projects. China will continue to make good use of the Belt and Road Special Lending Scheme, the Silk Road Fund, and various special investment funds, develop Silk Road theme bonds, and support the Multilateral Cooperation Center for Development Finance in its operation. China welcomes the participation of multilateral and national financial institutions in BRI investment and financing and encourages third-market cooperation. With the involvement of multiple stakeholders, benefits can surely be delivered to all.

Trade investment. China will endeavor to build a win-win business partnership with other countries participating in the BRI, enhance trade and investment facilitation with them, and build a Belt and Road free trade network. These efforts are designed to promote growth both in respective regions and globally. During the first forum, China will sign business and trade cooperation agreements with over 30 countries and enter into consultation on free trade agreements with related countries. China will enter into negotiations with more countries to conclude high-standard free trade agreements and strengthen cooperation in customs, taxation, and audit oversight by setting up the BRI Tax Administration Cooperation Mechanism and accelerating international collaboration on the mutual recognition of Authorized Economic Operators.

People-to-people bond. China will enhance cooperation on innovation with other countries. We will launch the Belt and Road Science, Technology, and Innovation Cooperation Action Plan, which consists of the Science and Technology People-to-People Exchange Initiative, the Joint Laboratory Initiative, the Science Park Cooperation Initiative, and the Technology Transfer Initiative. In the coming five years,[6] China will offer 2,500 short-term research visits to China for young foreign scientists, train 5,000 foreign scientists, engineers, and managers, and set up 50 joint laboratories. China will continue to carry out the Belt and Road Science, Technology, and Innovation Cooperation Action Plan and will work with our partners to pursue four major initiatives, namely the Science and Technology People-to-People Exchange Initiative, the Joint Laboratory Initiative, the Science Park Cooperation Initiative, and the Technology Transfer Initiative. China will also support companies of various countries in jointly advancing ICT infrastructure building to upgrade cyber connectivity. China will put in place the following mechanisms to boost Belt and Road cooperation: a liaison office for the forum's follow-up activities, the Research Center for the Belt and Road Financial and Economic Development, the Facilitating Center for Building the Belt and Road, the Multilateral Development Financial Cooperation Center in cooperation with multilateral development banks, and an IMF-China Capacity Building Center. China will also develop a network for cooperation among the NGOs in countries along the Belt and Road as well as new people-to-people exchange platforms such as a Belt and Road news alliance and a music education alliance. China will, in the coming five years, invite 10,000 representatives of political parties, think tanks, and non-governmental organizations from Belt and Road participating countries to visit China. Together with social organizations of participating countries, China will conduct a number of environmental protection and anti-corruption training courses and deepen human resources development cooperation in various areas. China will continue to run the Chinese government scholarship Silk Road Program and host the International Youth Forum on Creativity and Heritage along the Silk Roads and the "Chinese Bridge" summer camps.

—Green development. China will set up a big data service platform on ecological and environmental protection. China proposes the establishment of an international coalition for green development on the Belt and Road, and China will provide support to related countries in adapting to climate change. China will continue to implement the Green Silk Road Envoys Program and work with relevant countries to jointly implement the Belt and Road South-South Cooperation Initiative on Climate Change. China will also deepen cooperation in agriculture, health, disaster mitigation, and water resources, and China will enhance development cooperation with the United Nations to narrow the gap in development.

—People's livelihood. In the coming three years,[7] China will provide assistance worth RMB 60 billion to developing countries and international organizations participating in the BRI to launch more projects to improve people's well-being. China will provide emergency food aid worth RMB 2 billion to developing countries along the Belt and Road and make an additional contribution of US$1 billion to the Assistance Fund for South-South Cooperation. China will launch 100 "happy home" projects, 100 poverty alleviation projects, and 100 health care and rehabilitation projects in countries along the Belt and Road. China will provide relevant international organizations with US$1 billion to implement cooperation projects that will benefit the countries along the Belt and Road.

The BRI brings tangible benefits to participating countries. Ten years on since the start of the BRI, more than 3,000 cooperation projects on connectivity and people's livelihood have been carried out in Belt and Road countries, involving nearly US$1 trillion of investment, creating 420,000 jobs for participating countries and lifting nearly 40 million people out of poverty. As an Australian scholar pointed out, the Belt and Road project has provided employment, exports, tax revenue, and technology for participating countries and regions, trained a large number of technical personnel, and promoted economic and trade exchanges.[8] According to the research report of Boston University, BRI host countries, to varying extents, have received considerable investment, loans, and infrastructure and gained precious development experience from China.[9]

The BRI attracts worldwide attention for its dynamism and resilience. Despite the impact of COVID-19, no "pause button" has been pressed on BRI cooperation projects. Healthy Silk Road, Green Silk Road, and Digital Silk Road projects are in the ascendant. Trade in goods and non-financial direct investment among BRI countries shows a continuously growing trend. The construction of digital transportation corridors, cross-border optical cable information channels, and information ports has been actively promoted. Kazakhstan International News Agency published a commentary that the BRI, as a global initiative, is a stable, sustainable economic cooperation mechanism that can cope with the negative impacts of the pandemic.[10]

The BRI is highly recognized by the international community. UN Secretary-General Antonio Guterres said that jointly building the Belt and Road is an important opportunity to advance the implementation of the UN 2030 Agenda, which can not only share development opportunities, help developing countries reduce poverty, but also contribute to environmental construction and social stability and development, thus promoting the realization of sustainable development Goals.[11] A British expert on East Asia believed that the BRI is widely welcomed because there are no political strings attached to Chinese investment.[12] A Swedish scholar said that the BRI is of global influence and epochal significance, paving the way for eradicating poverty, promoting sustainable development, promoting international peace and cooperation, and is conducive to global common development.[13] Kazakhstan's president hailed the BRI as a remarkable initiative for building continental strategic connectivity.[14]

(2) Shape a new paradigm for international development cooperation

The BRI follows the vision of global governance, featuring extensive consultation, joint contribution, and shared benefits. The BRI upholds the principles of extensive consultation, joint contribution, and shared benefits and actively aligns with the strategic plans and priorities of developing countries. Taking connectivity as an important means, BRI contrives to seek common interests and cooperation in concentric circles, provide new opportunities for developing countries to better participate in global governance and integrate into GVCs, and promote a new type of development cooperation based on equality and mutual benefit, thus showing a new path and cooperation paradigm for global development.

The BRI aims to be high-standard, sustainable, and people-centered. First, promote internationalization and localization in both directions, introducing rules and standards that are widely supported by all parties. The construction, operation, procurement, bidding, and other aspects of projects are carried out in accordance with generally accepted international rules and standards while respecting various laws and regulations in different countries and deeply exploring local conditions. Second, coordinately develop the economy, society, and environment, focusing on the mutual adaptability of project construction with local society and environment, thus coordinating economic growth, social development, and environmental protection to ensure commercial and financial sustainability. Third, put people first, centering on eradicating poverty, increasing employment, and improving people's livelihood, and implement more projects that are "handy and practical with fast and remarkable effects on people's livelihood" so that the fruits of the BRI can benefit people of all countries.

(3) Enrich global development partnerships

The BRI opens up a new way for South-South cooperation. China has set up the Global Development and South-South Cooperation Fund and the China-UN Peace and Development Trust Fund, enriching and diversifying financial models. By June 2023, China, in cooperation with the UNDP, the United Nations Children's Fund, the United Nations High Commissioner for Refugees, the World Health Organization, and other international organizations, has implemented more than 130 projects in more than 50 developing countries in Asia, Africa and Latin America, benefiting more than 20 million people. At the same time, fruitful South-South cooperation has been carried out under the BRICS Plus, Shanghai Cooperation Organization, and Lancang-Mekong cooperation mechanisms. As a shared model of South-South cooperation, BRI becomes an example of new South-South cooperation that supports diverse actors such as international organizations, multilateral institutions, enterprises and the private sector, and non-governmental organizations to leverage their comparative advantages through participating in South-South cooperation and expanding cooperation space.

The BRI promotes high-level regional cooperation. The BRI connects regional development plans and cooperation initiatives such as the Master Plan on ASEAN Connectivity (MPAC) 2025, Agenda 2063 of the African Union, the Eurasian Economic Union, and the Europe-Asia Connectivity Strategy of the EU, reaching a consensus for improving connectivity and supporting economic integration among regions in the world. The China–Laos Railway has linked to Thailand's railway network, creating an economic belt that extends to Myanmar, Thailand, Cambodia, and Vietnam. Steady progress has been made in projects such as the Jakarta-Bandung High-Speed Railway and the East Coast Rail Link in Malaysia. Greater Mekong Railway Association was formally established; the China–Europe Railway Express has been connected to the New Land-Sea Corridor in the western region. The above cooperation measures have effectively implemented the ASEAN-China Joint Statement on Synergising the MPAC 2025 and the BRI. The BRI has enriched plans for co-building regional cooperation

among countries, promoting broader, higher-level, and deeper regional cooperation.

The BRI actively expands trilateral cooperation. China has signed third-party market cooperation documents with France, Japan, Italy, and the United Kingdom and carried out tripartite cooperation programs with the US, the United Kingdom, Australia, and New Zealand to meet local needs in agriculture, health, and other areas. For example, China worked with the US to train health officials for African countries, joining hands to support African countries in fighting the Ebola virus. China cooperated with the UK in implementing pilot projects on cassava industrial chain in Uganda and tilapia industrial chain cooperation in Malawi. In cooperation with Australia, China carried out a malaria prevention and control program in Papua New Guinea and helped the country to found a network of provincial-level malaria laboratories, thus enhancing its capabilities in routine malaria diagnosis and monitoring. Through cooperation, all parties have drawn from each other's successful experience and enhanced mutual understanding and trust, hence building a results-oriented cooperation mechanism and a more inclusive global governance model.

2. The BRI Helps Achieve the 2030 Agenda Goals

The BRI focuses on policy coordination, infrastructure connectivity, unimpeded trade, financial integration, and people-to-people bond. A large number of development projects in infrastructure, digital communications, energy and electricity, people's livelihood, poverty reduction and benefits, public governance, and climate change have been launched, and new platforms for international trade and investment have been created. Being a new contributor to improving people's well-being in all countries, BRI has played an important role in accelerating the implementation of the 2030 Agenda.

(1) Promote connectivity

The BRI has enhanced infrastructure links. In participating countries, the need for infrastructure is huge. The ADB estimates that developing countries in Asia need to invest US$26 trillion in infrastructure from 2016 to 2030.[15] Under the BRI framework, by September 2022, China had signed 22 agreements on international road transportation facilitation with 19 countries and 70 bilateral and regional shipping agreements with 66 countries and regions, providing shipping services to all coastal countries along the Road. China has also signed bilateral intergovernmental air transport agreements with 100 countries. A general connectivity framework consisting of six corridors, six connectivity routes, and multiple countries and ports has been constantly improved. Major corridors such as the China Railway Express, the China–Laos Railway, and the New Land-Sea Corridor injected new impetus into the joint construction of economic and trade exchanges between countries. For instance, by July 2023, more than 74,000

China-Europe freight trains had transported 6.9 million twenty-foot equivalent unit (TEU) containers of goods, providing services for 216 cities in 25 European countries. Infrastructure is the bedrock of connectivity. High-quality, sustainable, resilient, affordable, inclusive, and accessible infrastructure projects can help countries fully leverage their resource endowment and better integrate into the global supply, industrial, and value chains.

Box 9.2 Silk road shipping

In December 2018, "Silk Road Shipping" set off from Xiamen Port. Starting from scratch, a whole new "Belt and Road" maritime integrated logistics service brand went from strength to strength. As of April 2023, the shipping routes named after the brand "Silk Road Shipping" had reached 100, connecting 117 ports in 43 countries around the world. China supported the construction of the Hambantota Port in Sri Lanka and assisted with the Friendship Port expansion project in Mauritania, which improved the handling capacity of the ports, turning them into important trade and logistics nodes along the 21st Century Maritime Silk Road. China also supported Ethiopia, Zambia, Zimbabwe, Togo, Guyana, Antigua and Barbuda, Samoa, and other countries in upgrading and expanding their airports, thereby improving operational capacity and safety and promoting local tourism.

The BRI has promoted digital connectivity. In Kenya, the national fiber optic cable network, built with China's assistance, marks a great leap in the development of the local information and communications industries. In Bangladesh, the third-phase project of Bangladesh's e-government network extended the network to more than 2,600 administrative unions at the lowest level, covering 62 percent of the country's territory and population. In this way, the "information superhighway" stretched from the capital to all parts of the country, benefiting about 100 million people. China supports participating countries in building a high-speed information connectivity network to set the stage for local development of the digital economy and information society, narrow the digital divide, and promote digital connectivity so that the fruits of the digital economy are beneficial to all the people.

The BRI has expanded financial integration. China has been increasing its support for the BRI and for investment and financing in bilateral and multilateral connectivity. With the joint efforts of all parties, the AIIB and other multilateral institutions were established one after another. As of January 2023, AIIB membership had increased from 57 in the early days to 106, second only to the World Bank, covering six continents. AIIB had approved 202 projects in 33 countries, with a total investment of more than USD 38.8 billion and nearly USD 130 billion of capital generated, helping infrastructure construction, promoting local economic and social development, and improving people's lives. As an important pillar of the BRI, financial connectivity has been pivotal in reducing the cost of capital circulation, fending off financial risks, and improving the international competitiveness of the regional economy.

Box 9.3 Silk road e-commerce

In recent years, the network of "Silk Road E-commerce" partners has continued to expand, showing strong vitality and resilience and ushering in new opportunities for development. So far, with partners across five continents, "Silk Road E-commerce" has become a new channel and highlight of economic and trade cooperation. China has inked MoUs on e-commerce cooperation and established bilateral e-commerce cooperation mechanisms for cooperation in policy exchange, planning coordination, industry promotion, sub-national cooperation, capacity building, and other fields with 29 countries. Coffee and pepper from Rwanda are coming to China via e-commerce platforms; the online retail sales of Iceland have significantly improved; thousands of enterprises from the countries along the Belt and Road have upgraded their products and services through e-commerce cooperation. Today, "Silk Road e-commerce" is seeing fruitful results. "Silk Road e-commerce" has promoted the BRI's high-quality development, as it can facilitate trade between China and countries along the route, help these countries with the development of many industries, including logistics, payment, and digital development, and facilitate trade sector along the BRI route through digital and internet technologies.

The BRI has improved smooth trade flows. As of June 2023, China had signed Authorized Economic Operator (AEO) mutual recognition agreements[16] with 26 economies, such as Singapore, Rep. of Korea, and the EU, covering 52 countries (regions). Both the number of mutual recognition agreements signed and the number of countries (regions) in mutual recognition rank the first in the world. Among them, there are 35 countries jointly building the "Belt and Road." Since 2013, China has provided customs container testing equipment to Bangladesh, Mongolia, Djibouti, Guyana, Vanuatu, and other countries, helping them improve their terms of trade. China held seminars on special topics related to trade development to build an exchange platform for enhancing the docking of trade standards and technologies. China's trade in goods with Belt and Road countries doubled from US$1.6 trillion to US$2.9 trillion, with an average annual growth rate of 6.4 percent. According to a World Bank report, the BRI will greatly boost global growth. During 2013–2030, the BRI will increase trade among BRI countries by 2.8 percent to 9.7 percent, global trade by 1.7 percent to 6.2 percent, and global real income by 0.7 percent to 2.9 percent, and real income in BRI countries by 1.2 percent to 3.4 percent.[17] The smooth flow of trade, as the focus of the BRI, is an effective driver of sustainable economic growth in all countries.

(2) Focus on people's livelihood and poverty reduction

The BRI helped with poverty reduction. By 2021, the 98.99 million Chinese people in rural areas who were living below the current poverty threshold all shook off poverty. China has shared its valuable experience on poverty reduction with countries jointly building the "Belt and Road." China took practical steps to implement the Cooperation Initiative on Poverty Reduction, providing RMB100 million in 2014 to launch a rural poverty alleviation plan and set up East

Asia poverty reduction cooperation demonstration sites. At the same time, the China-Africa poverty reduction plan was launched. China has actively organized various training programs and participated in seminars organized by the United Nations Industrial Development Organization to share ideas and actions in targeted poverty alleviation with other developing countries. Over the past decade, being an active participant in global poverty governance, China has carried out international cooperation on poverty reduction, fulfilled its international responsibility for poverty reduction, and built the BRI into a pathway to poverty alleviation and growth, so that all countries can share the fruits of development.

Box 9.4 East Asia poverty reduction demonstration cooperation technical assistance projects

To help accelerate the poverty reduction process in rural areas of countries jointly building the BRI, China has explored and conducted international poverty reduction cooperation in some areas. China has implemented "East Asia Poverty Reduction Demonstration Cooperation Technical Assistance Projects" in rural communities in Laos, Cambodia, and Myanmar. The project, launched in March 2017, is the first comprehensive village-level poverty reduction demonstration project implemented by China. Based on the successful experience of "whole-village pushing forward" in poverty alleviation and development in China, China constructed infrastructure and public service facilities such as water supply, bridges, roads, and electricity for the six demonstration villages, organized planting and breeding technology demonstration, increasing villagers' income through multiple channels and enhancing the independent development capacity of the villages. The project totally covered over 2,900 households in six villages. Ouk Rabun, Minister of Rural Development of Cambodia, spoke highly of China's contribution to social development and poverty reduction in ASEAN countries, claiming that China's experience could serve as a useful reference for social development and poverty reduction in ASEAN countries.

The BRI helped with agriculture development. With a focus on hybrid rice and Juncao, China has formed a brand of core agricultural aid technology to assist other developing countries to leverage their own strengths to accelerate agricultural progress. China has sent agricultural experts to these countries and regions, filling the gaps in local agricultural technology by combining improved seed breeding, experimental planting, demonstration planting, and technology promotion. China has assisted Kyrgyzstan, Chad, Niger, Fiji, and other countries to build their irrigation systems and offered agricultural machinery and supplies. China has helped East Timor, Zambia, Cuba, and Cape Verde build granaries, grain processing facilities, corn flour production plants, and pig and cattle slaughterhouses. The above measures have helped relevant countries to improve their agro-industrial chains, enhance agro-productivity, and promote sustainable agricultural development.

Box 9.5 China-Aid Juncao and Upland Rice Technology Project to Papua New Guinea

In order to help accelerate the process of poverty reduction in rural areas of BRI countries, China has explored the implementation of Juncao technology cooperation in some areas and promoted Juncao projects. Since 2001, when the first China-aided Juncao technology demonstration base overseas was established in Papua New Guinea, this technology has sown its seeds in over 100 countries in the world.

The Chinese government has launched technical assistance projects for Juncao and upland rice in the Eastern Highlands Province of Papua New Guinea, which have effectively increased the income of local farmers and enhanced the sustainable development capacity of local agriculture. Juncao and upland rice are among the three pillar industries of agriculture in the province, together with coffee. James Marape, prime minister of Papua New Guinea, said that Juncao technology has opened a new pathway to sustainable development for Papua New Guinea and other developing countries, and the Juncao program is an epitome of China's great achievement in poverty alleviation and a gift China sent to the world.

