

II. Openness Analysis

1. Global openness and that of major economies

1.1 Mega-trend of global openness

From 2008 to 2019, the World Openness Index had been fluctuating between 0.74 and 0.78, showing an overall trend of volatility and decline, dropping by 3.98% to 0.748 from 0.779. In 2008, the index was the highest hit the lowest level in 2018. In 2013, 2014 and 2019, it rose slightly from the previous year.

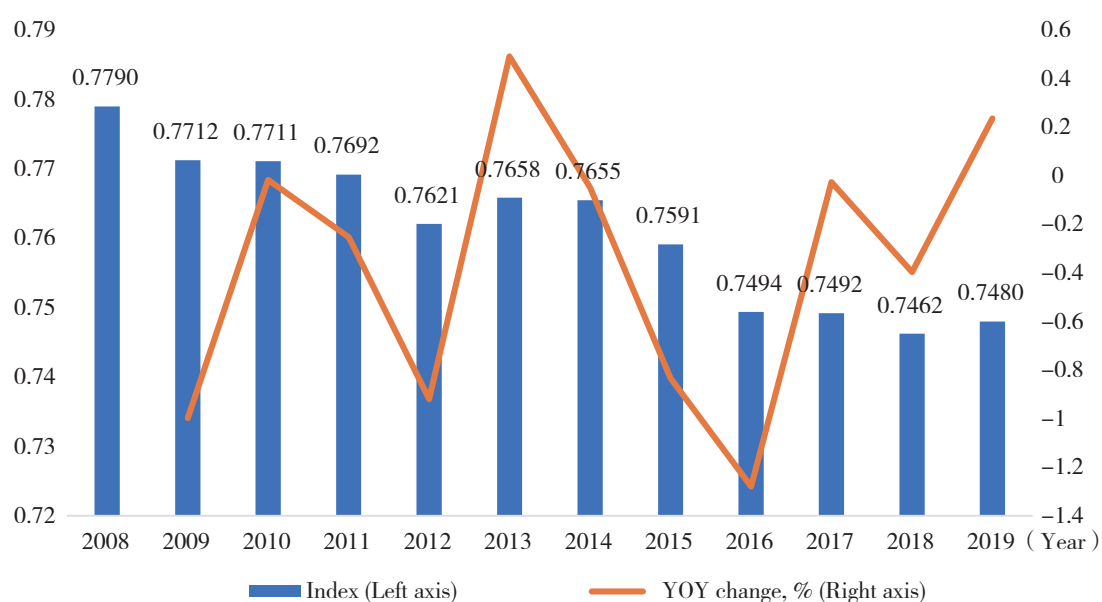


Figure 3-1 World Openness Index, 2008-2019

Note: The World Openness Index is the weighted average of the openness index readings of 129 economies based on their 2010 constant price GDP share.

1.2 Most open and least open economies in the world

The 10 most open economies are all developed economies. In 2019, the top ten economies in terms of openness index are Singapore, Germany, Hong Kong, SAR, Ireland, the United Kingdom, Switzerland, the Netherlands, France, Canada, and Malta. With the exception of Ireland, which replaced the United States, the remaining nine economies were also among the top ten most open economies in 2008. The weighted openness index of the ten most open economies was 0.8217 in 2019, down by 5.97% compared with that in 2008, which shows a weakening trend of their openness during this period.

Table 3-2 The 20 Most Open Economies, 2008 and 2019

Rank	Economy	Openness index, 2019	Economy	Openness index, 2008
1	Singapore	0.8646	United States	0.9328
2	Germany	0.8552	Singapore	0.8438
3	Hong Kong, SAR	0.8503	Germany	0.8243
4	Ireland	0.8371	Hong Kong, SAR	0.8221
5	United Kingdom	0.8171	United Kingdom	0.7998
6	Switzerland	0.8133	Malta	0.7921
7	Netherlands	0.7997	Canada	0.7874
8	France	0.7986	Netherlands	0.7856
9	Canada	0.7953	France	0.7848
10	Malta	0.7838	Switzerland	0.7814
11	Italy	0.7814	Ireland	0.7802
12	Belgium	0.7777	Japan	0.7782
13	Israel	0.7772	Norway	0.7666
14	Korea	0.7718	New Zealand	0.7656
15	Cyprus	0.7696	Italy	0.7618
16	Australia	0.7681	Belgium	0.7618
17	Sweden	0.7674	Israel	0.7575
18	Spain	0.7669	Chile	0.7535
19	Czech Rep.	0.7668	Cyprus	0.7481
20	Luxembourg	0.7667	Spain	0.7466

However, between the 11th and 20th in the above list, the significant change is that Japan fell from the 12th place in 2008 to outside the top 20, while Korea and Australia ranked 14th and 16th in 2019 from outside the 20th place in 2008. And Sweden, the Czech Republic and Luxembourg replaced Norway, New Zealand and Chile.

1.3 Overview of changes in global openness

About 80% of economies have expanded their openness, with China being a typical one; among nearly 20% of economies that have seen their openness reduced, and the United States is a typical one. The changes in open index of 129 economies from 2008 to 2019 are shown below.

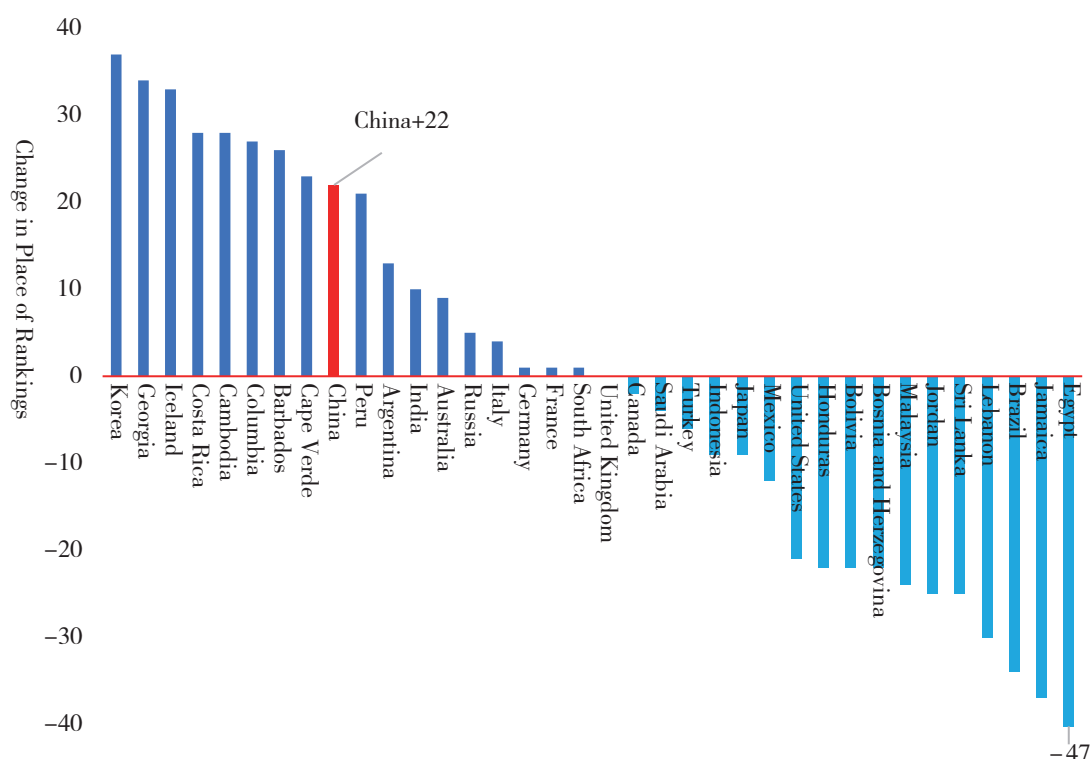


Figure 3-2 Openness Index, 2008-2019: the 10 Economies with Largest Change and G20 Members

From 2008 to 2019, 102 of the 129 economies, or 79.1%, saw their opening-up to the outside world expand. Among them, the economy with the largest expansion of opening-up is Nepal, with an openness index of 84.7%. China's openness index expanded by 9.6%, ranking 9th in the list of economies that had expanded their openness. And that of Korea expanded by 11.4% (5th). China and Korea are among the top ten economies that expanded their opening-up to the outside world and they are the only two G20 members among the top ten economies with the fastest opening-up expansion.