The BRI has improved public health conditions. First, basic medical service capacity has been improved. China supports BRI countries in building hospitals, clinics, and other health infrastructure and provides medical equipment, drugs, and medical consumables. In January 2023, the Africa Center for Disease Control and Prevention (Africa CDC) Headquarters, a China-aided project for the African Union, was officially completed, effectively improving the speed of disease prevention, monitoring, and emergency response in Africa. Second, human resources for medical services have been strengthened. China sent 30,000 medical aid workers to 76 countries and regions in Africa, Asia, the Americas, Europe, and Oceania, treating 290 million patients. In Sri Lanka, Sudan, Cameroon, and other countries, China launched short-term medical services such as the "Brightness Action program" for cataract surgery, the "Smile Action program" for cleft lip and palate surgery, and the "Heart to Heart program" for heart surgery. China has carried out cooperation with Central and Eastern European countries and ASEAN countries in traditional medicine, making breakthroughs and exemplary achievements in many fields. Third, in the face of the epidemic and other public health crises, humanitarian aid has been provided. During the global spread of the COVID-19 pandemic, China provided emergency humanitarian aid to more than 150 countries with anti-epidemic supplies, technical assistance, and vaccines. The above measures have effectively improved the level of medical services in BRI countries with strengthened public health systems and capacity, thus enhancing their sense of fulfillment.

The BRI has improved education conditions. Education is the key to preventing the transmission of intergenerational poverty. China assisted BRI countries in the construction of a number of primary and secondary schools and offered computers, lab equipment, stationery, and sporting goods. China has provided technical cooperation and other soft assistance to BRI countries to help them develop modern education. To help Sudan build a national vocational

training base for teachers, China sent more than a dozen experts to Omdurman Friendship Center for Vocational Training, offering guidance in teaching, operation, and management and training teachers and administrators. These measures by China have helped BRI countries to improve teaching conditions, cultivate teachers, and create more high-quality and fair education opportunities, thus effectively promoting the balanced and sustainable development of education in BRI countries.

Box 9.6 China-Aided Technical Cooperation Project of Education in South Sudan

The China-Aided Technical Cooperation Project of Education in South Sudan is China's first comprehensive educational assistance project. Founded on July 9, 2011, South Sudan is currently the world's youngest country, and its education is listed as a priority area of development, second only to defense. In this context, the first phase of the China-Aided Technical Cooperation Project of Education in South Sudan was officially launched in January 2017. Based on the characteristics of South Sudan's national conditions and current educational conditions, the project included five modules: top-level education planning, textbook development, teacher training, the construction of an ICT teacher training center, and textbook printing. At present, the project results have been officially put into use, benefiting nearly 150,000 local teachers and students. 1.29 million first-grade math, English, and science textbooks specially designed and printed for the project have been introduced to local primary schools. 200 South Sudanese teachers who have completed capacity-building training sessions in China are active in teaching positions. The ICT teacher training center built in China has become a popular digital platform window for South Sudanese teachers. The second phase of the China-Aided Technical Cooperation Project in Education, officially launched on December 6, 2021, has been carried out in various aspects, such as the construction of the South Sudan teaching material system, the training of educators, and the cultural exchanges between the two countries. The project brings China's advanced educational concepts and valuable experience to South Sudan and integrates them with the innovative development of local education, providing strong support for the local development of a new curriculum for primary and secondary schools and other educational plans. Also, capacity-building training for South Sudanese teachers and education administrators will help them better engage in national education.

The BRI has improved public welfare facilities. China supports BRI countries in building public welfare infrastructures such as social housing and rural water supply. China helped Belarus build government-subsidized housing in six provinces and one city, benefiting a group of orphans, multiple-child families, the disabled, and other vulnerable poor people. China assisted with the Mongolian Disabled Children Development Center, providing modern, fully functional places for the treatment and rehabilitation of disabled children. China backed Cambodia, Laos, Algeria, and other BRI countries in building sports, cultural, and artistic infrastructure projects. These measures have effectively improved public welfare facilities in BRI countries and greatly facilitated local social and public activities.

(3) Share development experience

The BRI has strengthened communication and coordination. The BRI has actively connected with the development plans of international and regional organizations such as the United Nations, ASEAN, the African Union, the EU, and the Eurasian Economic Union, and carried out capacity-building cooperation through bilateral and multilateral cooperation mechanisms to build consensus for interconnected development. China has held over 4,000 training sessions for officials from participating countries on Belt and Road topics, including more than ten planning projects such as Cambodia's national road network plan, Bangladesh's flood control plan, Pakistan's Gwadar City Master Plan, China-Myanmar Economic Corridor, China-Belarus (Russia) Industrial park. The above cooperation measures have effectively enabled BRI countries to better know and understand China's policies and measures, enhanced the vision and ability of participating officials in planning and formulating policies, and helped these countries pursue sustainable development paths suited to their national conditions.

Box 9.7 Institute of South-South Cooperation and Development

President Xi Jinping announced the establishment of the Institute of South-South Cooperation and Development at the UN Round-table on South-South Cooperation in September 2015. The institute, established at the National School of Development of Peking University, offers master's and doctoral programs in national development and recruits students through the selection of foreign embassies and consulates. At present, it has enrolled more than 200 master's and doctoral students from more than 60 countries.

The Institute of South-South Cooperation and Development systematically summarizes and distills China's experience in economic development and national governance, helps developing countries cultivate high-end government management personnel, and provides talents to advance developing countries to realize the modernization of national governance system and governance ability. This is the result of China's more high-end and meritocratic human resources cooperation in foreign aid, which reflects China's desire and determination to further share its governance experience and also provides important international public goods that support the endogenous growth of developing countries. In 2017, after the first 26 master's students of the institute graduated, President Xi replied to their letter of thanks, congratulating them on completing their studies and wishing them to put what they have learned into practice and become leaders of reform in their respective countries and practitioners of global South-South cooperation to facilitate the development and prosperity in developing countries.[18]

The BRI has taught people how to fish rather than just give them fish. China aims to share with other developing countries its experience in governance, industrial innovation and upgrading, ecological and environmental governance, and targeted poverty alleviation and eradication, carrying out capacity building through bilateral and multilateral cooperation

mechanisms. Under the "Green Silk Envoys Program," China supported and actively assisted BRI countries in training personnel for green development. As of January 2023, the program had trained 3,000 people from more than 120 BRI countries. Committed to sharing development experience with BRI countries, China helps to train talents and improve governance capacity, promoting the realization of the 2030 SDGs.

(4) Respond to global challenge

The BRI has responded to major natural disasters. As an important international public good, humanitarian aid is essential in achieving long-term sustainable development. When other countries are hit by natural disasters such as earthquakes, cyclones, mudslides, floods, and droughts, China donates tents, clean water, food, portable power generation equipment, and other disaster relief materials, dispatches search and rescue and medical teams, providing emergency assistance in accordance with the actual situation and relief needs of the affected countries. Since 2022, China has provided emergency humanitarian assistance in response to Tonga's volcanic eruption, Pakistan floods, and the Turkiye-Syria earthquake. The Chinese government immediately activates the assistance mechanism, sends Chinese rescue teams, and delivers relief supplies to the disaster-hit areas, strengthening international coordination to promote sustainable development with all countries.

Box 9.8 China carried out emergency humanitarian assistance to Turkiye and Syria

On February 6, 2023, Turkiye and Syria were hit by the strongest earthquake in a century when the Chinese government immediately launched the emergency humanitarian assistance mechanism, sent a Chinese rescue team to participate in the rescue, and delivered relief materials to the disaster-hit areas. On February 8, the Chinese government announced that it would provide Turkiye with the first batch of aid worth 40 million yuan, including a heavy urban rescue team, a medical team, and disaster-relief supplies the country urgently needs. After arriving in the affected area on February 8, the Chinese rescue teams carried out search and rescue operations in the province of Hatay, one of the worst-hit areas, according to the scope proposed by the Turkish side. China sent a total of 308 rescuers in 21 batches, who rescued six trapped survivors and located 11 people who had died in the disaster. At the same time, China declared to provide emergency aid worth 30 million yuan to Syria, which includes assistance of US$2 million and relief materials. On February 15, China-aided emergency humanitarian assistance supplies to Syria arrived in Damascus with a total weight of 80 tons. The supplies include nearly 30,000 first-aid kits, 10,000 sets of cotton clothes, 300 cotton tents, 20,000 blankets, and 70,000 adult pull-up diapers, as well as emergency medical equipment and supplies such as ventilators, anesthesia machines, oxygen generators, and LED shadowless lamps.

The BRI has responded to global climate change. To actively address climate change, China has worked with other countries to build a Green Silk Road, jointly built the Belt and

Road Sustainable Cities Alliance, formulated the Green Investment Principles (GIP) for the Belt and Road, set up a big data service platform on ecological and environmental protection, and implemented the Green Silk Road Envoys Program and the Belt and Road South-South Cooperation Initiative on Climate Change. In recent years, China has implemented more than 200 cooperation projects to address climate change, mainly including climate change mitigation projects and climate change adaptation projects, including the solar power supply project at the Parliament Building of Pakistan, the green development project for the Addis Ababa river bank in Ethiopia, and others. China has also conducted 80 seminars on climate change topics and trained nearly 2,000 relevant personnel to help developing countries improve their capacity in climate governance.

The BRI has protected biodiversity. As one of the core ecological and environmental issues of global concern, biodiversity protection is also one of the essential construction concepts in the "Belt and Road" transportation and other infrastructure projects. For example, during the construction of the Mombasa-Nairobi Standard Gauge Railway, 14 large animal passages, 61 bridges, and more than 600 culverts were set up along the line to ensure the free movement of animals, and wildlife protection materials were provided by China to Cambodia, Tanzania, Kenya, Ethiopia, Zambia, and other countries, effectively improving the equipment level of relevant countries to combat poaching and illegal wildlife products trade. At the same time, China actively carried out international cooperation on biodiversity conservation. China initiated the Green Supply Chain Platform for Belt and Road cooperation, established the BRI International Green Development Coalition, announced China's initiative to establish the Kunming Biodiversity Fund, and set up cooperation and dialogue mechanisms with many countries.

3. The BRI Promotes the Implementation of the 2030 Agenda

Looking ahead, the BRI will fully consider the priority needs for progress in BRI countries, continue to enrich the supply of international public goods, and vigorously promote global sustainable development to make greater contributions to the realization of the 2030 Agenda.

(1) Further enhance development efficiency

Greater emphasis will be placed on the inclusiveness of development cooperation. The World Bank estimates that investment in Belt and Road infrastructure projects could lift 7.6 million people out of extreme poverty and 32 million out of moderate poverty globally. The BRI will adhere to the goals of high-standard, sustainable, and people-centered, implement more projects that are "handy and practical with fast and remarkable effects on people's livelihood," and reach more people in developing countries, with special attention to socially vulnerable groups and vulnerable population in developing countries.

Greater emphasis will be placed on the sustainability of development cooperation. The BRI will pay more attention to the environmental, ecological, and social impact of projects so that the development projects will work for a long time on a sustained basis. It will help improve the capacity of participating countries to cope with debt risks and provide guidance for BRI financing cooperation through balancing development and security, preventing systemic financial risks, and making good use of the Debt Sustainability Framework for Participating Countries of the BRI. Also, it will strengthen the "soft assistance" intellectual support for participating countries to help them achieve sustained, resilient, and sustainable development by cultivating local talents.

Greater emphasis will be placed on the openness of development cooperation. The BRI will further leverage the institutional strengths of different entities, forming a more dynamic global development partnership through innovative means such as the Global Development and South-South Cooperation Fund, the China-UN Peace and Development Fund, the establishment of special funds in multilateral institutions, and tripartite cooperation with relevant stakeholders. At the same time, it will mobilize private institutions, non-governmental organizations, civil society organizations, and other entities to participate in development cooperation so as to stimulate the vitality of market entities at all levels for more effective sustainable development.

(2) Further focus on key areas

Promote the construction of digital intelligence. China will pay more attention to the development of intelligent manufacturing. Through deeply integrating the new generation of information and communication technology with advanced manufacturing technology, efforts will be made to set up a digital cooperation platform and narrow the digital divide, making the fruits of the digital economy beneficial to all people and promoting the sustainable development of BRI countries.

Build the Green Silk Road at a faster pace. China is ready to step up cooperation in such areas as green infrastructure, green energy, and green finance, improve multilateral cooperation platforms like the Belt and Road Initiative International Green Development Coalition, uphold the Green Investment Principle, and accelerate to converge and integrate with international norms and standards. China will earnestly develop more high-standard projects for participating countries.

Deepen global cooperation in healthcare. The cause of global health is an important part of the implementation of the 2030 Agenda for Sustainable Development. In the future, the BRI will continue to share China's successful experience in solving public health incidents, comprehensively improve the quality and level of Traditional Chinese Medicine participating in BRI, bring the health conditions in participating countries to a new level to build a community of common health for mankind.

Strengthen talent cultivation and exchange. Relying on the the Belt and Road Vocational and Technical Cooperation Alliance, cooperation in talent training will be deepened. People-to-

people and cultural exchanges and cooperation along the "Belt and Road" will be innovatively promoted. Extensive international cooperation in science, education, culture, health, think tank dialogue, people-to-people exchanges, and other fields will be helpful in pooling more wisdom and strength for sustainable development.

NOTES

1. Yan F. and Chen W., "China Has Signed Cooperation Documents with 152 Countries and 32 International Organizations to Jointly Build the Belt and Road," accessed August 24, 2023, https://www.gov.cn/lianbo/bumen/202308/content_6899977.htm.
2. The 17 SDGs include as follows: Goal 1. End poverty in all its forms everywhere; Goal 2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture; Goal 3. Ensure healthy lives and promote well-being for all at all ages; Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; Goal 5. Achieve gender equality and empower all women and girls; Goal 6. Ensure availability and sustainable management of water and sanitation for all; Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all; Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all; Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation; Goal 10. Reduce inequality within and among countries; Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable; Goal 12. Ensure sustainable consumption and production patterns; Goal 13. Take urgent action to combat climate change and its impacts; Goal 14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development; Goal 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss; Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels; Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.
3. A. Guterres, "We Are Moving Farther Away from Our Goals," UN News, accessed July 13, 2021, https://news.un.org/zh/story/2021/07/1087892.
4. UNDP, "The 2021/22 Human Development Report," accessed May 30, 2023, https://hdr.undp.org/system/files/documents/global-report- document/hdr2021-22overviewchpdf.pdf.
5. United Nations Economic and Social Council, "Progress towards the SDGs: Towards a Rescue Plan for People and Planet (Special Edition)," 2023, https://unstats.un.org/sdgs/files/report/2023/secretary-general-sdg-report-2023--ZN.pdf.
6. 2017–2021.
7. 2017–2020.
8. Zhang H., "The 'Belt and Road' Is the Path of Correctness and the Future," *People's Daily*, November 23, 2021, http://world.people.com.cn/n1/2021/1123/c1002-32289546.html.
9. The Boston University Global Development Policy Center, "Ten Years of the Belt and Road: Reflections and Recent Trends," September 6, 2022, https://www.bu.edu/gdp/2022/09/06/ten-years-of-the-belt-and-road-reflections-and-recent-trends/.
10. Қ. Мәметқазыұлы, "Жаңа әлемдік ахуал жағдайында өңірдегі мүмкіндіктердің бәрі қарастырылуы тиіс," May 18, 2020, https://www.inform.kz/kz/zhana-alemdik-ahual-zhagdayynda-onirdegi-mumkindikterdin-bari-karastyryluy-tiis_a3695818.

11. The United Nations Secretary General, "The 'BRI' Brings Important Opportunities for the World." *People's Daily*, April 26, 2019, http://world.people.com.cn/n1/2019/0426/c1002-31051132.html.
12. T. Fowdy, "The Latest BRI 'Alternative' Won't Work, Here's Why," July 8, 2022, https://www.yicaiglobal.com/opinion/tom.fowdy/the-latest-bri-alternative-will-not-work-here-why.
13. Xin J. "The BRI Helps Achieve Long-Term and Stable Global Common Development—Interview with Askari, Deputy Director of the Swedish 'Belt and Road' Institute," June 6, 2023, http://www.news.cn/world/2023-06/06/c_1129672853.htm.
14. A. Seilkhanov, "Tokayev Hails China's Belt and Road as Remarkable Initiative on Building Continental Strategic Connectivity," May 24, 2023, Kazinfom, https://www.inform.kz/en/tokayev-hails-china-s-belt-and-road-as-remarkable-initiative-on-building-continental-strategic-connectivity_a4071088.
15. Asian Development Bank, "Meeting Asia's Infrastructure Needs," 2017, https://www.adb.org/sites/default/files/publication/227496/special-report-infrastructure.pdf.
16. AEO is the abbreviation of Authorized Economic Operator, which is a status granted to enterprises with high credit by customs all over the world. In Chinese, this is called "经认证的经营者."
17. World Bank, *Belt and Road Economics: Opportunities and Risks of Transport Corridors* (Washington, DC: World Bank, 2019).
18. Xi J., "Reply to the First Master's Graduate of the School of South-South Cooperation and Development," *People's Daily*, October 19, 2017, 2.

CHAPTER 10

Opening-Up of Developing Economies and China International Import Expo

At the 5th China International Import Expo (CIIE) Opening Ceremony, President Xi Jinping pointed out: "We should commit ourselves to openness to meet development challenges, foster synergy for cooperation, build the momentum of innovation, and deliver benefits to all. We should steadily advance economic globalization, enhance every country's dynamism of growth, and provide all nations with greater and fairer access to the fruits of development."[1] The CIIE has become a showcase of China's new development paradigm, a platform for high-standard opening-up, and a public good for the whole world. For other developing economies, the CIIE has played a more prominent role as the four major platforms of international procurement, investment promotion, people-to-people exchanges, and openness and cooperation, and vigorously assisted them in integrating into industrial and supply chains to achieve inclusive and sustainable development.

1. Developing Economies Are Important Participants and Developers of Global Openness

Economic globalization is experiencing headwinds, and the global order is seeing a new round of reshaping. As important players in global openness, emerging markets and developing economies (hereinafter referred to as *developing economies*) share stronger aspirations and more urgent needs for mutual benefit and openness. Actively and steadily expanding openness is conducive for them to seize the opportunities of globalization and better promote their own modernization process.