21.5% of economies saw their opening-up to the outside world shrinking. Among the 28 economies that have reduced openness, the three countries with the largest decline in the openness index are the United States, Egypt, and Jamaica, with a drop of 17.8%, 9.5%, and 6.5% respectively. In addition to the United States, there are four G20 members among those 28 countries with shrinking opening-up, including Brazil (-6.3%), Japan (-1.5%), Turkey (-1.2%), and Indonesia (-0.2%).

From 2008 to 2019, 51.5% of economies have risen in their openness rankings,

45.4% have fallen in their rankings, and 3.1% have maintained their rankings (of course, there will be some fluctuations). Among the 129 measured economies, 67 saw their openness rankings rise, 58 fall, and 4 remain unchanged. The three countries that rose by most notches are Korea, Georgia, and Iceland, gaining 37, 34, and 33 places, respectively. The three countries with the largest declines in the ranking are Egypt, Jamaica and Brazil, dropping 47, 37 and 34 places, respectively. The openness ranking changes of the 129 economies from 2008 to 2019 are shown in the Figure 3-3 below.

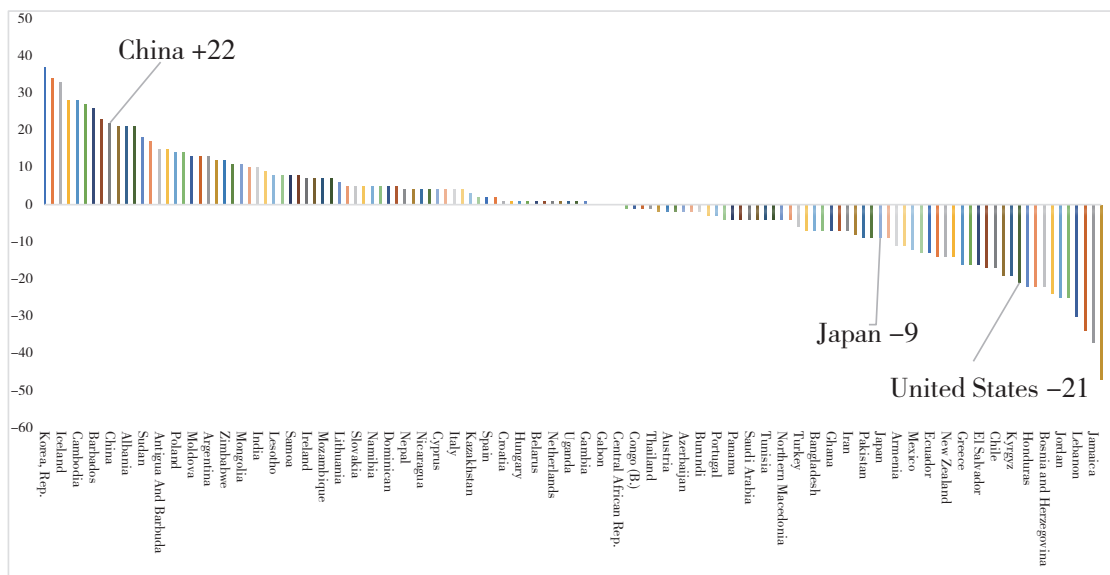


Figure 3-3 Changes in Openness Index from 2008 to 2019: 129 Economies

The uneven rise and fall of the openness index has led to the corresponding changes in rankings of those economies that are not necessarily in the same direction or by equal margins. From 2008 to 2019, among 102 economies that opened wider to the outside world, 67 saw their openness rankings rise, 4 remain unchanged, and 31 fall, accounting for 65.7%, 3.9%, and 30.4%, respectively. Nepal's openness increased by 84.7%, but its ranking only rose by 4 places. Among the nine economies whose openness index increased by 9% to 12%, the three economies that rose the most were South Korea (up by 37 places), Georgia (up 34 by places), and Iceland (up by 33 places); China rose by 22 places. Among the 31 economies whose openness increased but whose rankings fell, Slovenia and Greece had the biggest contrast (both saw their

openness rise by 0.8%, and their rankings fell by 17 and 16 notches, respectively); Bulgaria was in a similar situation (openness up by 0.4% and ranking down by 16 places). For the 28 economies whose openness declined, their rankings all fell, with Thailand falling by the smallest margin (one place) and Egypt falling the most (47 places).

1.4 Openness index of major countries

1.4.1 G20 members' openness

G20 includes 19 countries. "Members" as mentioned in this part, if not specified otherwise, refer to G20 members.

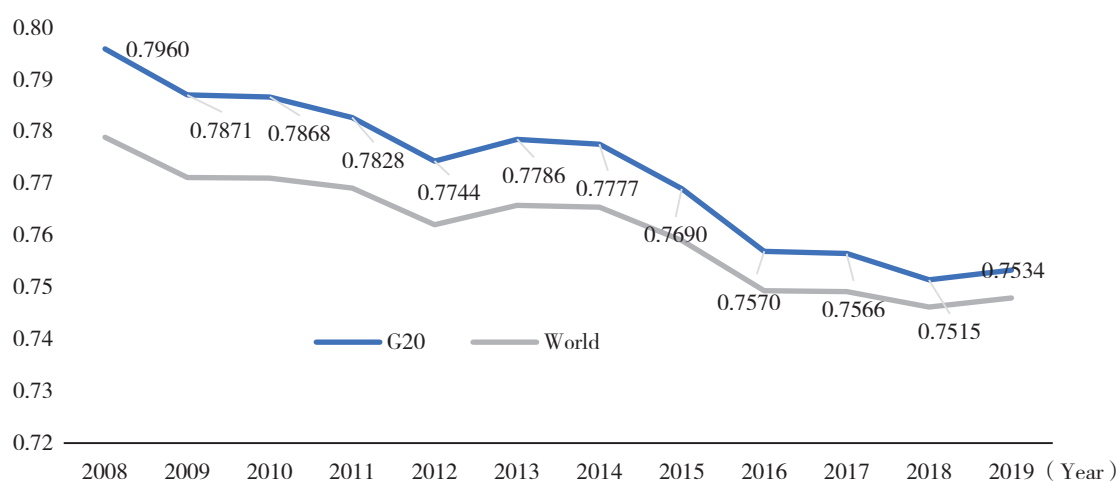


Figure 3-4 Openness Index, 2008-2019: G20 and the World

The openness of G20 exceeds the world's average level of openness. From 2008 to 2019, the openness index of G20 ranged between 0.753 (2019) and 0.796 (2008), which was 0.7% (2018) to 2.19% (2008) higher than the global openness index.

The G20's degree of openness had been on the decline year by year. From 2008 to 2019, its openness decreased by 5.4%. It registered the highest level of openness in 2008 (0.7960), and it was in 2018 when it registered the lowest level of openness (0.7515). The G20 openness trend is highly consistent with that of the world as a whole, and the correlation coefficient between the two is 0.9988.