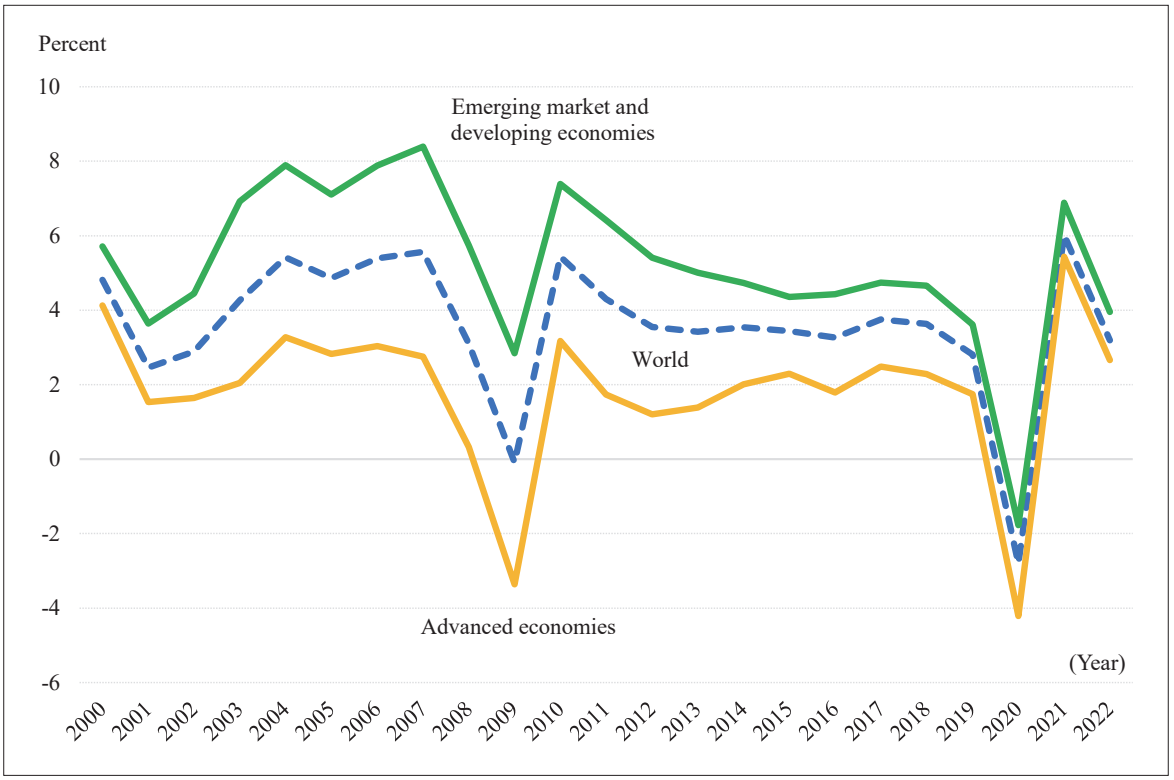

Fig. 10.1 Economic growth rate of the world, advanced economies, and developing economies, 2000–2022

Source: IMF, World Economic Outlook Database, April, 2023.

(1) Developing economies have a major influence on the global openness landscape

Over the recent years, with the collective rise of emerging markets and developing economies, the world economy has escalated in the South while subsiding in the North. According to the IMF, based on Purchasing Power Parity, the share of global GDP of emerging market and developing economies exceeds that of advanced economies, reaching 58.2 percent in 2022. Their economic growth rate is also far ahead. In the past two decades, developing economies have become an important driver for global economic growth (See Fig. 10.1).

The role and impact of developing economies in world trade, investment, and development are continuously increasing. According to the Global Trade Flow Database, developing economies accounted for 43 percent of global exports in 2022, up 3.8 percentages from 2017, and for 38.1 percent of global imports, up 0.8 percentages, further narrowing their gap with advanced economies. Developing economies have intensified efforts to attract foreign investment and actively integrate into the global supply chain by improving the business environment for foreign investors, issuing preferential policies, and other initiatives. The focus of international

investment has gradually shifted from advanced economies to developing economies. According to the World Investment Report 2023 released by the UNCTAD, the global foreign direct investment (FDI) flow was US$1.3 trillion, of which developing economies accounted for a record share of over 70 percent.

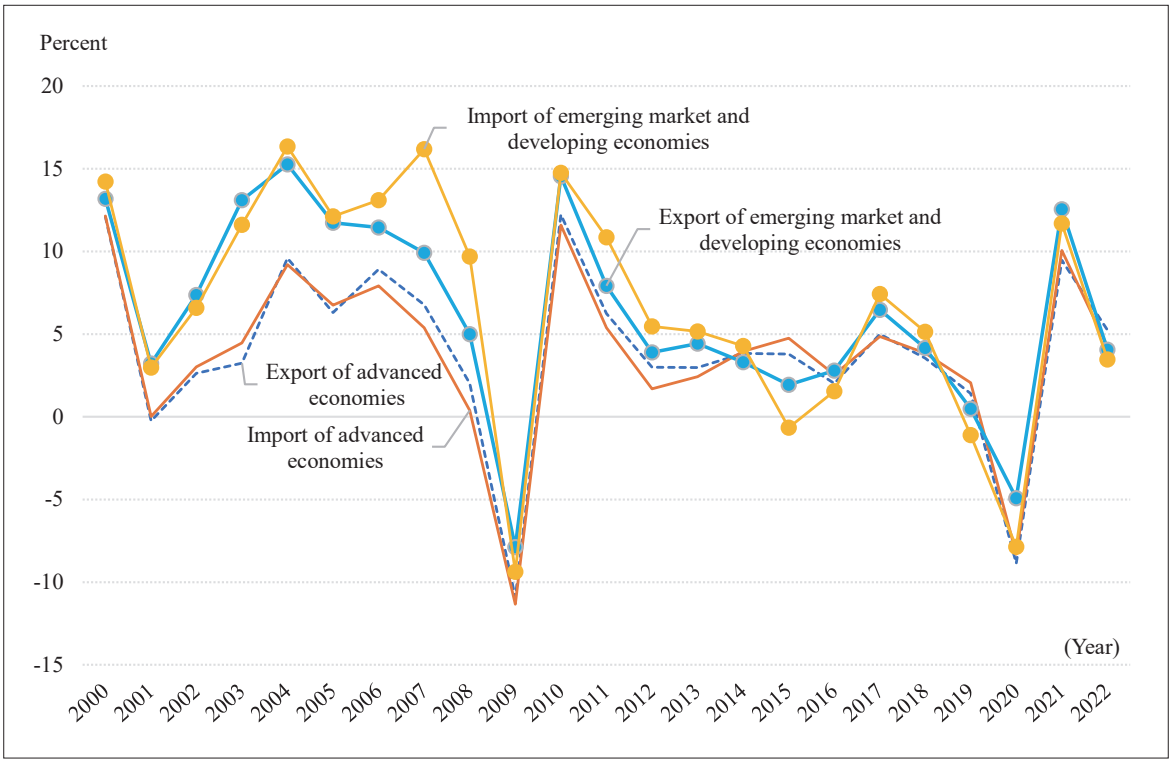

Fig. 10.2 Trade growth rate of the developed and developing economies: 2000–2022

Source: IMF, World Economic Outlook Database.

Developing economies have actively participated in global economic governance. At the urging of developing economies, the IMF and World Bank have started reforms to gradually increase the quotas and votes of developing economies. Developing economies represent more than two-thirds of WTO membership and play a significant role in plurilateral negotiations in areas such as e-commerce, services domestic regulation, and investment facilitation. The G20 is an important practice of the developed and developing economies jointly participating in global economic governance and has played an active role in response to the international financial crisis and in the promotion of international economic cooperation. BRICS cooperation has put up a new platform for cooperation for developing economies in areas such as vaccine research and development, scientific and technological innovation, people-to-people exchange, and sustainable development, giving a strong boost to South-South cooperation.

Box 10.1 Agreement on investment facilitation reached plurilateral negotiation

In April 2017, China and some other developing economies and LDCs initiated an informal dialogue on investment facilitation for development at the WTO. At the 11th WTO Ministerial Conference held in December 2017, 70 WTO Members co-sponsored a joint statement calling for the start of Structured Discussions on investment facilitation. 98 WTO Members issued a second joint statement in November 2019 and formally launched negotiations on investment facilitation in September 2020. In late 2022, the participants substantively concluded negotiations on the text of the Agreement on Investment Facilitation for Development (IFD Agreement). In July 2023, IFD participants concluded the negotiations successfully and passed the IFD Agreement.

WTO stuck to a development-oriented approach during the IFD negotiation. The IFD Agreement contains special and preferential treatment to developing and least-developed country Members, as well as technical assistance and support for capacity building. Negotiations on investment facilitation aimed to establish international rules, improve the transparency of investment policies worldwide, and simplify and speed up investment approval procedures so that international cooperation can be further promoted.

(2) Developing economies face challenges in opening up

External pressure is getting more severe. A sluggish economic growth is plaguing the whole world, with economic globalization encountering headwinds, international political uncertainty rising, and global challenges such as the COVID-19 pandemic, climate change, and environmental pollution entwined. A new shock of the Ukraine crisis has pushed up energy and food prices, highlighted acute fragmentation of the industrial and supply chain, and triggered a continuous rise of global inflation and monetary policy tightening, which has put more downward pressure on the economy. The global development process has hit major roadblocks, the momentum of international development cooperation is weakening, and the development gap between the North and the South keeps widening. The steady progress made in reducing extreme poverty over the past 30 years has come to a standstill, and the openness landscape of developing economies has become even more challenging.

Box 10.2 Increased number of the world's poor

The World Bank's *Poverty and Shared Prosperity 2022* shows that global progress in reducing extreme poverty grinds to a halt. In 2020, the number of people living in poverty rose from 648 million to 719 million, and that of those in extreme poverty increased by 11 percent, up 1.2 percentages in the rate of extreme poverty. The report estimates that by 2030, the global poverty rate will be approximately 7 percent, with some 574 million people still struggling in extreme poverty. This rate is far higher than the 3 percent target. The most affected countries are the low-income ones in sub-Saharan Africa and the MENA.

Internal bottleneck constraints are increasing. Confronted by growing internal and external imbalances, the bottlenecks in technology and human resources of some developing economies remained unrelieved for a long time. They are in urgent need of support from the international community in such areas as poverty reduction, food security, industrialization, digital education, sustainable development, and clean energy. Some other developing economies are keen to enhance their capacity for economic development, expand trade and investment opportunities, and call on the international community to provide more international public goods in order to help developing economies better address global challenges and share the benefits of economic globalization.

2. The CIIE Brings Opportunities to Developing Economies

The CIIE has continued to enlarge the functions of the four platforms since its inception. Many developing economies have displayed new products and technologies, developed new business opportunities, and made new partners. They have taken the platform as an opportunity to integrate into the world economy and gain more opportunities in trade, investment, and international cooperation. They also have showcased their culture and enhanced people-to-people exchanges. With an inclusive and fair participation mechanism and adhering to the principle of mutual benefit, the CIIE has connected and integrated China's development interests with the common interest of developing economies, being a vivid example of the GDI.

Box 10.3 Developing economies benefit from the CIIE

The CIIE is China's concrete action to share development opportunities with the rest of the world, including developing economies, aiming at making economic globalization more open, inclusive, balanced, win-win, and beneficial to all. With a population of over 1.4 billion and a middle-income group of more than 400 million people, China is the world's most promising super-large market. In 2022, China's total retail sales of consumer goods were 44 trillion yuan, and its imports of goods were 18.1 trillion yuan. With such huge market demand, China brings opportunities to developing economies in commodity export, two-way investment, cultural exchanges, and cooperation. From the 1st CIIE (in 2018) to the 5th CIIE (in 2022), China's imports from participating developing economies have increased from US$0.74 trillion to US$1.09 trillion, totaling US$4.17 trillion. China's direct investment in participating developing economies has increased from US$18.1 billion at the 1st CIIE to US$21.1 billion at the 4th one, with a cumulative investment of US$77.1 billion.

In terms of participating countries and regions, the volume of their international trade totaled US$55.39 trillion at the 5th CIIE, increased from US$45.36 trillion at the 1st, and the transnational direct investment totaled US$2.87 trillion, increased from US$2.08 trillion at the 1st. The number of cultural and supporting activities has increased from 380 to 884 at the 5th CIIE. Developing economies have benefited greatly through the CIIE.

(1) Promoting the integration of developing economies into the world economy

Providing market opportunities. The CIIE is an important platform for China to share its market opportunities with developing economies. Exhibitors from developing economies have a more convenient channel to gain an understanding of China's and international market demands, while Chinese customers can learn about their local products. Through the CIIE platform, commodities from developing economies, including LDCs, enter China continuously. These countries benefit from China's growing consumer demand. As China has become one central hub of the GVCs, the CIIE has been an important channel for other developing economies to integrate into the global division of labor and has encouraged them to participate in international economic and trade activities and to integrate into the GVCs.

Box 10.4 The CIIE promotes local commodities of developing economies to China and the rest of the world

Local commodities of developing economies have continually entered China through the CIIE. From 2017 to 2021, the average annual growth rate of imports from Afghanistan, Timor-Leste, Djibouti, Sao Tome and Principe, Togo, and other countries has exceeded 50 percent, with that of Djibouti reaching 675 percent. A large number of local products are popular among Chinese customers. At the 5th CIIE in 2022, Timor-Leste's black pepper, Lao's tea, Ethiopian coffee, wood carving from The Central African Republic, and other commodities have attracted many buyers, with people coming in an endless stream to inquire.

Matching development needs. As China's platform of international procurement and investment promotion for the world, the CIIE emphasizes exchanges and cooperation with developing economies. It carries out matching activities according to the needs of participating countries by providing trade and investment matchmaking for both exhibitors and buyers, which serves as a convenient channel for developing economies to investigate the market and dovetail with the needs of international investors. Companies can learn about the latest technologies, products, and services through participation and active exchanges, which helps to improve their technological level and innovation capacity. Focusing on five themes of Science and Technology Innovation, Digital Economy, Green and Low-Carbon, Rural Revitalization, and Consumption Upgrading, the trade and investment matchmaking fairs held at the 5th CIIE provided comprehensive services integrated with trade negotiation, investment matchmaking, industrial cooperation, and financial services for participants, buyers, local governments, industrial parks, and institutional investors and a more precise and comprehensive matchmaking services for developing economies.

Box 10.5 The 5th CIIE organized special sessions on trade and investment matchmaking activities in Malaysia

On November 7, 2022, a special session for Malaysia of the 5th CIIE trade and investment matchmaking fairs & 2022 China-Malaysia Cross-Border Cooperation Matching Meeting opened in Kuala Lumpur. Over 240 high-quality Chinese enterprises are selected from more than 2700 registered ones to negotiate with 117 Malaysian companies by models of "online plus offline" and "promotion plus matchmaking." Some enterprises and organizations from both countries signed memorandums of understanding at the opening ceremony. They also carried out negotiations on intended cooperation and virtual signing of trade contracts on trade in goods and services such as food and agricultural products, new energy, green agriculture, automobiles, and technical equipment.

China-Malaysia cooperation matching meeting is an important measure to share new RCEP opportunities and promote China-Malaysia economic and trade cooperation. Chinese Ambassador to Malaysia said at the opening ceremony that, with the full implementation of RCEP, China and Malaysia have committed to open new markets based on the China-ASEAN Free Trade Area and that the bilateral economic and trade cooperation will bring more dividends, further improve supply and industrial chain, and create more cooperation space for China and Malaysia.

Officials from Malaysia's Ministry of International Trade and Industry said that China is its fourth largest source of FDI, with RM16.6 billion (about RM4.7 per US dollar) invested in 2021, which is expected to create nearly 14,000 jobs in Malaysia.

According to the president of the Associated Chinese Chambers of Commerce and Industry of Malaysia (ACCCIM), China is the most promising big market in the world. With its economic growth, its people have had higher consumption levels and growing demand for food, daily necessities, and medical and healthcare services for the aging population, which should be green, safe, and healthy. With a good reputation, Malaysia's products and trade services can gain more opportunities for their development in China. Malaysia can learn more from China in areas such as high-tech industry, digitalization, agricultural technology, and smart ecological industrial parks.

Providing facilitation measures. Since its inception, the CIIE has adhered to the principle of "welcoming guests from all continents and taking into account the interests of the world." It invites developing economies to participate and reduces the cost of LDCs to participate and enter the international market by providing some free booths and subsidies to them. At the 5th CIIE, the number of free booths exceeded 100, nearly doubling that of the last one. Despite the difficult recovery in the world economy, the CIIE has played an active role in helping LDCs continue to participate in the world economy and trade, alleviate poverty, and gain more trade opportunities.

Box 10.6 Special "booths" help LDCs enter the Chinese market

The CIIE provides some special free booths for the least advanced economies every year. China's market thus opens a window for them.

At the 5th CIIE, Rwanda showcased some "made in Rwanda" products for sale, including coffee, chili peppers, tea, avocado oil, and handicrafts. Besides the offline exhibition, it also organized a live-streaming event for coffee promotion and an in-depth discussion with its partners on strengthening cooperation in the hope of expanding its exports to China.

(2) Enhancing developing economies' ability to open and develop

Releasing the potential of trade and investment. The CIIE provides a convenient and open channel for developing economies to expand their export to China and, thanks to its platform effect, enables many small and micro enterprises and niche exhibits to receive large market attention. Through this expo, enterprises from developing economies have more opportunities to strengthen their connection with the international market, deeply participate in global economic competition and cooperation, and thus improve their product quality and competitiveness. The expo provides an important window for developing economies to demonstrate their investment environment, policies, and projects, builds a platform for international investors and enterprises to exchange ideas and cooperate, and creates conditions for developing economies to attract foreign investment.

Box 10.7 China–Laos Railway and the CIIE complement each other perfectly

Since opening to traffic in late 2021, the China–Laos railway has delivered 21 million tons of goods by June 2023, the number of categories increasing from over 10 in the beginning, including fertilizers and daily necessities, to more than 2000, including electronic products and fruits transported via cold chains. Laos mainly receives mechanical equipment, household appliances, vegetables, flowers, mechanical components, etc., from China and sends metal ores, cassava, barley, etc., to 25 provinces (autonomous regions or municipalities) in China. Through the new international railway model, the China–Laos railway connects seamlessly with the new western land-sea corridor and the China–Europe Railway Express, etc., going through over ten countries along the BRI, such as Laos, Thailand, Vietnam, and Myanmar. The railway has saved shipping time, reduced cost, facilitated the entry of partner countries' products to the CIIE, and enhanced connectivity and efficiency of resource allocation, thus attracting more buyers and investors. The CIIE also has effectively integrated the market demand of partner countries and China, providing strong support for the stability and smooth functioning of industrial and supply chains along the BRI.

The 5th CIIE held Yunnan-themed activities (a promotion session on development and cooperation along the China–Laos railway & 2nd investment matching meeting for the China–Laos Bohan Boten economic cooperation zone) on November 5, 2022, in Shanghai. Yunnan Trading Group and 60 enterprise representatives from 13 countries and regions focused on "logistics driven by channels; trade by logistics; industry by trade" and discussed how to better play the China–Laos railway's role in facilitating the development of surrounding areas. At the expo, project signing ceremonies on investment cooperation and import procurement were held, and 16 projects were signed. Among them, 11 were about investment, with a total investment of about 23.5 billion yuan, an increase of 14.08 percent year-on-year. And 90 percent of these projects were investment agreements in new energy, biomedicine, information technology, comprehensive development of the forest industry, agriculture, intelligent logistics, headquarters economy, and other fields. The other 5 projects were about import procurement, involving soybeans, copper concentrate, crude copper, petroleum coke, non-standard platinum, beef cattle, and other commodities, with a procurement value of US$845 million, a growth of 1.2 percent year-on-year.