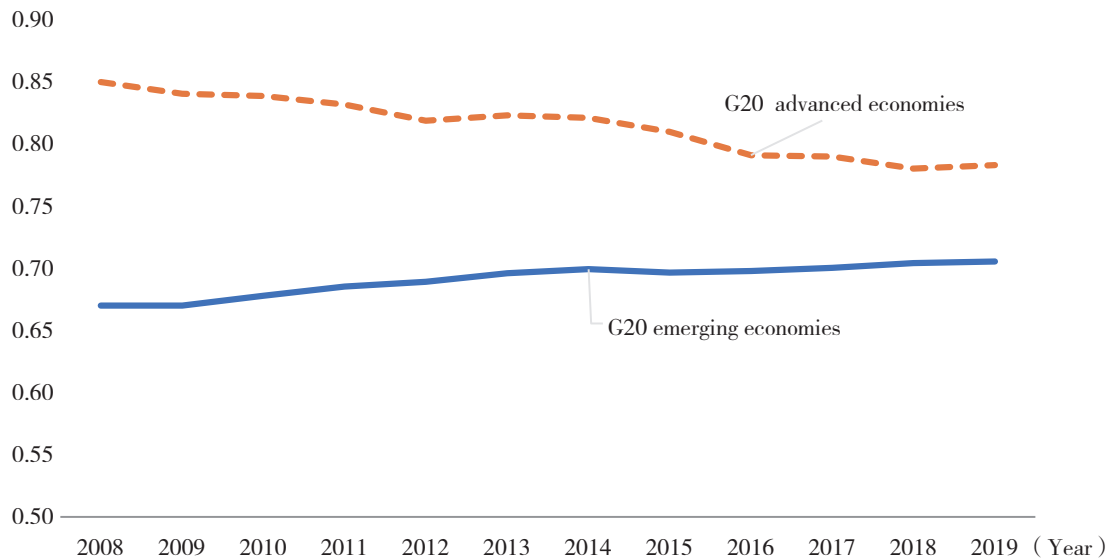


Figure 3-5 Openness Index, 2008-2019: Advanced Members and Emerging Members of G20

The developed members of the G20 were more open than the emerging economies in the group, but the gap between the two groups had continued to narrow. In 2019, the weighted average openness index of the eight developed members of the G20 was 0.7837, and that of the emerging economies in the group was 0.7058. During the sample period, the openness index of the developed members of G20 decreased by 7.87%, but that of emerging economies of G20 increased by 5.3%. As a result, the openness index gap between the two groups of G20 members had continued to narrow, down from 26.9% to 11%.

Developed-country members of the G20 still lead the world in terms of openness. Four developed-country member states, including Germany, the United Kingdom, France and Canada, are among the top ten most open economies in the world in 2019 (in comparison, there were as many as five developed-country members in the same list in 2008). The other four developed-country members — Italy, Australia, Japan, and the United States — rank 11th, 16th, 21st and 22nd, respectively. In comparison, the rankings of G20 emerging-economy members lag far behind, and, the ranking gap among them is much larger. South Korea, the most open emerging-economy^① G20 member with an openness index of 0.7718 in 2019, ranked 14th, only higher than the developed-country members Australia, Japan and the United States. Brazil, the least open emerging-

① Korea is now a developed economy.

economy G20 member, ranked 99th.

14 G20 members, such as China, saw their openness expand, while 5 G20 members, such as the United States and Japan, saw their openness decline. During the sample period, Korea's openness index increased the most, reaching 11.4%, followed by China, whose index increased by 9.6%. However, that of the United States fell by 17.8%, Japan by 1.5%, and Brazil by 6.3%. The trend of openness of the world's two largest countries has been at both ends of polarization, which is both eye-catching and thought-provoking.

1.4.2 US' opening-up to the outside world

As the world's largest economy, the level of openness of the United States and its trend have a huge impact on the world.

The United States was once the most open economy in the world. On this openness list, the economic openness index exceeded 0.9 only three times, reaching 0.9328, 0.9145 and 0.9084 from 2008 to 2010, all happening in the United States. Among them, the reading in 2008 was the highest ever on this list, which was also the most open years in the 12-year sample period of the United States.

Since 2009, the level of openness of the United States has gradually declined, and in recent years, the declining trend has accelerated. During this sample period, the United States' openness index fell year-on-year for nine years, and only rebounded rather mildly in 2013 and 2019. Its openness index registered the steepest declines in the year 2016 (down by 4.6%), 2018 (down by 3.2%), and 2012 (down by 2.8%). The year 2016 witnessed a major change in the US government, with the new government sworn