Optimizing business models. The CIIE provides enterprises from developing economies with a good opportunity to learn from international experience and helps participating companies learn about the latest business operation models and improve their business management. Meanwhile, by adopting an "online plus offline" model, exhibitors showcase their brands and products, improve their exposure, and enhance their brand image and reputation. Additionally, by bringing together leading enterprises, authoritative industry organizations, and international institutions in various fields, the CIIE helps enterprises from developing economies better understand the industry development trend, learn about advanced business models, and improve their ability to conduct business internationally.

Box 10.8 "Global Digital Trade Accelerator" for SMEs in developing economies comes into function at the CIIE

The ITC and a Chinese e-commerce platform have teamed up and launched a program named the "Global Digital Trade Accelerator" for SMEs in developing economies at the 4th CIIE. It will provide training courses and operational support in showcasing digital products, matching business opportunities, and marketing to cultivate digital enterprises as a benchmark. The first 66 cultivated companies are from 24 developing economies, including Bangladesh, Laos, Myanmar, Cambodia, Ethiopia, Mozambique, Rwanda, and Colombia, and in food and beverage, consumer goods, and other areas.

The program helps to enable SMEs in developing economies to take digital measures to overcome difficulties in knowledge and experience encountered by these "latecomers" in their first step into cross-border e-commerce and to realize their digital upgrading faster, thus connecting with the global market and broadening their business.

(3) Helping developing economies strengthen the exchange of civilizations

Demonstrating cultures. Since the 1st CIIE, its role as a platform for people-to-people exchange has become prominent. It's an opportunity for developing economies to showcase their rich and historic culture and traditions. As an important part of the CIIE, country exhibitions have played a key role in promoting cultural products and demonstrating cultures. The 5th CIIE has included more in the online country exhibitions, with seven developing economies, i.e., Nicaragua, Djibouti, Mauritania, Comoros, Mozambique, the Democratic Republic of the Congo (DRC) and Iraq, participating for the first time. The exhibitions have enriched the themes to include scientific and technological innovation, trade and investment, specialty industries, natural landscape and people, and food culture, and adopted metaverse and other online display techniques so that audiences from the globe can fully immerse into the exhibitions.

Gathering cultural resources. The CIIE has effectively promoted cultural and tourism resources and developed cross-border tourism in developing economies. Participating countries and cultural enterprises have gained more international exposure and publicity and improved their global visibility and image by demonstrating their cultural heritage, tourist attractions, folk culture, and other resources. For example, the 2022 International Culture, Tourism, and Health Summit Forum held during the 5th CIIE aimed to build a public service platform for the international culture, tourism, and health industry, provide all participants with promotion services covering the whole process, offer development approaches for the culture and tourism industry in developing economies, and help to demonstrate the unique charm of their history and culture.

Box 10.9 Cambodian airline expands its influence by participating in the CIIE

Cambodia is one of the most popular destinations among Chinese tourists for its numerous cultural relics and rich tourism resources. Angkor Wat is the most famous attraction for Chinese people. Cambodia has participated in the CIIE for five consecutive years and introduced a new exhibitor at the 5th CIIE, a Cambodian airline.

At the expo, this company not only introduced its basic information and special lines but also showcased representative Khmer specialties and traditional handicrafts, including the statue of goddess Apasara in Angkor Wat, lotus and wood carvings, so that the audience can have a better experience of the Cambodian culture. The president of this airline said that the aviation industry has been greatly impacted by the epidemic, but they have strong confidence in future personnel exchanges between China and Cambodia. It can build a "bridge in the air" for the two peoples to promote integration and exchanges in culture and tourism.

3. The CIIE Provides a Long-Term Mechanism for the Openness and Development of Developing Economies

The CIIE plays an increasingly prominent role in the four platforms. It provides developing economies with opportunities to better integrate with China and the international market and institutional arrangements as sustainable and stable new drivers of their openness.

(1) Helping developing economies to participate in global economic governance

Since its inception, focusing on the core theme of "global openness" and playing to its position as "international public goods," Hongqiao International Economic Forum has been a platform for exchanges and mutual learning for developing economies to participate in global governance. Themed "Stimulation of Opening-up Impetus and Sharing of Cooperation Opportunities," the 5th Hongqiao Forum discussed hot topics in global openness and development. It brought BRICS and SCO members together and invited the UNIDO, UNFPA, the United Nations Global Compact, UNISDR, ITC, WIPO, and other international organizations for the first time to co-hold parallel sessions to stimulate broad discussion on issues related to developing economies among various communities and to build consensus on openness within the multilateral framework.

Box 10.10 The 5th Hongqiao Forum drew more attention to issues related to developing economies

The 5th Hongqiao Forum paid particular attention to global development and newly included issues related to developing economies to advance global discussion. Related topics discussed at the forum included "Accelerating Inclusive and Sustainable Industrialization through South-South Cooperation Exploring the Role of Industrial Parks and Special Economic Zones," "Acting on the GDI to Build World-class Enterprises," "Economic and Trade Cooperation for Global Food Security and Rural Revitalization." The forum has brought together officials from developing economies, business representatives, specialists from international organizations, heads of relevant Chinese ministries, and experts to produce many insights and make suggestions on issues concerning the 2030 Agenda for Sustainable Development and inclusive and sustainable development for developing economies.

As a significant part of the CIIE, Hongqiao Forum has developed into a platform for high-end dialogues and exchanges among the international political, business, and academic communities, released nearly 20 specialized and authoritative reports in openness, and invited Nobel Prize winners to address at five sub-forums. Through the mainstream media at home and abroad, and with various forms of communication, the forum has made "Hongqiao voices" on issues highly concerned by developing economies.

(2) Passing through the effects of implementing high-standard economic and trade rules

As an important platform for China to proclaim its resolve to open wider and align itself with high-standard economic and trade regulations, the CIIE has provided more opportunities for developing economies to learn about and from the practice of opening up. China has comprehensively implemented the RCEP, providing more opportunities to enter the Chinese market and expand business for RCEP members. Meanwhile, the CIIE has provided a platform for countries to discuss and contribute to WTO's IFD Agreement, digital economy, and other important issues, which is also an opportunity for developing economies to learn, study, and participate, thus facilitating them to further integrate into the international trading system.

(3) Innovating the mechanisms for South-South dialogue and cooperation

The CIIE has been an important occasion for China to promote investment in developing economies and two-way opening up and cooperation. The expo has held a number of activities to create opportunities for South-South dialogue and exchanges to help developing economies share best practices and strengthen mutually beneficial cooperation. It has actively brought about cooperation at different levels and between developing economies and international organizations, universities and think tanks, industry groups, financial institutions, etc., and comprehensively responded to the diverse needs for openness and cooperation of developing economies, enriching and improving the mechanism for South-South cooperation. The CIIE has been a key functional platform for Belt and Road Cooperation and further implementing its mechanism.

Box 10.11 Forum on Bilateral Cooperation between Countries along the Belt and Road and Local Governments strengthens South-South exchanges and cooperation

As one of the supporting activities carried out by the CIIE, Forum on Bilateral Cooperation between Countries along the Belt and Road and Local Governments has invited leaders of GATIS, WTO, SCO and other international organizations, envoys of the Belt and Road partner countries to China, officials of Chinese local government, experts and scholars in global economy and trade, and representatives of renowned Chinese enterprises to share insights on the trend of international economic cooperation and the policies and approaches for the Belt and Road construction. It aims to provide valuable advice for Belt and Road countries and government departments and conveniences and services for Chinese and foreign enterprises to cooperate on the Belt and Road construction projects.

Since 2019, the Forum on Bilateral Cooperation between Countries along the Belt and Road and Local Governments has made four successful openings. It actively assists B&R participating countries and Chinese local governments to identify their positions in the B&R cooperation and taps cooperation resources so that they can share resources, complement each other with their respective strengths, and achieve win-win cooperation. It helps participating countries learn more about the markets in China's different provinces, municipalities, and autonomous regions, lends fresh impetus to opening their door wider to the world, and creates much more space and an important platform for enhancing national and sub-national cooperation.

NOTES

1. Xi J., "Jointly Creating an Open and Prosperous Future—Speech at the Opening Ceremony of the 5th China International Import Expo," X*inhua News Agency*, November 4, 2022.

CHAPTER 11

High-Level Opening-Up and Chinese Modernization

Modernization is a profound change around the world in human history,[1] as well as a process of the opening-up and development of the world economy. So far, Chinese modernization is the largest modernization, not only following the general law of modernization but also characterized by features that are unique to the Chinese context. Opening-up, as the cradle, has nurtured Chinese modernization. High-standard opening-up will surely, as the road, guide Chinese modernization to go forward, provide more stability and new opportunities for the open development of the global economy, and contribute more to the common development of mankind.

1. High-Standard Opening-Up Runs through the Whole Process of Chinese Modernization

Chinese modernization is the modernization of a huge population, of common prosperity for all, of material and cultural-ethical advancement, of harmony between humanity and nature, and of peaceful development. It is a major achievement of Chinese people of all ethnic groups, who succeeded through painstaking efforts, hardship, and sacrifice. Long-term explorations and practice have proved that opening-up is a vital driving force for modernization, and high-standard opening-up is integral to Chinese modernization. The more China develops, the more it opens up, and its door will open wider and wider.

Box 11.1 Previous explorations of Chinese modernization

The rejuvenation of the Chinese nation has been the common dream of the Chinese people since the beginning of modern times. Since the founding of the People's Republic of China, Chinese people have continuously made great achievements in socialist revolutions and construction, laying down the fundamental political conditions, theoretical groundwork, and material basis necessary for modernization. The year 1978 marks a new period of reform and opening-up and socialist modernization. Since then, China has made historic strides in raising the living standards of its people from bare subsistence to moderate prosperity in general and then toward moderate prosperity in all respects, fueling the push towards modernization by providing robust institutional conditions and a material base. Since 2012, the theory and practice of Chinese modernization have been advanced and developed. A theoretical system of Chinese modernization has been initially constructed, constantly being improved and enriched in strategy and practice. China, a nation with a long history, has found its unique path to modernization.

(1) High-standard Opening-up is a vital driving force for Chinese modernization

Reform and opening-up is a motivation for China's economic and social development. China's constant achievements can be attributed to continuous expansion of opening-up, and reform and development through opening-up. High-standard opening-up can remove barriers in the market, industry, and innovative partnerships more quickly, thus injecting fresh vitality into economic development. Meanwhile, in the face of tough questions of reforms in key sectors, we convert external pressure into an internal driving force through proactive opening-up and accelerate learning from international economic and trade rules. This will strengthen the synergy, coordination, and efficiency in the reform system and promote deep reform at home. High-standard opening-up will drive reform and innovation in the future and provide endless momentum to Chinese modernization.

(2) High-standard opening-up paves the way for the new development paradigm

Fostering the new development paradigm featuring dual circulation, in which domestic and overseas markets reinforce each other, with the domestic market as the mainstay, is a major strategic task in the new era. "What we envision is not a development loop behind closed doors, but more open domestic and international circulations." For one thing, high-standard opening-up ensures unimpeded flows in the economy. We bolster total factor productivity by introducing high-end production factors and scarce resources, not only making the pie bigger but also contributing to proper distribution. We also enhance efficiency in the domestic circulation industry by learning from advanced experience abroad and speeding up domestic consumption upgrades by providing quality supply. For another, high-standard opening-up boosts interaction

and reinforcement between domestic and international circulations. We constantly expand export to improve the global market layout, actively expand import to unleash the potential of domestic demand and promote a virtuous cycle of internal and external markets, implement high-standard "bringing-in" and high-level "going out" strategy to create a virtuous circle among industries at home and abroad, and leverage opening-up and cooperation to promote positive circle in innovation across the board and effective connectivity of rules.

(3) High-standard opening-up is what's needed for a better life

Realizing the common prosperity of all people and enriching their ideological world are the essential requirements of Chinese modernization, and improving the people's well-being is the fundamental goal of development. High-standard opening-up to the outside world helps satisfy the people's needs for a better life, which is reflected in better exerting the important role of foreign trade and foreign investment in stabilizing employment and the economy, increasing imports of high-quality products and services and satisfying the people's diversified consumption needs; in addition, high-standard opening-up also continues to satisfy Chinese people's various spiritual needs through promoting exchanges and interactions with the world's progressive and civilized countries and nations.

(4) High-standard opening-up is a prerequisite for coordinating development with security

In the era of economic globalization, no country can achieve its own development in isolation. All countries need to safeguard national security and guarantee mutual security via opening-up. While China's opening-up is consistent with its own stage of development, basic national conditions, and global situation, we also need to deal with the relationship between the degree of openness and the level of development, the process of openness and our competitiveness, opening-up ability and capacity for governance, our strength and responsibility, and benefits from openness and inclusiveness and sharing. High-standard opening-up adheres to a holistic approach to national security, pays more attention to opening-up security, and gets the intensity, pace, and level of opening-up on the basis of a deep understanding of the new problems and challenges faced in opening-up expansion so as to build a security barrier for Chinese modernization.

2. Chinese Modernization Serves as a Significant Opportunity for Building an Open World Economy

At present, global openness and development are facing many difficulties, and the momentum of world economic and trade growth is weakening. While realizing its own development, Chinese

modernization injects more positive energy into the recovery of the global economy and provides stability and new opportunities for building an open world economy. China's contribution to world economic growth has continued to stay at around 30 percent, making it the largest engine of world economic growth.[2]

(1) It helps Asia become the world's most dynamic region in the aftermath of the pandemic

A number of international organizations, including the United Nations, the World Bank, and the IMF, have predicted high downside risks to world economic growth in 2023.[3] For example, UNCTAD's Trade and Development Report in April predicted that global economic growth would fall to 2.1 percent in 2023 (2.2 percent predicted in September 2022, lower than the pre-financial crisis level.)[4] In the *World Economic Outlook* released by the IMF in July, the 2023 global economic growth forecast, although revised upward by 0.2 percentage points to 3 percent based on the April prediction, is still lower than the 2000 -2019 average (3.8 percent). Meanwhile, the IMF expects economic growth in advanced economies to fall to 1.5 percent in 2023 from 2.7 percent in 2022, with about 93 percent of advanced economies seeing a slowdown in economic growth; economic growth in Asia's emerging market and developing economies is expected to rise to 5.3 percent in 2023.[5] The IMF and the ADP both believe that the Asian region will become the most dynamic major area in the world, and China will become the main engine to fuel the economic development of the Asia-Pacific region.[6] China's economic growth, estimated to be 5.2 percent in 2023, will exert a positive spillover effect. IMF economists said that each percentage point China's economic growth rate increases will bring about a 0.3 percent increase in the rest of Asia's output, which undoubtedly serves as a major boon to world economic recovery.[7]

(2) It provides new opportunities for world economic recovery

In 2023, China's economic operation shows sound momentum of recovery, adding confidence and stability to the world economy. China's economy grew by 5.5 percent year-on-year in the first half of 2023, with a significant rebound in the consumption and service sectors, which greatly boosted the confidence of multinational companies in China. JP Morgan, Citi, UBS, and many other international organizations have adjusted their full-year growth expectations for China to more than 5 percent. China's super-sized domestic market, the effective supporting capacity of the manufacturing industry, and the ever-improving business environment are important factors attracting foreign companies to invest and expand their business in China. According to CCPIT's Second Quarter of 2023 Report on China's Business Environment for Foreign Investors, nearly 90 percent of the surveyed foreign enterprises rated indicators, such as the acquisition of business premises, paying taxes, going through closure procedures, resolving commercial disputes, municipal infrastructure application and installation, market access, cross-

border trade, and facilitating market competition in China, as "satisfactory" or above. More than 90 percent of the respondent foreign-funded enterprises rated the foreign investment policies unveiled by the central government since the fourth quarter of 2022 as "satisfactory" or above, while nearly 90 percent of them gave highly complimentary remarks to the foreign investment initiatives introduced by local governments. In terms of state of operation, nearly 70 percent of the interviewed foreign-funded enterprises are optimistic about the prospect of the Chinese market in the next five years, more than 90 percent believe that the attractiveness of the Chinese market has increased or remained strong, and more than 80 percent anticipate that their return on investment in China will remain flat or mount up this year.[8]

(3) It offers Chinese solutions for improving global economic governance

Chinese modernization is based on China's actual conditions and draws on international experience, focusing on solving practical problems emerging in the process of reform and opening-up and socialist modernization, constantly responding to the questions posed by China, by the world, by the people and by the times, and finding the right answers suited to the realities of China and the needs of the day, thus contributing more Chinese solutions and wisdom. China has put forward the GDI, the GSI, and the GCI and has provided more global public goods through the joint promotion of the BRI. China supports the multilateral trading system, expands its globally-oriented network of high-standard free trade areas, advances the liberalization and facilitation of trade and investment, and shares with other countries new development opportunities so as to contribute its share to building an open global economy. Through peaceful coexistence and win-win cooperation among countries, China promotes the modernization and open development of mankind.[9]

(4) It enriches the theory and practice of an open world economy

The theory and experience of Chinese modernization are evolving, open, and inclusive. Based on China's national condition and other countries' experience, China has successfully found the Chinese path to modernization. The unique concepts of nature, nation, people's livelihood, freedom, rights, and civilization embedded in Chinese modernization, together with their great practice, are significant innovations in modernization theories and practice in the world.

Chinese modernization is deeply rooted in the fine traditional culture. Chinese culture honors the natural concept of "harmony and coexistence" between human beings and nature, adheres to the national concept that "people are the basics of the country, and people consolidate the peace of the country," and pursues the concept of people's livelihood, which is "to benefit the people, to enrich the people's livelihood." It promotes the concept of freedom and rights, "do not do others what you would not have them do to you," and advocates the concept of civilization, "harmony and beauty in diversity."[10] China's modernization is to perceive global development from a long macro-historical perspective and to grasp its laws and trends. China firmly believes

that the backlash against economic globalization is only short-lived, while globalization still remains a major historical trend, and all countries should choose their own paths of development with mutual respect, openness, and inclusiveness, as well as win-win cooperation.

Chinese modernization has explored a new model for modern civilization. Drawing inspiration from and absorbing all of human civilization's outstanding achievements, Chinese modernization is different from the Western model and pioneers a new form of modernized civilization. Putting people first is the defining feature of Chinese modernization, which pursues the comprehensive development of human beings. Development should serve the people and depend on the people, with its benefits shared by the people. High-quality development will be supported by a high-quality ecological environment, and meanwhile, we must do a better job of seeing that the gains of modernization should benefit all our people fairly and prevent polarization. It is the noble pursuit of Chinese modernization to promote both material abundance and cultural-ethical enrichment of the people.

Chinese modernization is an important part of the world's open economic practice. In a country with a huge population like China, it is a miracle in itself to achieve rapid development while still maintaining long-term social stability. China insists on scientific and technological innovation and green development to enhance the sustainability of development; it promotes coordinated regional development and rural revitalization to narrow the development gap between urban and rural areas and to see that everyone shares in the fruits of development. China takes steady and incremental steps to carry forward reform and opening-up, exploring experience with pilot projects to avoid the drastic impact brought by opening-up on the domestic economy and society. Built on the experience of Western modernization, China has changed the "tandem" development process of industrialization, urbanization, agricultural modernization, and informatization that Western modernization has experienced in turn and adopted a superimposed mode of those phases by means of the "parallel" development. With this new mode, we will turn the potential late-comer advantage into a real one.[11] China champions the promotion of the shared values of all humanity, i.e., peace, development, equity, justice, democracy, and freedom. China's modernization has taken a peaceful and win-win path, providing a Chinese solution to mankind's quest for a better social system of open development.[12] China emphasizes national education and talent development to give lasting impetus to economic development; China shares opportunities with all countries and integrates the development concepts of greenness, peace, and win-win cooperation, as well as the principle of extensive consultation, joint contribution, and shared benefits, into bilateral and multilateral and cooperation in third markets.

3. The Course of Chinese Modernization Represents Mankind's Direction of Common Development and Progress

In today's world, all countries share a common future. China is advancing modernization through peaceful development, valuing openness, cooperation, and sharing. China has stayed committed

to the policy of opening-up, building the Belt and Road together with other countries, forging a global consensus on development by putting forward the GDI, promoting the liberalization and facilitation of trade and investment, and resolutely supporting and assisting the vast number of developing countries in accelerating development, thus building a community with a shared future for humankind.

(1) Chinese modernization provides reference for other countries

It has expanded the channels to achieve modernization in the world. Modernization began in the West. For a long period, modernization was almost equivalent to Westernization. Capitalist modernization has shaped the discourse of "modernization" by virtue of its first-mover advantage and has made the free market, separation of powers, and universal values the prior elements for modernization, thus, to some extent, narrowing the space for other countries to realize modernization on their own.[13] Numerous facts have proved that modernization is not an easy task, and some countries sacrificed their sovereignty and independence to strive for dependent cooperation and suffered from various "development traps."[14]

Modernization is a global revolution characterized by monistic and multi-linear features.[15] As the economic foundation of modernization, industrialization is a diversified process. The diversity of history determines the diversity of development paths each country chooses. The success of the Chinese path to modernization demonstrates that all countries can find a mode that best suits them.

It has provided non-Western countries with valuable experience in modernization. As the world's largest developing country, China, like the majority of them, has experienced a difficult modern history of national independence and an overthrow of the feudal system. At the same time, as a late-mover to modernization, the People's Republic of China, especially since the reform and opening-up, has completed within a few decades the course of industrialization that Western developed countries have cost several hundred years to realize and has guaranteed rapid economic development and long-term social stability. China's experience is worthy of developing nations to learn from.

By being committed to its fundamental national policy of development, China has grasped industrialization as the core connotation and driving force of modernization.[16] In the process of opening-up, China has made gradual and orderly progress, developed the socialist market economy, and flexibly and pragmatically adjusted its opening-up strategy at different times. According to changes in the stage of domestic economic development and the principal contradiction facing Chinese society, it has followed the trend and adjusted the focus and pace of development timely, and has taken the promotion of the common prosperity for all as the focus of its efforts to seek happiness for the Chinese people, and taken solid steps in every stage.

China attaches great importance to the autonomy of development. By learning from the West without copying them blindly, it has effectively safeguarded national sovereignty and development security.[17] China's political practice, adapting the basic tenets of Marxism to China's

traditional culture, avoids the depletion of recognition and synergy of reform and development because of interest and social conflicts.[18]

China's experience has shown that, as a late-comer led by a ruling party with the broadest base support and firm convictions, it can synergize consensus on reform and development to the greatest extent and create an enduring and effective synergy in promoting economic growth.[19] Because the ruling party is highly representative, it ensures the "impartiality" of its policies, avoids the drawbacks of policy bias and short-sightedness because of the intervention of votes and some interest groups, and effectively prevents immediate benefits from affecting the far-reaching interests of the country. Chinese modernization has also proved that there is no fixed model when it comes to the path of modernization; the one that suits you well will serve you well, and cutting one's feet to fit the shoes will lead nowhere.[20] For any country to achieve modernization, it needs not only to follow the general laws governing the process but, more importantly, to consider its own national conditions and unique features. Every country can and should find its own path towards modernization.

It has clarified the basic logic of diverse modernization in the world. Modernization is a global change in the history of humankind[21] and is part of the process of human civilization. The diversity of cultures foretells that countries have various choices in exploring modernization. This is a change in the narrative logic of modernization from uniqueness to diversity.

China has put forward the GCI, which, from the height of human civilization and the grand perspective of history, fundamentally answers questions of the times, including "what kind of modernization do we need and how can we achieve it?" providing a logical, rational and consensual explanation for the diversity, autonomy, sustainability, and symbiosis of paths to human modernization. From the perspective of respecting the diversity of global civilizations and the differences between cultures and histories, the road to modernization can arouse broad recognition and trust among developing countries. It is the people of a country that are in the best position to tell what kind of modernization best suits them. Meanwhile, development should take the people's benefits as its essence, and the achievement of material prosperity and social stability through development responds to the aspirations of the people and is capable of building up a consensus on development around the world including developing countries.[22]

(2) Chinese modernization contributes toward achieving UN sustainable development goals

The latest report from UNCTAD points to a further slowdown in the global economy against the backdrop of financial turmoil, with developing countries facing even greater difficulties.[23] UN Secretary-General Guterres warned that *the 2030 Agenda for Sustainable Development* is turning into a "mirage of what might have been," emphasizing that "development can only be sustainable; otherwise, at the end of the day, there will be no development."[24]

In the current global context, with an overall economic slowdown and ecological and environmental load exceeding our carrying capacity, the industrialization process of developing

countries is facing a more volatile international environment and resource and environmental constraints. How to safeguard the right to development of developing countries and solve the problems of the North-South gap and world poverty is a major global issue in the process of human modernization.

As a populous country, China's overall modernization of more than 1 billion people is undoubtedly a great contribution to the sustainable development of human beings. Based on its national conditions, China has made significant contributions to the realization of the UN sustainable development goals through practical development policies. Over the past four decades, more than 800 million Chinese people have been lifted out of poverty, contributing to global poverty reduction.

China is actively advancing global green and sustainable development. "Lucid waters and lush mountains are invaluable assets." China leads the world on many counts: in terms of afforested area, which accounts for a quarter of the world's total; in the development and utilization of renewable energy, with one-third of the world's installed capacity of wind and solar power; and in the output and sales of new energy vehicles, ranking first in the world. Besides, China has made the solemn pledge to achieve carbon peak and carbon neutrality to the world, setting an example for the implementation of the Paris Agreement. China attaches great importance to biodiversity conservation and announced the establishment of the Kunming Biodiversity Fund to support the cause of biodiversity conservation in developing countries. China actively participated in the negotiations to be held at the United Nations Headquarters in New York in March 2023 and signed a global agreement aimed at protecting the diversity of international waters.

Ten years since the start of the BRI, 420,000 jobs have been created for participating countries; energy transition and scientific and technological cooperation have been promoted, and the industrialization base and sustainable development capacity of those countries have also been improved through infrastructure connectivity, unimpeded trade, and investment channels. The GDI is also widely welcomed by the international community. With the support of over 100 countries and many international organizations, and with some 70 countries in the Group of Friends of the GDI, the Initiative is giving a strong boost to the early attainment of the UN SDGs for 2030.

(3) Chinese modernization promotes the building of a community with a shared future for mankind

Currently, human society is facing unprecedented challenges whose impacts are indiscriminate of nationality, race, or region. Chinese modernization is rooted in her national conditions and also draws on the experience of other countries. It carries the imprint of history and traditional culture and also contains modern elements. It delivers benefits to the Chinese people and also advances development of the world. It is a sure path for us to build a stronger nation and realize the rejuvenation of the Chinese nation. It is also a path we must take to seek progress for

humanity and harmony for the entire world. Chinese modernization is inclusive and sustainable. It is also the process of promoting international openness, development, cooperation, and sharing, and the process of promoting the common development and progress of mankind. China promotes the building of a community with a shared future for mankind, acts on the principle of achieving shared growth through discussion and collaboration in engaging in global governance, and actively pushes forward reform and development of global governance. With global cooperation, inclusiveness, and mutual trust, we will jointly build an open, inclusive, clean, and beautiful world of lasting peace, universal security, and common prosperity.

The world is undergoing profound changes unseen in a century. The global opening-up process is at a crossroads. Against the global backdrop full of uncertainty and instability, Chinese modernization has injected certainty and stability into the world, strengthened global confidence in openness and development, and led the way for human civilizations to embrace and learn from each other. Whether in the past or in the future, countries stand to rise and fall together. Therefore, strengthening solidarity and cooperation is the only way forward.

NOTES

1. Luo R., *New Theory on Modernization: China's Road to Modernization* (Shanghai: East China Norm University Press, 2013).
2. Institute of World Economics and Politics & Research Center for Hongqiao International Economic Forum, *World Openness Report 2022*, Chapter 12.
3. See the official websites of international organizations. Since the winter of 2022, all institutions have adjusted their global economic growth prediction multiple times.
4. UNCTAD, "Trade and Development Report Update," April, 2023, https://unctad.org/system/files/official-document/gdsinf2023d1_en.pdf.
5. IMF, *World Economic Outlook Update*, July 2023, https://www.imf.org/en/Publications/WEO/Issues/2023/07/10/world-economic-outlook-update-july-2023.
6. Wang N., "Recovering with Good Momentum, China's Foreign Trade Development with Promising Future," *Business Daily*, April 11, 2023; K. Srinivasan, T. Helbling, and S. Peiris, "Asia's Easing Economic Headwinds Make Way for Stronger Recovery," *IMF Blog*, February 20, 2023, https://www.imf.org/en/Blogs/Articles/2023/02/20/asias-easing-economic-headwinds-make-way-for-stronger-recovery; World Bank Group, "East Asia and the Pacific Economic Update," April, 2023, https://openknowledge.worldbank.org/server/api/core/bitstreams/a0c1ac81-1d8c-42b6-95a9-da66f6a862ee/content.
7. See Srinivasan et al. (2023).
8. CCPIT Office, "CCPIT's Regular Press Conference in July," July 28, 2023, https://www.ccpit.org/a/20230728/20230728a8tc.html.
9. Wang L., *Road to Chinese Modernization and New Form of Human Civilization* (Nanchang, China: Jiangxi High School Press, 2022), 50–51; China Daily, "The Report to the 20th National Congress of the Communist Party of China," October 16, 2022.
10. Zhang S., "Value Content and Global Implication of the Road to Chinese Modernization," *Guangming Daily*, December 21, 2022, 12.

11. Xi J., "Promote the Synchronous Development of New Industrialization, Informatization, Urbanization, and Agricultural Modernization (6th)," in *Excerpt from Xi Jingping's Discussion on Socialist Economic Construction*, ed. Central Literature Research Office of the Communist Party of China (Central Party Literature Press, 2017).
12. Huang Q. and Yang H., "Chinese Path to Modernization: Characteristics and Global Significance," *People's Daily*, March 25, 2022, 9.
13. Han Q., "Significant Differences between Chinese Path to Modernization and Capitalist Modernization," *Research on Ideological and Political Work*, no. 6 (2022): 23–26.
14. Luo R., *New Theory on Modernization: China's Road to Modernization*. (Shanghai: East China Norm University Press, 2013); Also see Huang and Yang (2022).
15. See Luo (2013).
16. See Huang and Yang (2022).
17. See Zhang (2022).
18. Yao Y., "China's Modernization Road and Its World Significance," in *Chinese Path to Modernization*, ed. Cai Fang et al. (CITIC Publishing Group, 2022); Also see Zhang (2022).
19. See Huang and Yang (2022).
20. Ibid.
21. See Luo (2013).
22. Wang, "Ten Years of Joint Construction of the Belt and Road Has Yielded Fruitful Results," *International Business Daily*, April 11, 2023, 2.
23. UNCTAD, "Trade and Development Report Update," April 2023, https://unctad.org/system/files/official-document/gdsinf2023d1_en.pdf.
24. UN News, "Don't Let SDGs Turn into 'Mirage of What Might Have Been,'" *UN Chief*, April 17, 2023, https://news.un.org/en/story/2023/04/1135712.

Appendix

I. World Openness Index, 129 Economies, 2008–2022*

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Singapore	0.8875	0.8875	0.8852	0.8864	0.8757	0.8613	0.8576	0.8651	0.8699	0.8704	0.8651	0.8640	0.8586	0.8523	0.8598
Germany	0.8530	0.8617	0.8478	0.8494	0.8478	0.8362	0.8332	0.8315	0.8340	0.8321	0.8271	0.8305	0.8255	0.8210	0.8262
Hong Kong, China	0.8475	0.8524	0.8446	0.8572	0.8646	0.8533	0.8520	0.8551	0.8636	0.8630	0.8554	0.8519	0.8449	0.8258	0.8255
Ireland	0.8393	0.8545	0.8427	0.8410	0.8249	0.8272	0.8269	0.8234	0.8175	0.8043	0.7976	0.7961	0.7875	0.7835	0.7811
Malta	0.8158	0.8142	0.8059	0.8039	0.8020	0.7884	0.7788	0.7747	0.7887	0.7775	0.7800	0.7855	0.7989	0.7965	0.7944
Netherlands	0.8093	0.8065	0.7979	0.8070	0.7911	0.7993	0.7988	0.8097	0.7965	0.8037	0.7919	0.7984	0.7820	0.7858	0.7898
Australia	0.8091	0.8090	0.8082	0.8107	0.8073	0.7962	0.7921	0.7834	0.7726	0.7634	0.7557	0.7540	0.7500	0.7466	0.7440
Switzerland	0.8090	0.8072	0.8061	0.8067	0.8095	0.8043	0.8093	0.8070	0.8046	0.8027	0.8049	0.7961	0.7913	0.7858	0.7785
Cyprus	0.8049	0.8031	0.7851	0.7845	0.7826	0.7576	0.7459	0.7448	0.7430	0.7094	0.7275	0.7620	0.7570	0.7601	0.7567
United Kingdom	0.8033	0.8056	0.8075	0.8186	0.8073	0.8185	0.8055	0.8077	0.8071	0.8105	0.8131	0.8092	0.8090	0.8052	0.8063
Belgium	0.8012	0.7983	0.7856	0.7867	0.7829	0.7768	0.7760	0.7731	0.7773	0.7778	0.7725	0.7772	0.7670	0.7621	0.7691
Canada	0.7980	0.8102	0.8083	0.8036	0.8005	0.7940	0.7866	0.7876	0.7908	0.7865	0.7844	0.7839	0.7785	0.7752	0.7908
France	0.7928	0.7932	0.7861	0.7943	0.7952	0.7873	0.7840	0.7816	0.7845	0.7837	0.7837	0.7828	0.7797	0.7800	0.7869
Korea, Rep. of	0.7894	0.8025	0.7980	0.8036	0.8046	0.7954	0.7919	0.7664	0.7627	0.7555	0.7548	0.7395	0.7166	0.7024	0.7001
Austria	0.7788	0.7786	0.7680	0.7718	0.7675	0.7627	0.7582	0.7569	0.7595	0.7591	0.7546	0.7594	0.7502	0.7481	0.7504
New Zealand	0.7769	0.7813	0.7790	0.7787	0.7782	0.7665	0.7664	0.7672	0.7627	0.7587	0.7571	0.7569	0.7486	0.7481	0.7466
Luxembourg	0.7766	0.8279	0.7964	0.7789	0.7535	0.7865	0.7590	0.7966	0.7869	0.7780	0.7764	0.7428	0.7400	0.7551	0.7116
Sweden	0.7762	0.7745	0.7664	0.7680	0.7638	0.7578	0.7550	0.7542	0.7575	0.7544	0.7523	0.7576	0.7502	0.7489	0.7480
Greece	0.7761	0.7739	0.7604	0.7609	0.7272	0.7160	0.7112	0.7093	0.7371	0.7346	0.7333	0.7335	0.7245	0.7241	0.7264
Denmark	0.7755	0.7748	0.7661	0.7683	0.7655	0.7583	0.7563	0.7546	0.7562	0.7550	0.7515	0.7520	0.7442	0.7420	0.7434
Japan	0.7754	0.7834	0.7845	0.7993	0.7896	0.7813	0.7827	0.7858	0.7845	0.7804	0.7860	0.7927	0.7940	0.7885	0.7998
Italy	0.7753	0.7770	0.7687	0.7757	0.7750	0.7700	0.7655	0.7658	0.7680	0.7664	0.7624	0.7664	0.7630	0.7594	0.7575

(Continued)

* Due to space limitations, the numbers of the openness index in this table are rounded to only four decimal places.