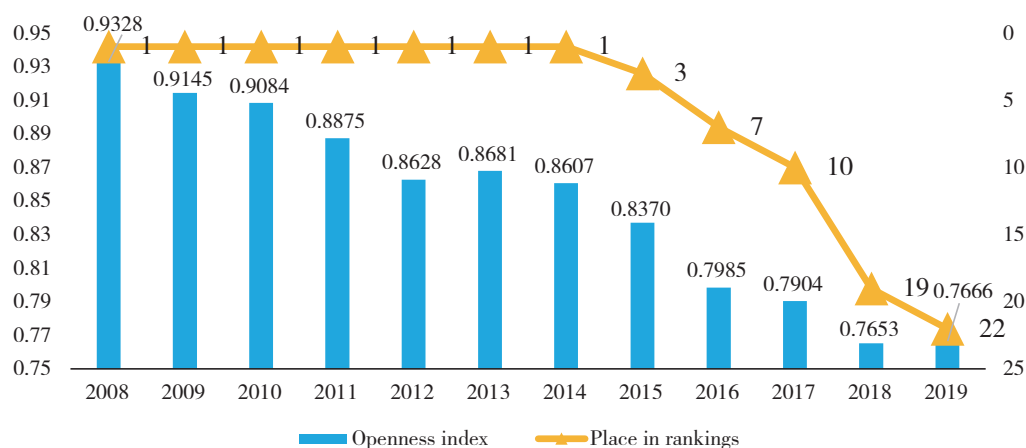


Figure 3-6 Openness Index and Its Changes, 2008- 2019: United States

in; right after it took over, the new government started to implement the conservative policy line centered on *America First*, and various measures have been taken to restrain openness in the economic, social and cultural fields. In 2018, the United States launched a large-scale trade war with China, accelerated the building of the US-Mexico border wall, and intensified restrictions on immigration.

The absolute decline in the level of openness of the United States has directly led to a significant decline in its rankings on the openness lists. From 2008 to 2014, the United States was at the top of the list, but in 2015, it had been relegated to the third place; from 2016 to 2019, its ranking further went down to 7th, 10th, 19th, and 22nd place.

The accelerated decline in the openness of the United States has seriously dragged down the trend of global opening-up. From 2008 to 2019, the US' rate of contribution to the World Openness Index dropped from 28.9% to 22.9%.

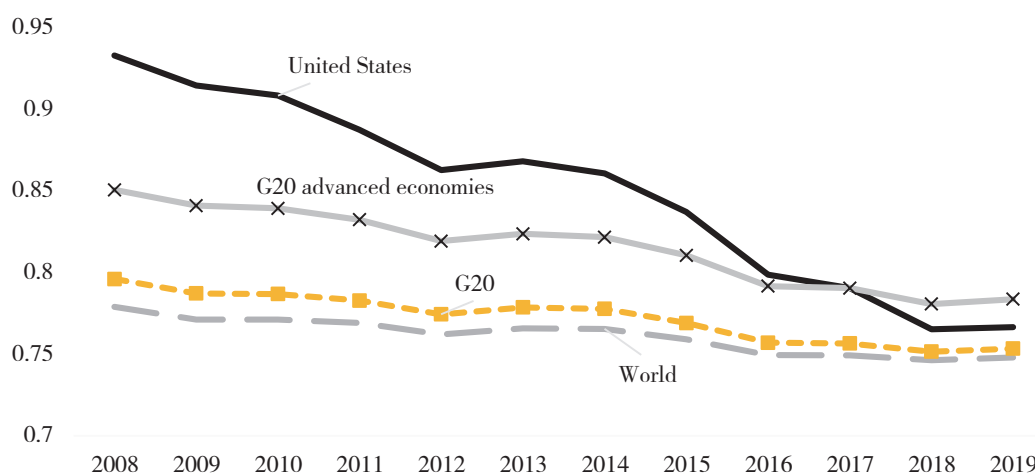


Figure 3-7 Openness Index, 2008-2019: United States, G20 and Its Advanced Members and Emerging Members, and the World

1.4.3 China's opening-up to the outside world

China continues to expand its opening-up to the outside world. Since 2008, especially since the 18th National Congress of the Communist Party of China, the country has adhered to multilateralism and actively participated in global affairs in various fields. In 2008, its openness index was 0.6768, and then it climbed year by year, reaching 0.7420 in 2019, a cumulative increase of 9.6%. The increase is second only to Korea among the G20 member economies, and it ranks the 9th among the 129 measured economies in the world.

The continued expansion of openness has raised China's ranking on the global openness list. China ranked the 62nd in 2008, and it has risen year by year, climbing to the 40th in 2019, up 22 places from 2008.