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
US	0.7745	0.7747	0.7673	0.7704	0.7694	0.7950	0.8032	0.8649	0.8956	0.9130	0.9332	0.9410	0.9579	0.9566	0.9649
Hungary	0.7744	0.7741	0.7725	0.7729	0.7635	0.7581	0.7591	0.7550	0.7563	0.7519	0.7490	0.7505	0.7400	0.7356	0.7433
Lithuania	0.7732	0.7692	0.7600	0.7661	0.7552	0.7460	0.7359	0.7219	0.7189	0.7153	0.7126	0.7197	0.7124	0.7133	0.7228
Estonia	0.7729	0.7730	0.7633	0.7629	0.7631	0.7545	0.7506	0.7511	0.7515	0.7577	0.7512	0.7504	0.7375	0.7318	0.7322
Spain	0.7714	0.7710	0.7622	0.7668	0.7643	0.7595	0.7543	0.7540	0.7551	0.7522	0.7477	0.7515	0.7453	0.7430	0.7462
Latvia	0.7707	0.7681	0.7586	0.7613	0.7594	0.7499	0.7489	0.7434	0.7435	0.7401	0.7390	0.7405	0.7285	0.7202	0.7219
Costa Rica	0.7692	0.7690	0.7636	0.7619	0.7614	0.7530	0.7515	0.7466	0.7179	0.7439	0.7306	0.7307	0.6959	0.6944	0.6963
Czech Rep.	0.7655	0.7648	0.7622	0.7649	0.7620	0.7561	0.7535	0.7537	0.7538	0.7475	0.7465	0.7464	0.7375	0.7359	0.7335
Macao, China	0.7651	0.7600	0.7500	0.7681	0.7634	0.7524	0.7436	0.7439	0.7423	0.7342	0.7236	0.7369	0.7295	0.7290	0.7291
Finland	0.7614	0.7599	0.7511	0.7532	0.7503	0.7446	0.7426	0.7405	0.7431	0.7433	0.7406	0.7410	0.7347	0.7318	0.7343
Norway	0.7608	0.7579	0.7567	0.7610	0.7605	0.7556	0.7537	0.7532	0.7530	0.7535	0.7537	0.7562	0.7508	0.7577	0.7655
Portugal	0.7607	0.7616	0.7576	0.7566	0.7485	0.7414	0.7379	0.7363	0.7380	0.7366	0.7329	0.7368	0.7289	0.7276	0.7296
Mexico	0.7601	0.7666	0.7675	0.7664	0.7678	0.7568	0.7535	0.7498	0.7504	0.7473	0.7450	0.7460	0.7427	0.7439	0.7449
Nicaragua	0.7581	0.7563	0.7511	0.7501	0.7498	0.7436	0.7429	0.7423	0.7448	0.7452	0.7320	0.7323	0.7276	0.7230	0.7232
Israel	0.7540	0.7716	0.7693	0.7710	0.7717	0.7655	0.7639	0.7634	0.7656	0.7641	0.7628	0.7628	0.7584	0.7550	0.7543
Romania	0.7534	0.7531	0.7438	0.7521	0.7472	0.7399	0.7370	0.7341	0.7342	0.7298	0.7267	0.7287	0.7228	0.7164	0.7152
China	0.7517	0.7560	0.7511	0.7526	0.7459	0.7413	0.7358	0.7337	0.7323	0.7214	0.7105	0.7019	0.6923	0.6777	0.6789
Peru	0.7517	0.7594	0.7580	0.7587	0.7607	0.7466	0.7265	0.7254	0.7254	0.7245	0.7184	0.7174	0.7102	0.7062	0.6943
Bahrain	0.7515	0.7560	0.7577	0.7545	0.7534	0.7464	0.7488	0.7498	0.7518	0.7527	0.7474	0.7363	0.7378	0.7292	0.7251
Panama	0.7498	0.7511	0.7491	0.7503	0.7469	0.7450	0.7419	0.7470	0.7487	0.7476	0.7406	0.7383	0.7296	0.7250	0.7297
Chile	0.7488	0.7556	0.7537	0.7544	0.7538	0.7384	0.7341	0.7358	0.7334	0.7287	0.7292	0.7365	0.7333	0.7412	0.7511
Slovak Rep.	0.7476	0.7443	0.7349	0.7465	0.7413	0.7354	0.7323	0.7300	0.7291	0.7276	0.7254	0.7255	0.7166	0.7132	0.7100
Uruguay	0.7462	0.7446	0.7442	0.7450	0.7449	0.7369	0.7345	0.7348	0.7347	0.7339	0.7323	0.7303	0.7260	0.7264	0.7281
Guatemala	0.7440	0.7449	0.7399	0.7387	0.7415	0.7334	0.7322	0.7315	0.7328	0.7335	0.7194	0.7205	0.7174	0.7151	0.7160
Poland	0.7431	0.7425	0.7330	0.7350	0.7326	0.7251	0.7215	0.7190	0.6924	0.6923	0.6894	0.6910	0.6850	0.6802	0.6829
Georgia	0.7420	0.7478	0.7454	0.7454	0.7434	0.7180	0.7144	0.7113	0.7114	0.7031	0.6856	0.6300	0.6235	0.6486	0.6675
Iceland	0.7403	0.7383	0.7349	0.7382	0.7313	0.7238	0.6940	0.6658	0.6699	0.6662	0.6613	0.6653	0.6550	0.6534	0.6548
Slovenia	0.7388	0.7358	0.7255	0.7294	0.7246	0.7170	0.7128	0.7107	0.7091	0.7067	0.7050	0.7128	0.7100	0.7123	0.7216
Malaysia	0.7376	0.7363	0.7331	0.7340	0.7366	0.7220	0.7217	0.7224	0.7251	0.6961	0.6937	0.6962	0.6923	0.7137	0.7441
Trinidad and Tobago	0.7355	0.7361	0.7341	0.7342	0.7352	0.7295	0.7452	0.7426	0.7319	0.7322	0.7315	0.7302	0.7246	0.7231	0.7141
Cambodia	0.7348	0.7366	0.7282	0.7298	0.7256	0.7181	0.7186	0.7190	0.6920	0.6884	0.6832	0.6802	0.6764	0.6686	0.6664
Croatia	0.7335	0.7332	0.7207	0.7269	0.7235	0.7139	0.7093	0.7060	0.7046	0.6982	0.6939	0.6942	0.6896	0.6915	0.6943
Mauritius	0.7332	0.7305	0.7171	0.7215	0.7055	0.7138	0.7085	0.7106	0.7091	0.7063	0.7131	0.7277	0.7247	0.7166	0.7142
Jordan	0.7287	0.7286	0.7250	0.7286	0.7277	0.7261	0.7304	0.7293	0.7346	0.7328	0.7321	0.7306	0.7303	0.7315	0.7359
Bulgaria	0.7230	0.7211	0.7121	0.7209	0.7248	0.7429	0.7379	0.7368	0.7384	0.7343	0.7313	0.7322	0.7244	0.7211	0.7257
El Salvador	0.7195	0.7195	0.7156	0.7179	0.7181	0.7098	0.7075	0.7064	0.7074	0.7081	0.7009	0.7058	0.7076	0.7121	0.7202
Oman	0.7189	0.7225	0.7278	0.7346	0.7349	0.7327	0.7317	0.7322	0.7282	0.7278	0.7179	0.7170	0.7182	0.7190	0.7037
Antigua and Barbuda	0.7182	0.7206	0.7128	0.7248	0.7264	0.7234	0.7228	0.7205	0.7267	0.7134	0.7078	0.7097	0.7075	0.6979	0.6889
Kuwait	0.7080	0.7089	0.7119	0.7109	0.7126	0.7065	0.7023	0.7004	0.6962	0.6910	0.6826	0.6830	0.6848	0.6829	0.6776
Botswana	0.7057	0.7078	0.7094	0.7090	0.7082	0.7039	0.7137	0.7052	0.7038	0.6917	0.7039	0.7083	0.7084	0.7063	0.7038
Colombia	0.6921	0.6938	0.6913	0.6899	0.6902	0.6786	0.6689	0.6541	0.6540	0.6516	0.6433	0.6299	0.6255	0.6235	0.6510
Vietnam	0.6905	0.6948	0.6902	0.6830	0.6790	0.6696	0.6664	0.6634	0.6597	0.6573	0.6545	0.6536	0.6507	0.6491	0.6534

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	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Zambia	0.6860	0.6869	0.6886	0.6982	0.6892	0.6816	0.6849	0.6838	0.6905	0.6903	0.6925	0.6917	0.6867	0.6787	0.6750
Gambia, The	0.6857	0.6871	0.6884	0.6885	0.6900	0.6879	0.6843	0.6888	0.6937	0.6892	0.6912	0.6899	0.6881	0.6872	0.6851
Mongolia	0.6826	0.6797	0.6833	0.6853	0.6839	0.6774	0.6770	0.6748	0.6769	0.6802	0.6811	0.6712	0.6587	0.6545	0.6654
Armenia	0.6815	0.6792	0.6746	0.6770	0.6758	0.6670	0.6638	0.6775	0.6802	0.6812	0.6792	0.6823	0.6802	0.6797	0.6762
Guyana	0.6805	0.6955	0.6928	0.7148	0.7060	0.6948	0.7226	0.7204	0.7257	0.7260	0.7220	0.7210	0.7170	0.7113	0.7119
Paraguay	0.6797	0.6783	0.6772	0.6798	0.6775	0.6703	0.6668	0.6660	0.6674	0.6685	0.6664	0.6741	0.6767	0.6787	0.6842
Ecuador	0.6788	0.6841	0.6809	0.6802	0.6903	0.6863	0.6760	0.6786	0.6553	0.6555	0.6559	0.6622	0.6904	0.6929	0.6993
North Macedonia	0.6766	0.6733	0.6695	0.6722	0.6722	0.6691	0.6670	0.6680	0.6675	0.6631	0.6672	0.6681	0.6635	0.6678	0.6709
Argentina	0.6764	0.6790	0.6757	0.6817	0.7355	0.7220	0.6561	0.6406	0.6422	0.6407	0.6365	0.6635	0.6595	0.6571	0.6559
Saudi Arabia	0.6758	0.6839	0.6856	0.6895	0.6909	0.6887	0.6872	0.6893	0.6768	0.6829	0.6800	0.6800	0.6803	0.6755	0.6771
Russia	0.6688	0.6729	0.6705	0.6827	0.6930	0.6937	0.6946	0.7063	0.7139	0.7143	0.7050	0.7103	0.6969	0.6821	0.6853
Thailand	0.6680	0.6824	0.6793	0.6825	0.6583	0.6546	0.6531	0.6528	0.6536	0.6505	0.6517	0.6478	0.6326	0.6373	0.6668
Honduras	0.6680	0.6673	0.6643	0.6667	0.6693	0.6611	0.6584	0.6593	0.6588	0.6567	0.6427	0.6434	0.6385	0.6625	0.6982
Indonesia	0.6653	0.6648	0.6632	0.6619	0.6664	0.6549	0.6573	0.6572	0.6596	0.6586	0.6577	0.6557	0.6788	0.6767	0.6796
Philippines	0.6651	0.6672	0.6675	0.6693	0.6692	0.6669	0.6637	0.6637	0.6640	0.6333	0.6352	0.6334	0.6310	0.6545	0.6576
Dominican Rep.	0.6647	0.6912	0.6865	0.6857	0.6870	0.6760	0.6685	0.6724	0.6804	0.6812	0.6859	0.6923	0.6945	0.6841	0.6823
Lebanon	0.6617	0.6630	0.6489	0.6515	0.6534	0.6493	0.6506	0.6501	0.6829	0.6836	0.6798	0.6834	0.6820	0.6833	0.6869
Barbados	0.6590	0.6613	0.6664	0.6645	0.6671	0.6649	0.6700	0.6655	0.6658	0.6645	0.6614	0.6613	0.6551	0.6473	0.6352
Ukraine	0.6570	0.6518	0.6461	0.6453	0.6507	0.6299	0.6285	0.6284	0.6266	0.6182	0.6192	0.6159	0.6112	0.6060	0.6227
India	0.6563	0.6546	0.6555	0.6608	0.6636	0.6553	0.6542	0.6538	0.6549	0.6561	0.6542	0.6551	0.6457	0.6374	0.6373
Morocco	0.6518	0.6460	0.6443	0.6458	0.6457	0.6438	0.6410	0.6376	0.6357	0.6339	0.6367	0.6320	0.6308	0.6325	0.6317
Uganda	0.6511	0.6712	0.6762	0.6706	0.6716	0.6706	0.6721	0.6715	0.6762	0.6740	0.6740	0.6725	0.6697	0.6656	0.6703
Kyrgyz Rep.	0.6507	0.6545	0.6465	0.6467	0.6500	0.6462	0.6472	0.6203	0.6266	0.6264	0.6340	0.6766	0.6760	0.6742	0.6788
Cabo Verde	0.6498	0.6488	0.6577	0.6413	0.6343	0.6014	0.5682	0.5678	0.5705	0.5689	0.5706	0.5725	0.5697	0.5683	0.5693
Fiji	0.6466	0.6451	0.6383	0.6316	0.6365	0.6301	0.6325	0.6340	0.6333	0.6306	0.6281	0.6232	0.6264	0.6233	0.6290
Bolivia	0.6449	0.6426	0.6409	0.6439	0.6448	0.6428	0.6458	0.6471	0.6518	0.6511	0.6543	0.6531	0.6540	0.6603	0.6682
Moldova	0.6440	0.6410	0.6378	0.6402	0.6418	0.6354	0.6368	0.6361	0.6373	0.6096	0.6090	0.6053	0.6030	0.6046	0.6139
Turkiye	0.6433	0.6408	0.6396	0.6411	0.6414	0.6640	0.6608	0.6621	0.6618	0.6601	0.6572	0.6559	0.6530	0.6494	0.6482
South Africa	0.6414	0.6422	0.6408	0.6412	0.6437	0.6415	0.6410	0.6335	0.6357	0.6349	0.6333	0.6330	0.6289	0.6286	0.6332
Samoa	0.6412	0.6397	0.6327	0.6283	0.6310	0.6252	0.6269	0.6255	0.6238	0.6220	0.6206	0.6225	0.6201	0.6146	0.6145
Egypt	0.6404	0.6409	0.6366	0.6384	0.6426	0.6423	0.6146	0.6157	0.6175	0.6168	0.6510	0.6827	0.6886	0.6968	0.7086
Lesotho	0.6401	0.6425	0.6409	0.6378	0.6299	0.6298	0.6279	0.6168	0.6184	0.6204	0.6157	0.6127	0.6170	0.6203	0.6168
Papua New Guinea	0.6363	0.6410	0.6379	0.6299	0.6313	0.6441	0.6434	0.6739	0.6758	0.7018	0.6764	0.6751	0.6707	0.6616	0.6535
Jamaica	0.6363	0.6352	0.6320	0.6592	0.6547	0.6553	0.6802	0.6840	0.6852	0.6847	0.6826	0.6862	0.6908	0.6958	0.7023
Belize	0.6359	0.6350	0.6317	0.6398	0.6410	0.6374	0.6378	0.6376	0.6396	0.6361	0.6325	0.6318	0.6276	0.6273	0.6256
Kenya	0.6330	0.6426	0.6387	0.6397	0.6419	0.6434	0.6416	0.6445	0.6486	0.6508	0.6510	0.6529	0.6551	0.6547	0.6530
Albania	0.6312	0.6304	0.6290	0.6619	0.6617	0.6589	0.6551	0.6542	0.6534	0.6534	0.6622	0.6658	0.6533	0.6260	0.6192
Bosnia and Herzegovina	0.6307	0.6289	0.6279	0.6251	0.6338	0.6268	0.6246	0.6291	0.6331	0.6556	0.6630	0.6773	0.6580	0.6549	0.6777
Brazil	0.6303	0.6314	0.6392	0.6511	0.6536	0.6493	0.6493	0.6494	0.6764	0.6759	0.6751	0.6761	0.6741	0.6746	0.6758
Mozambique	0.6297	0.6237	0.6217	0.6262	0.6227	0.6245	0.6276	0.6178	0.6242	0.6229	0.6205	0.6098	0.6070	0.6052	0.6054
Tunisia	0.6294	0.6293	0.6258	0.6294	0.6291	0.6285	0.6247	0.6300	0.6340	0.6350	0.6280	0.6281	0.6286	0.6228	0.6284

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	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Namibia	0.6289	0.6273	0.6247	0.6247	0.6205	0.6232	0.6225	0.6175	0.6180	0.6142	0.6123	0.6102	0.6117	0.6121	0.6091
Laos	0.6289	0.6267	0.6260	0.6291	0.6294	0.6255	0.6248	0.6254	0.6255	0.6208	0.6202	0.6135	0.6095	0.6038	0.6018
Azerbaijan	0.6275	0.6279	0.6318	0.6278	0.6271	0.6292	0.6313	0.6257	0.6227	0.6212	0.6213	0.6144	0.6042	0.5973	0.6181
Zimbabwe	0.6245	0.6220	0.6235	0.6229	0.6218	0.6246	0.6230	0.6322	0.6093	0.6037	0.6293	0.6407	0.6309	0.6002	0.5975
Belarus	0.6207	0.6223	0.6161	0.6201	0.6207	0.6160	0.6128	0.5943	0.5922	0.6079	0.6129	0.6120	0.6063	0.6020	0.6043
Kazakhstan	0.6195	0.6183	0.6195	0.6215	0.6155	0.6114	0.6114	0.6085	0.6087	0.6070	0.6072	0.6262	0.6214	0.6202	0.6197
Sudan	0.6190	0.6216	0.6245	0.6210	0.6219	0.6125	0.5865	0.5866	0.5890	0.5835	0.5752	0.5667	0.5594	0.5513	0.5667
Bangladesh	0.6146	0.6148	0.6152	0.6158	0.6164	0.6130	0.6124	0.6166	0.6165	0.6141	0.6126	0.6164	0.6122	0.6100	0.6119
Nigeria	0.6103	0.6098	0.6108	0.6131	0.6127	0.6133	0.6130	0.6139	0.6230	0.6227	0.6222	0.6233	0.6241	0.6216	0.6212
Mali	0.6086	0.6083	0.6078	0.6098	0.6081	0.6061	0.6103	0.6090	0.6090	0.6090	0.6060	0.6037	0.6070	0.6033	0.6039
Madagascar	0.6084	0.6092	0.6077	0.6096	0.6037	0.6029	0.6003	0.6247	0.6280	0.6296	0.6119	0.6114	0.6080	0.6306	0.6261
Algeria	0.6061	0.6073	0.6097	0.6129	0.6129	0.6131	0.6150	0.6157	0.6153	0.6143	0.6128	0.6141	0.6156	0.6144	0.6104
Pakistan	0.6046	0.6053	0.6057	0.6060	0.6072	0.6062	0.6062	0.6080	0.6110	0.6101	0.6106	0.6102	0.6104	0.6067	0.6065
Sri Lanka	0.6046	0.6034	0.6014	0.5994	0.6001	0.6013	0.6032	0.6048	0.6004	0.5970	0.6278	0.6312	0.6283	0.6263	0.6293
Gabon	0.6026	0.6033	0.6058	0.6049	0.6047	0.6020	0.6023	0.6028	0.6027	0.6041	0.6007	0.5986	0.5989	0.5981	0.5918
Tanzania	0.5974	0.6005	0.6012	0.6026	0.6028	0.6015	0.6024	0.6059	0.6131	0.6095	0.6088	0.6078	0.5999	0.6042	0.6069
Ethiopia	0.5949	0.5949	0.5934	0.5929	0.5927	0.5894	0.5903	0.5886	0.5982	0.6001	0.5959	0.5969	0.5959	0.5903	0.5891
Ghana	0.5942	0.5936	0.5938	0.6026	0.6027	0.5933	0.5985	0.5932	0.5916	0.5896	0.5956	0.6106	0.6082	0.6063	0.6060
Malawi	0.5924	0.5929	0.5926	0.5950	0.5941	0.5925	0.5922	0.5882	0.5916	0.5919	0.5708	0.5681	0.5688	0.5665	0.5801
Congo, Rep. of	0.5900	0.5908	0.5926	0.5959	0.5956	0.6039	0.6108	0.6108	0.5957	0.5915	0.5898	0.5931	0.5953	0.6002	0.5918
Nepal	0.5892	0.5919	0.5883	0.5891	0.5921	0.5890	0.5895	0.5889	0.5915	0.5764	0.5856	0.5815	0.5853	0.5854	0.3253
Côte d'Ivoire	0.5890	0.5831	0.5878	0.5880	0.5865	0.5849	0.5876	0.5818	0.5833	0.5844	0.5848	0.5810	0.5832	0.5829	0.5842
Central African Rep.	0.5868	0.5868	0.5870	0.5875	0.5868	0.5858	0.5873	0.5861	0.5870	0.5873	0.5841	0.5844	0.5861	0.5845	0.5828
Burundi	0.5768	0.5782	0.5781	0.5845	0.5729	0.5794	0.5775	0.5762	0.5794	0.5806	0.5804	0.5774	0.5746	0.5699	0.5726

II. Ranking of World Openness Index, 129 Economies, 2008–2022

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Singapore	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Germany	2	2	2	3	3	3	3	4	4	4	4	4	4	4	3
Hong Kong, China	3	4	3	2	2	2	2	3	3	3	3	3	3	3	4
Ireland	4	3	4	4	4	4	4	5	5	6	7	7	9	10	11
Malta	5	6	9	9	9	12	14	14	10	14	12	10	6	6	7
Netherlands	6	10	11	7	12	7	8	6	8	7	8	6	10	8	9
Australia	7	8	6	6	7	8	9	12	15	17	18	21	20	22	25

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	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Switzerland	8	9	8	8	5	6	5	8	7	8	6	8	8	9	12
Cyprus	9	12	15	15	15	25	32	32	34	53	42	16	16	14	16
United Kingdom	10	11	7	5	6	5	6	7	6	5	5	5	5	5	5
Belgium	11	14	14	14	14	16	15	15	14	13	14	13	13	13	13
Canada	12	7	5	11	10	11	11	10	9	9	10	11	12	12	8
France	13	15	13	13	11	13	12	13	13	10	11	12	11	11	10
Korea, Rep. of	14	13	10	10	8	9	10	17	18	21	19	31	47	54	55
Austria	15	18	21	20	21	20	21	20	20	18	20	17	19	20	19
New Zealand	16	17	17	17	16	18	16	16	19	19	17	19	21	21	21
Luxembourg	17	5	12	16	35	14	20	9	11	12	13	28	25	17	49
Sweden	18	22	24	25	24	24	23	23	21	23	22	18	18	19	20
Greece	19	24	30	34	54	58	58	58	38	36	33	37	41	37	36
Denmark	20	20	25	23	22	22	22	22	23	22	23	22	23	25	26
Japan	21	16	16	12	13	15	13	11	12	11	9	9	7	7	6
Italy	22	19	20	18	17	17	17	18	16	15	16	14	14	15	15
US	23	21	23	22	19	10	7	2	1	1	1	1	1	1	1
Hungary	24	23	18	19	25	23	19	21	22	27	25	24	26	28	27
Lithuania	25	28	31	28	33	35	41	50	52	50	51	49	49	47	40
Estonia	26	25	27	30	27	29	29	27	28	20	24	25	28	30	31
Spain	27	27	28	26	23	21	24	24	24	26	26	23	22	24	22
Latvia	28	30	32	32	32	32	30	34	32	34	32	30	36	41	41
Costa Rica	29	29	26	31	29	30	28	31	53	32	40	40	56	58	58
Czech Rep.	30	32	29	29	28	27	26	25	25	29	28	26	29	27	30
Macao, China	31	34	41	24	26	31	34	33	35	38	45	33	34	33	34
Finland	32	35	38	39	37	37	36	37	33	33	30	29	30	29	29
Norway	33	37	36	33	31	28	25	26	26	24	21	20	17	16	14
Portugal	34	33	35	36	39	40	39	39	37	35	34	34	35	34	33
Mexico	35	31	22	27	20	26	27	29	29	30	29	27	24	23	23
Nicaragua	36	38	40	43	38	38	35	36	31	31	37	38	37	39	39
Israel	37	26	19	21	18	19	18	19	17	16	15	15	15	18	17
Romania	38	42	45	41	40	42	40	42	41	43	43	44	43	44	45

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	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
China	39	39	39	40	42	41	42	43	44	49	52	57	58	70	69
Peru	40	36	33	35	30	33	49	48	50	48	48	50	50	53	59
Bahrain	41	40	34	37	36	34	31	28	27	25	27	36	27	32	38
Panama	42	43	42	42	41	36	37	30	30	28	31	32	33	36	32
Chile	43	41	37	38	34	43	44	40	42	44	41	35	31	26	18
Slovak Rep.	44	47	47	44	46	45	45	46	46	46	44	46	48	48	50
Uruguay	45	46	44	46	43	44	43	41	39	39	35	42	38	35	35
Guatemala	46	45	46	47	45	46	46	45	43	40	47	48	45	45	44
Poland	47	48	51	49	51	50	53	53	63	61	62	62	66	66	66
Georgia	48	44	43	45	44	56	55	55	55	57	64	98	102	89	80
Iceland	49	49	48	48	52	51	64	76	75	76	80	80	84	86	86
Slovenia	50	53	54	54	58	57	57	56	56	55	55	52	51	49	42
Malaysia	51	51	50	52	47	53	52	49	51	60	59	58	59	46	24
Trinidad and Tobago	52	52	49	51	49	48	33	35	45	42	38	43	40	38	47
Cambodia	53	50	52	53	56	55	54	54	64	66	65	69	73	75	82
Croatia	54	54	56	56	59	59	59	61	59	59	58	59	62	60	60
Mauritius	55	55	57	58	64	60	60	57	57	56	50	45	39	43	46
Jordan	56	56	55	55	53	49	48	47	40	41	36	41	32	31	28
Bulgaria	57	58	60	59	57	39	38	38	36	37	39	39	42	40	37
El Salvador	58	60	58	60	60	61	61	59	58	54	57	56	53	50	43
Oman	59	57	53	50	50	47	47	44	47	45	49	51	44	42	53
Antigua and Barbuda	60	59	59	57	55	52	50	51	48	52	53	54	54	55	61
Kuwait	61	61	61	62	61	62	62	63	61	63	67	66	67	64	72
Botswana	62	62	62	63	62	63	56	62	60	62	56	55	52	52	52
Colombia	63	65	64	65	68	70	73	84	86	87	90	99	100	99	90
Vietnam	64	64	65	70	73	75	77	79	81	81	84	87	88	88	88
Zambia	65	68	66	64	70	69	66	67	65	64	60	61	65	68	76
Gambia, The	66	67	67	67	69	67	67	65	62	65	61	63	64	61	64
Mongolia	67	72	70	69	72	71	69	70	70	72	68	77	80	85	83
Armenia	68	73	76	76	75	77	78	69	69	71	71	68	70	67	74
Guyana	69	63	63	61	63	64	51	52	49	47	46	47	46	51	48

(Continued)

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Paraguay	70	75	73	75	74	74	76	75	77	75	76	75	72	69	65
Ecuador	71	69	71	74	67	68	70	68	84	85	83	82	61	59	56
North Macedonia	72	76	78	77	76	76	75	74	76	78	75	78	78	76	77
Argentina	73	74	75	73	48	54	83	91	91	91	93	81	79	81	85
Saudi Arabia	74	70	69	66	66	66	65	64	71	69	69	70	69	72	73
Russia	75	77	77	71	65	65	63	60	54	51	54	53	55	65	63
Thailand	76	71	72	72	84	86	86	86	87	90	87	90	91	92	81
Honduras	77	79	81	80	78	81	81	81	83	82	91	91	90	78	57
Indonesia	78	81	82	82	81	85	82	82	82	80	81	85	71	71	68
Philippines	79	80	79	79	79	78	79	78	79	96	94	93	92	84	84
Dominican Rep.	80	66	68	68	71	72	74	72	68	70	63	60	57	62	67
Lebanon	81	82	85	86	87	88	87	87	67	68	70	65	68	63	62
Barbados	82	83	80	81	80	79	72	77	78	77	79	83	82	90	93
Ukraine	83	86	87	90	88	99	99	100	101	106	107	106	109	111	101
India	84	84	84	84	82	84	85	85	85	83	86	86	89	91	92
Morocco	85	88	88	89	90	91	93	93	95	95	92	95	94	93	95
Uganda	86	78	74	78	77	73	71	73	73	74	74	76	77	77	78
Kyrgyz Rep.	87	85	86	88	89	89	89	105	100	99	95	72	74	74	70
Cabo Verde	88	87	83	92	99	121	129	129	129	129	129	127	127	127	127
Fiji	89	89	95	100	98	98	97	95	97	97	99	103	99	100	97
Bolivia	90	91	90	91	91	93	90	89	89	88	85	88	85	80	79
Moldova	91	94	97	95	95	97	96	94	93	112	115	118	118	113	108
Turkiye	92	97	92	94	96	80	80	80	80	79	82	84	87	87	91
South Africa	93	93	91	93	92	95	94	96	94	94	96	94	95	95	94
Samoa	94	98	99	104	102	105	102	102	104	102	104	104	104	105	107
Egypt	95	96	98	98	93	94	109	110	109	107	88	67	63	56	51
Lesotho	96	92	89	99	103	100	100	108	107	105	108	110	105	103	106
Papua New Guinea	97	95	96	101	101	90	91	71	74	58	72	74	76	79	87
Jamaica	98	99	100	85	85	83	68	66	66	67	66	64	60	57	54
Belize	99	100	102	96	97	96	95	92	92	92	97	96	98	96	100

(Continued)

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Kenya	100	90	94	97	94	92	92	90	90	89	89	89	83	83	89
Albania	101	102	103	83	83	82	84	83	88	86	78	79	86	98	104
Bosnia and Herzegovina	102	104	104	107	100	103	105	99	98	84	77	71	81	82	71
Brazil	103	101	93	87	86	87	88	88	72	73	73	73	75	73	75
Mozambique	104	108	110	106	107	107	101	106	103	100	105	116	115	112	115
Tunisia	105	103	106	102	105	102	104	98	96	93	100	100	96	101	98
Namibia	106	106	107	108	111	108	107	107	108	109	112	115	108	107	111
Laos	107	107	105	103	104	104	103	103	102	104	106	109	111	115	118
Azerbaijan	108	105	101	105	106	101	98	101	106	103	103	107	117	121	105
Zimbabwe	109	110	109	109	109	106	106	97	114	118	98	92	93	119	119
Belarus	110	109	112	112	110	109	111	120	121	115	109	111	116	117	116
Kazakhstan	111	112	111	110	113	114	113	115	116	116	117	101	103	104	103
Sudan	112	111	108	111	108	113	127	125	125	126	127	129	129	129	128
Bangladesh	113	113	113	113	112	112	112	109	110	110	111	105	107	108	109
Nigeria	114	114	114	114	115	110	110	112	105	101	102	102	101	102	102
Mali	115	116	116	116	116	116	115	114	115	114	118	119	114	116	117
Madagascar	116	115	117	117	119	118	120	104	99	98	113	112	113	94	99
Algeria	117	117	115	115	114	111	108	111	111	108	110	108	106	106	110
Pakistan	118	118	119	118	117	115	116	116	113	111	114	114	110	109	113
Sri Lanka	119	119	120	122	122	122	117	118	118	120	101	97	97	97	96
Gabon	120	120	118	119	118	119	119	119	117	117	119	120	120	120	121
Tanzania	121	121	121	121	120	120	118	117	112	113	116	117	119	114	112
Ethiopia	122	122	123	125	125	125	123	123	119	119	120	121	121	122	122
Ghana	123	123	122	120	121	123	121	121	123	123	121	113	112	110	114
Malawi	124	124	124	124	124	124	122	124	122	121	128	128	128	128	125
Congo, Rep. of	125	126	125	123	123	117	114	113	120	122	122	122	122	118	120
Nepal	126	125	126	126	126	126	124	122	124	128	123	124	124	123	129
Côte d'Ivoire	127	128	127	127	128	128	125	127	127	125	124	125	125	125	123
Central African Rep.	128	127	128	128	127	127	126	126	126	124	125	123	123	124	124
Burundi	129	129	129	129	129	129	128	128	128	127	126	126	126	126	126

III. Brief Introduction to the World Openness Index

This section includes the following contents: concept and theory of opening-up to the outside world, indicator system, weight setting and sources of data, and nondimensionalization of indicators.

1. Concept and Theory of Opening-Up to the Outside World

The basic meaning of "opening-up to the outside world" is clear and consistent; that is, the specific entities of at least two economies carry out exchanges at the economic, social, and cultural levels to lead to the flow of goods, services, personnel, capital, information, knowledge, and technology. The subject of "opening-up to the outside world," mentioned in this report, mainly refers to the macro-level economy, that is, a specific economy. This means that the openness index takes the entire economy as the basic unit of observation.

The openness index measures cross-border economic openness and the related cross-border social openness and cross-border cultural openness.

In the field of economic openness, cross-border exchanges undoubtedly have the longest history, including, but not limited to, cross-border trade. Economic opening-up has long been dominated by the opening-up of cross-border trade, and cross-border trade has long been dominated by goods. In recent decades, the proportion of services has gradually increased, and it has almost become predominant in some economies. Foreign trade in goods has long been dominated by primary and final products, although the intermediate products have accounted for an increasing proportion and even become the main part of cross-border trade in some economies. Cross-border trade is actually a direct manifestation or extension of a country's endowment of resources (including natural resources and human resources) and production technology endowments. This is exactly the basic principle discussed in the classical theory of international trade. Therefore, this report uses the cross-border trade theory as a starting point to construct a theoretical model of opening-up to the outside world.

Based on the summary of various frontier mainstream cross-border trade models by Costinot & Rodríguez-Clare (2014),* the price of a product of Economy *i* in Economy *j* can be expressed as a function of a number of variables, including those directly related to cross-border opening-up, such as the fixed and variable costs of entry of one economy into another. Those costs and the areas of cross-border opening-up that influence the costs are as follows:

—Variable trade costs: variable trade costs for the export of final products are mainly influenced by trade opening-up policies of the importing economy, and variable trade costs for imports of intermediate goods are mainly influenced by trade opening-up policies of the importing economy.

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* A. Costinot and A. Rodríguez-Clare, "Trade Theory with Numbers: Quantifying the Consequences of Globalization," *Handbook of International Economics* 4 (2014): 197–261.

—Productivity of production enterprises is subject to the influence of the host economy's investment opening-up policies.

—Fixed costs of enterprises' exports and cross-border investments are subject to the influence of financial opening-up policies.

—Total factor productivity is subject to the influence of cross-border diffusion of knowledge and technology.

—The variable costs of corporate decisions are influenced by the quality of institutions, such as contractual improvement and property rights protection.

Accordingly, the areas affecting cross-border trade and economy can be put in the following three categories. First, it is economic openness, mainly trade openness, investment openness, and financial openness. Second, it is social openness, mainly tourism, studying abroad, and immigration opening-up. Third, it is cultural opening-up, mainly cultural trade and cultural exchange. Those three types of openness all include the opening-up of corresponding systems.

To highlight cross-border institutional openness, cross-border openness is divided into cross-border openness performance and complimentary openness policies, each covering economic, social, and cultural openness.

2. Indicators, Weights, and Data

(1) Indicators

The indicator system of external openness measurement is the core content of constructing the world openness index, and its setting principles follow the following principles:

- The principle of scientificity, including the two-way openness balance, the objectivity of openness data, and the heterogeneity of openness contents
- The principle of representativeness, including the representativeness of openness areas and the representativeness of openness subject
- The principle of sustainability, characterized by high data accessibility, stable data sources, high quality of data, and broad prospects for expansion and application

Based on the above-mentioned concepts, theories, and principles, the indicator system constituting the world openness index is divided into four levels, among which the details of the indicators of the second, third, and fourth levels are shown in the table below.

Compared with other openness indicators, the world openness index, based on the aforementioned indicator system, has the following characteristics. First, it measures economic openness and social and cultural openness that is intertwined with economic openness. Second, it focuses on both internal openness and external openness. Third, it focuses on both openness performance and openness policy.

(2) Weights

The weight setting of the indicator system at each level is based on an expert survey. Based on a questionnaire survey of 41 Chinese experts in international economics, the weight setting of the indicator system is shown in the tables below.

The weights in Table A1 are shares of dimension and indicators in 1, visually displaying the relationship among dimensions and indicators, which can be directly comparable with these weights.

Table A1 Components of openness index and weights

Dimension Indicators		Policy indicators and their weights		Performance indicators and their weights		Subtotal	
		Indicators	**Weights**	**Indicators**	**Weights**	**Indicators**	**Weights**
Economic openness	Trade	Weighted applied tariff rate	0.1756	Import of goods	0.0562	**15**	**0.7988**
		Non-tariff measures initiated by reporting economy	0.1342	Export of goods	0.0562		
		Inbound openness of concerned free trade agreement(s)	0.0264	Import of services	0.0535		
		Outbound openness of concerned free trade agreement(s)	0.0264	Export of services	0.0535		
		Subtotal	**0.3626**		**0.2194**		
	Direct Investment	Inbound openness of concerned international investment agreement(s)	0.0259	Foreign direct investment	0.0469		
		Outbound openness of concerned international investment agreement(s)	0.0259	Overseas direct investment	0.0469		
		Subtotal	**0.0518**		**0.0938**		
	Portfolio investment	Financial opening-up policy	0.0518	Inbound portfolio investment	0.0096		
				Outbound portfolio investment	0.0096		
	Subtotal	**7**	**0.4662**	**8**	**0.3326**		
Social openness		Cross-border visa opening-up policy	0.0518	Inbound tourists	0.0155	**7**	**0.1337**
				Outbound tourists	0.0155		
				Inbound students	0.0176		
				Outbound students	0.0176		
				Immigrants	0.0078		
				Emigrants	0.0078		
	Subtotal	**1**	**0.0518**	**6**	**0.0819**		

(Continued)

Dimension Indicators		Policy indicators and their weights		Performance indicators and their weights		Subtotal	
		Indicators	Weights	Indicators	Weights	Indicators	Weights
Cultural openness	…	(*Applicable at appropriate time*)	…	Import of IPR services	0.0123	**7**	**0.0675**
				Export of IPR services	0.0123		
				Patent applications by non-residents	0.0115		
				Patent applications by residents	0.0115		
				International citation of science literature	0.0074		
				Cultural goods import	0.0061		
				International citations of science literature	0.0061		
	Subtotal	…	…	**7**	**0.0675**		
Total		**8**	**0.5180**	**21**	**0.4820**	**29**	**1.0000**

The weights of dimensions and indicators are set at each level, as shown in Table A2.

Table A2 Dimensions and indicators of openness index and their weights by tiers

Dimensions at the 2nd tier		Dimensions and weights at the 3rd tier		Indicators and weights at the 4th tier	
Dimensions	Weights	Dimensions	Weights	Indicators	Weights
Opening-up policies	0.518	Economic opening-up policies	0.90	Weighted applied tariff rate	0.3390
				Non-tariff measures initiated by reporting economy	0.2590
				Inbound openness of concerned free trade agreement(s)	0.0510
				Outbound openness of concerned free trade agreement(s)	0.0510
				Inbound openness of concerned international investment agreement(s)	0.0500
				Outbound openness of concerned international investment agreement(s)	0.0500
				Financial opening-up policy	0.1000
		Social opening-up policies	0.10	Cross-border visa opening-up policy	0.1000
		Cultural opening-up policy	…	(*Applicable at appropriate time*)	…

(Continued)

Dimensions at the 2nd tier		Dimensions and weights at the 3rd tier		Indicators and weights at the 4th tier	
Dimensions	**Weights**	**Dimensions**	**Weights**	**Indicators**	**Weights**
Opening-up performance	0.482	Economic opening-up performance	0.69	Import of goods	0.1690
				Export of goods	0.1690
				Import of services	0.1610
				Export of services	0.1610
				Foreign direct investment	0.1410
				Overseas direct investment	0.1410
				Inbound portfolio investment	0.0290
				Outbound portfolio investment	0.0290
		Social opening-up performance	0.17	Inbound tourists	0.1896
				Outbound tourists	0.1896
				Inbound students	0.2150
				Outbound students	0.2150
				Immigrants	0.0954
				Emigrants	0.0954
		Cultural opening-up performance	0.14	Import of IPR services	0.1830
				Export of IPR services	0.1830
				Patent applications by non-residents	0.1710
				Patent applications by residents	0.1710
				International citation of science literature	0.1100
				Cultural goods import	0.0910
				Cultural goods export	0.0910

Since 2022, the World Openness Index has begun to employ the data on GDP at 2015 constant price to weight economies. However, the data on GDP at 2015 constant price for some economies in recent year(s) have not yet been released, which has to be estimated on the basis of its/their last GDP data points and the available growth rate of real GDP in national currency from IMF's WEO databases.

Compiling the openness index of economic group(s) may encounter too many changes in the components of some group(s). For example, the increase or decrease of the members of countries involved in the BRI or the members of high-income economies, upper-middle-income economies, lower-middle-income economies, and low-income economies will change the sample of openness indexes of the corresponding group(s), thus reducing the comparability of these indexes. It is necessary to develop an openness index based on the adjusted grouping in order for readers to timely track the fresh changes in certain groupings.

(3) Data

Sources of underlying indicator data include the World Bank, WTO, IMF, UNCTAD, World Tourism Organization, UNESCO, United Nations Department of Economic and Social Affairs, and WIPO, among others. The detailed breakdown is shown in the following table.

Table A3 Data sources of indicators of openness index

Sources	Indicators
International Monetary Fund/ World Bank (IMF/WB)	Import of goods
	Export of goods
	Import of services
	Export of services
	Foreign direct investment
	Overseas direct investment
	Inbound portfolio investment
	Outbound portfolio investment
	Import of IPR services
	Export of IPR services
United Nations Department of Economic and Social Affairs (UN DESA)	Immigrants
	Emigrants
United Nations Conference on Trade and Development (UNCTAD)	Inbound openness of concerned international investment agreement(s)
	Outbound openness of concerned international investment agreement(s)
United Nations Educational, Scientific, and Cultural Organization (UNESCO)	Inbound students
	Outbound students
	Cultural goods import
	Cultural goods export
World Bank (WB)	Weighted applied tariff rate
World Intellectual Property Organization (WIPO)	Patent applications by non-residents
	Patent applications by residents
World Tourism Organization/ World Bank (UNWTO/WB)	Inbound tourists
	Outbound tourists
World Trade Organization (WTO)	Non-tariff measures initiated by reporting economy
	Inbound openness of concerned free trade agreement(s)
	Outbound openness of concerned free trade agreement(s)
https://web.pdx.edu/~ito/Chinn-Ito_website.htm	Financial opening-up policy
Henley & Partners	Cross-border visa opening-up policy
SCImago	International citation of science literature

Despite the above sources, some values of some underlying indicators remain missing. The following approach was adopted to make up for those missing values.

—When an economy has a value for only one year in the entire sample period, this value is used for all other years.

—When an economy has a value for more than one uninterrupted year in the whole sample period, the data for the other years are taken in accordance with the principle of proximity. For example, if only the values of 2011 and 2012 are available, then the value of 2011 is used for the year before 2011, and the value of 2012 is used for the year after 2012.

—For an economy that has a value in more than one year during the whole sample period and there is an interruption, the values between the two interrupted years are taken according to the principle of proximity (e.g., when only 2011 and 2014 have values, the value of 2011 is taken for 2012 and that of 2014 is taken for 2013); when the values are missing for an odd number of years, the value of the middlemost year is taken as the average of the two values at the two ends (e.g., when only values of 2011 and 2015 are available, the value of 2011 is taken for 2012, the value of 2015 is taken for 2014, and the average of the values of 2011 and 2015 is taken for 2013).

—For a country that has no values during the entire sample period, another country that is most similar to it in terms of economic development, social and cultural conditions, institutional characteristics, and geographical features should be picked so that the values of that country can be taken for the country with missing values.

3. Nondimensionalization of Indicators

(1) Principles

Dimensionless treatment is a necessary step for underlying index data processing. It should abide by the following principles: the design of the treatment method should be based on the economic principle of supply and demand.

The opening-up to the outside world is a two-way process. First, it is inward opening-up. That is, Economy A opens its market to other economies to meet A's own needs, which is reflected by Economy A importing goods, capital, technology, and personnel from other economies. Second, it is the outward opening-up of other economies. That is, other economies open themselves to Economy A to meet their own needs, which is reflected by Economy A exporting goods, capital, technology, and personnel to those economies.

Such a principle is, in essence, to make the openness indicators dimensionless based on market supply and demand conditions. First, if the value of Economy A on a certain inward opening-up indicator is an absolute one, it should be divided by the total value of this indicator for Economy A. Second, if the value of Economy A on one certain outward opening-up indicator is an absolute one, it should be divided by the global value of the indicator after deducting the value of Economy A. In this report, it is stipulated that the "corresponding aggregate indicator" for the openness indicator in the economic value category is GDP, and the "corresponding

aggregate indicator" for the openness indicator in the headcount category is total population, and the rest can be deduced in the same vein.

(2) Specific methods

- Outflow measured by value

Such an indicator system includes six indicators, namely, export of goods, export of services, outbound direct investment, outbound portfolio investment, export of IPR services, and cultural product export.

It is calculated as follows:

$$y_{it} = \frac{x_{it}}{\sum_{j \neq i} GDP_{jt}}$$

In the equation, is the final value of the indicator of Economy *i* during period *t*; is the original value of the indicator, and $\sum_{j \neq i} GDP_{jt}$ is the GDP summation of all the other economies in the world.

- Inflow measured by value

Such an indicator system includes six indicators, namely, import of goods, import of services, foreign direct investment, foreign portfolio investment, import of IPR service, and cultural product import.

It is calculated as follows:

$$y_{it} = \frac{x_{it}}{GDP_{it}}$$

In the equation, y_{it} is the final value of the indicator of Economy *i* during period *t*; x_{it} is the original value of the indicator.

- Outflow measured by headcount

Such an indicator system includes three indicators, namely, outbound tourists, outbound students, and emigrants.

It is calculated as follows:

$$y_{it} = \frac{x_{it}}{\sum_{j \neq i} POP_{jt}}$$

In the equation, y_{it} is the final value of the indicator of Economy *i* during period *t*; x_{it} is the original value of the indicator; and $\sum_{j \neq i} POP_{jt}$ is the summation of the population of all the other economies in the world.

- Inflow measured by headcount

Such an indicator system includes three indicators, namely, inbound tourists, inbound students, and immigrants.

It is calculated as follows:

$$y_{it} = \frac{x_{it}}{POP_{it}}$$

In the equation, y_{it} is the final value of the indicator of Economy *i* during period *t*; x_{it} is the original value of the indicator; and *POP* refers to population.

- Patent application

It includes two indicators: residents applying for patents abroad (*patex*) and non-residents applying for patents within the reporting economy (*patim*).

patex is calculated as follows:

$$patex_{it} = \frac{abroad_{it}}{\sum_{j\neq i}(resi_{jt} + nonr_{jt})}$$

In the equation, $abroad_{it}$ refers to the number of patent applications of Economy *i* filed in other economies in period *t*; $\sum_{j\neq i}(resi_{jt} + nonr_{jt})$ refers to the total number of patent applications approved by countries other than Economy *i* (*resi* refers to residents and nonr refers to non-residents).

patim is calculated as follows:

$$patim_{it} = \frac{nonr_{it}}{resi_{it} + nonr_{it}}$$

In the equation, $nonr_{it}$ is the number of patent applications by non-residents (those from abroad) in Economy *i*; $resi_{it} + nonr_{it}$ is the total number of patent applications in Economy *i*.

- Cross-border citations of science papers

It is calculated as follows:

$$paper_{it} = \frac{Citations_{it} - Selfcitations_{it}}{\sum_{j\neq i} Documents_{jt}}$$

In the equation, $Citations_{it}$ refers to the total citations of science papers of Economy *i* in period *t*; $Selfcitations_{it}$ refers to self-citations; and $\sum_{j\neq i} Documents_{jt}$ is the total number of science papers of all the other economies except Economy *i*.

- External openness based on international trade and investment agreements

There are two indicators, and it is calculated as follows:

$$T_{it} = \sum_{p} T_{ipt} \frac{GDP_{pt}}{\sum_{j \neq i} GDP_{jt}}$$

In the equation, T_{it} is the openness of Economy *i* in period *t*, based on trade or investment agreements; GDP_{pt} is the GDP of the contracting partner; $\sum_{j \neq i} GDP_{jt}$ is the total GDP of all the other economies except Economy *i*; T_{ipt} is a dummy variable; it takes 1 when the agreement is effective for Economy *i* and *p* in period *t*; otherwise it takes 0.

- Internal openness of concerned international trade and investment agreements

There are two indicators, which are calculated as follows:

$$T_{it} = \frac{GDP_{it}}{\sum_{p} T_{ipt} * GDP_{pt}}$$

In the equation, T_{it} is the openness of Economy *i* in period *t*, based on trade or investment agreements; GDP_{it} is GDP of Economy *i*; GDP_{pt} is the GDP of the contracting partner; T_{ipt} is a dummy variable; it takes 1 when the agreement is effective for Economy *i* and *p* in period *t*; otherwise it takes 0.

- Non-tariff measures

It is calculated as follows:

$$X_{it} = ntb_{it} * hs_{it}$$

In the equation, X_{it} refers to non-tariff barriers imposed by Economy *i* in period *t*; ntb_{it} refers to the number of non-tariff measures; hs_{it} refers to the quantity of concerned products.

- Indicators not requiring additional treatment

They include three indicators, namely, weighted tariff rate, financial openness index, and passport convenience index.

(3) Centralized treatment of indicators

To achieve consistency in standard indicator dimensions, indicators have been processed as follows:

$$y_{it} = \frac{x_{it} - \min(x)}{\max(x) - \min(x)}$$

In the equation, is the indicator of Economy *i* in period *t* after the centralization process; is the pre-centralization indicator; *max(x)* and *min(x)* are the maximum value and minimum value, respectively, of indicator x during the entire sample period.

For some inverse indicators, such as weighted tariff rate and non-tariff measures, the larger the value is, the lower the level of openness; it is calculated as follows:

$$y_{it} = 1 - \frac{x_{it} - \min(x)}{\max(x) - \min(x)}$$

This calculation method projects all indicators on [0, 1].

IV. Groupings of Economies Gauged by World Openness Index (Sorted by Alphabet)

	Economy	Grouping by region							Grouping by income				Others							
		North America	East Asia & Pacific	Latin America & Caribbean	South Asia	Europe & Central Asia	Sub-Saharan Africa	Middle East & North Africa	High income	Upper Middle Income	Lower Middle Income	Low income	WTO members	Belt and Road economiesa	Advanced economies	EU	EA	G20	G7	BRICS
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Albania					√				√			√	√						
2	Algeria							√		√				√						
3	Antigua and Barbuda			√					√				√	√						
4	Argentina			√						√			√	√				√		
5	Armenia					√				√			√	√						
6	Australia		√						√				√		√			√		
7	Austria					√			√				√	√	√	√	√			
8	Azerbaijan					√				√				√						
9	Bahrain							√	√				√	√						
10	Bangladesh				√						√		√	√						
11	Barbados			√					√				√	√						
12	Belarus					√				√				√						
13	Belgium					√			√				√		√	√	√			
14	Belize			√						√			√							
15	Bolivia			√							√		√	√						
16	Bosnia and Herzegovina					√				√				√						
17	Botswana						√			√			√	√						
18	Brazil			√						√			√					√		√
19	Bulgaria					√				√			√	√		√				
20	Burundi						√					√	√	√						
21	Cabo Verde						√				√		√	√						
22	Cambodia		√								√		√	√						
23	Canada	√							√				√		√			√	√	
24	Central African Rep.						√					√	√	√						
25	Chile			√					√				√	√						
26	China		√							√			√	√				√		√
27	Colombia			√						√			√							
28	Congo, Rep. of						√				√		√	√						
29	Costa Rica			√						√			√	√						
30	Côte d'Ivoire						√				√		√	√						
31	Croatia					√			√				√	√		√				
32	Cyprus					√			√				√	√	√	√	√			
33	Czech					√			√				√	√	√	√				
34	Denmark					√			√				√		√	√				
35	Dominican Rep.			√						√			√	√						
36	Ecuador			√						√			√	√						
37	Egypt							√			√		√	√						
38	El Salvador			√							√		√	√						
39	Estonia					√			√				√	√	√	√	√			
40	Ethiopia						√					√		√						

	Economy	Grouping by region							Grouping by income				Others							
		North America	East Asia & Pacific	Latin America & Caribbean	South Asia	Europe & Central Asia	Sub-Saharan Africa	Middle East & North Africa	High income	Upper Middle Income	Lower Middle Income	Low income	WTO members	Belt and Road economiesa	Advanced economies	EU	EA	G20	G7	BRICS
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
41	Fiji		√							√			√	√						
42	Finland					√			√				√		√	√	√			
43	France					√			√				√		√	√	√	√	√	
44	Gabon						√			√			√	√						
45	Gambia						√					√	√	√						
46	Georgia					√				√			√	√						
47	Germany					√			√				√		√	√	√	√	√	
48	Ghana						√				√		√	√						
49	Greece					√			√				√	√	√	√	√			
50	Guatemala			√						√			√							
51	Guyana			√						√			√	√						
52	Honduras			√							√		√							
53	Hong Kong, China		√						√				√		√					
54	Hungary					√			√				√	√		√				
55	Iceland					√			√				√		√					
56	India				√						√		√					√		√
57	Indonesia		√								√		√	√				√		
58	Ireland					√			√				√		√	√	√			
59	Israel							√	√				√		√					
60	Italy					√			√				√	√	√	√	√	√	√	
61	Jamaica			√						√			√	√						
62	Japan		√						√				√		√			√	√	
63	Jordan							√		√			√							
64	Kazakhstan					√				√			√	√						
65	Kenya						√				√		√	√						
66	Korea, Rep. of		√						√				√	√	√			√		
67	Kuwait							√	√				√	√						
68	Kyrgyz					√					√		√	√						
69	Laos		√								√		√	√						
70	Latvia					√			√				√	√	√	√	√			
71	Lebanon							√		√				√						
72	Lesotho						√				√		√	√						
73	Lithuania					√			√				√	√	√	√	√			
74	Luxembourg					√			√				√	√	√	√	√			
75	Macao, China		√						√				√		√					
76	Madagascar						√					√	√	√						
77	Malawi						√					√	√							
78	Malaysia		√							√			√	√						
79	Mali						√					√	√	√						
80	Malta							√	√				√	√	√	√	√			
81	Mauritius						√			√			√							
82	Mexico			√						√			√					√		
83	Moldova					√					√		√	√						
84	Mongolia		√								√		√	√						
85	Morocco							√			√		√	√						
86	Mozambique						√					√	√	√						
87	Namibia						√			√			√	√						
88	Nepal				√							√	√	√						
89	Netherlands					√			√				√		√	√	√			
90	New Zealand		√						√				√	√	√					
91	Nicaragua			√							√		√	√						
92	Nigeria						√				√		√	√						
93	North Macedonia					√				√			√	√						
94	Norway					√			√				√		√					
95	Oman							√	√				√	√						
96	Pakistan				√						√		√	√						
97	Panama			√					√				√	√						
98	Papua New Guinea		√								√		√	√						

	Economy	Grouping by region							Grouping by income				Others							
		North America	East Asia & Pacific	Latin America & Caribbean	South Asia	Europe & Central Asia	Sub-Saharan Africa	Middle East & North Africa	High income	Upper Middle Income	Lower Middle Income	Low income	WTO members	Belt and Road economiesa	Advanced economies	EU	EA	G20	G7	BRICS
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
99	Paraguay			√						√			√							
100	Peru			√						√			√	√						
101	Philippines		√								√		√	√						
102	Poland					√			√				√	√		√				
103	Portugal					√			√				√	√	√	√	√			
104	Romania					√				√			√	√		√				
105	Russia					√				√			√	√				√		√
106	Samoa		√							√			√	√						
107	Saudi Arabia							√	√				√	√				√		
108	Singapore		√						√				√	√	√					
109	Slovak					√			√				√	√	√	√	√			
110	Slovenia					√			√				√	√	√	√	√			
111	South Africa						√			√			√	√				√		√
112	Spain					√			√				√		√	√	√			
113	Sri Lanka				√					√			√	√						
114	Sudan						√				√			√						
115	Sweden					√			√				√		√	√				
116	Switzerland					√			√				√		√					
117	Tanzania						√					√	√	√						
118	Thailand		√							√			√	√						
119	Trinidad and Tobago			√					√				√	√						
120	Tunisia							√			√		√	√						
121	Turkiye					√				√			√	√				√		
122	Uganda						√					√	√	√						
123	Ukraine					√					√		√	√						
124	United Kingdom					√			√				√		√			√	√	
125	US	√							√				√		√			√	√	
126	Uruguay			√					√				√	√						
127	Vietnam		√								√		√	√						
128	Zambia						√				√		√	√						
129	Zimbabwe						√				√		√	√						
	Subtotal	2	19	23	5	43	25	12	49	39	30	11	122	98	36	27	19	19	7	5
	Global Total[2]	3	37	42	8	58	48	21	80	54	54	28	164	149	40	27	19	19	7	5

Source: (i) The groupings by region or by income from the World Bank, see https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups; (ii) The list of WTO members from the World Trade Organization, see https://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm; (iii) The list of economies along the "Belt and Road" from the official website of China's Belt and Road network, see https://www.yidaiyilu.gov.cn/country; (iv) The members of the advanced economies. EU, European Area (EA), or Group of Seven (G7) from the IMF, see https://www.imf.org/en/Publications/WEO/weo-database/2023/April/select-country-group; (v) The list of Group of Twenty (G20) from the G20 Summit, see https://g20.org/about-the-g20/#about.

Note: 1. The list of the economies along the "Belt and Road" is as of August 18, 2023; 2. The number of global economies is 217 in the *World Development Indicators* of the World Bank, 196 in the *World Economic Outlook* of the IMF, and 217 in UNCTAD dataset *Output and Income* (see https://unctadstat.unctad.org), respectively. Compared with part IV of Appendix of the *World Openness Report 2022*, the total number of high-income economies has increased from 80 to 82 in 2023, while the number of low-income economies has decreased from 28 to 26. The number of lower-middle-income and upper-middle-income economies is still 54, respectively. The World Openness Index in this report does not follow the above changes so as to keep the time series of indexes as stable as possible. Please refer to the data source (i) for relevant grouping details. The total number of developed economies has increased from 40 to 41 (including Croatia), and the relevant grouping details can be found in the data source (iii).

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World Openness Report 2023

The *World Openness Report* is the flagship publication of the Hongqiao International Economic Forum, which is released in the China International Import Expo (CIIE). This report releases an openness index of 129 economies since 2008, focusing on the trend of world opening-up, exploring the laws of cross-border opening-up, analyzing hot topics of world opening-up, summarizing the best opening-up practices, fostering consensus on world opening-up, promoting common opening-up among economies to build an open world economy as well as a community with a shared future for mankind.

The *World Openness Report 2023* takes "building an open world economy" as the mission with focuses on the state's capacity to open up and the fields and policies of opening-up. The Report also provides a grand narrative of world openness by analyzing the relationships between national opening-up and security, the BRI and UN 2030 Agenda, the CIIE and opening-up of developing economies, as well as high-level opening-up and Chinese modernization.

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