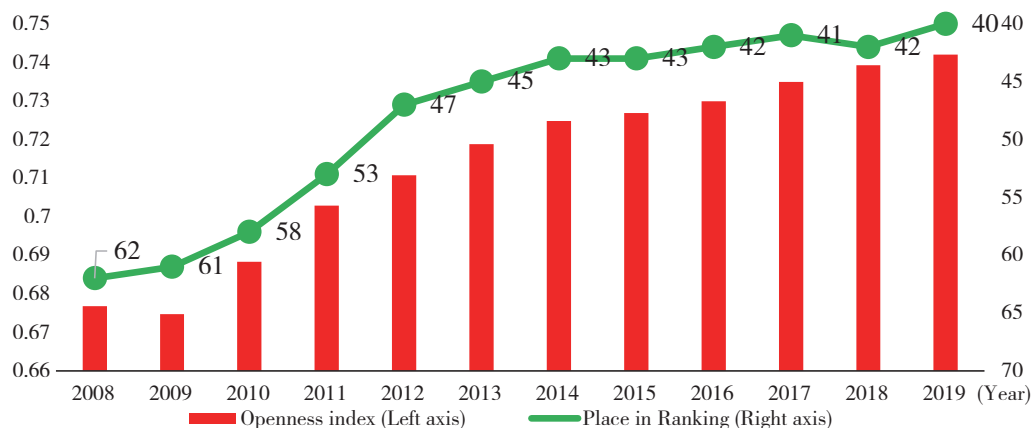


Figure 3-8 Openness Index and Its Change, 2008-2019: China

China has become a positive force in the world's overall opening-up drive, which has effectively eased the momentum of shrinking global openness. As shown in the Figure 3-9 below, during the sample period, the openness of the world as a whole, the G20 as a whole, or the developed G20 members had tended to shrink, but China has *swum against the stream* to continue to raise its level of openness.

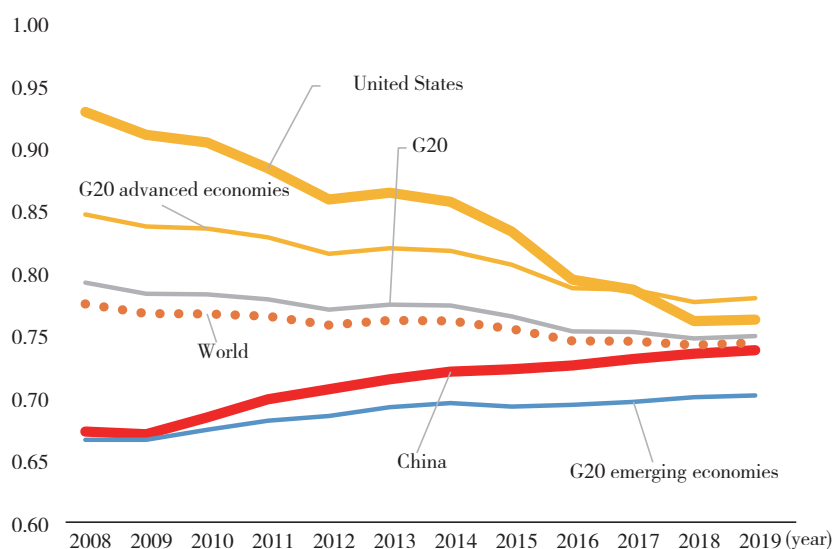


Figure 3-9 Openness Index, 2008-2019: China, United States, G20 and Its Advanced Economies and Emerging Economies, and the World

From 2008 to 2019, China's share in the world economy rose from the third place to the second, which has been unchanged till this day. It has helped increased its influence on the overall openness of the world. China is becoming a positive force contributing to the expansion of the world's openness and plays a positive role in promoting harmony and integration of mankind.

2. Openness of different geographical areas

Based on the criteria of the World Bank, the 129 sample economies included in this report can be divided into 7 regions in accordance with their respective geographic location, namely, East Asia & Pacific (19 economies), Europe & Central Asia (43 economies), Latin America & Caribbean (23 economies), Middle East & North Africa (12 economies), North America (2 economies), South Asia (5 economies), and Sub-Saharan Africa (25 economies). The openness index of of a region is the weighted average of the openness indexes of all economies in that region based on their GDP share of 2010 constant price, as shown in the Figure 3-10.

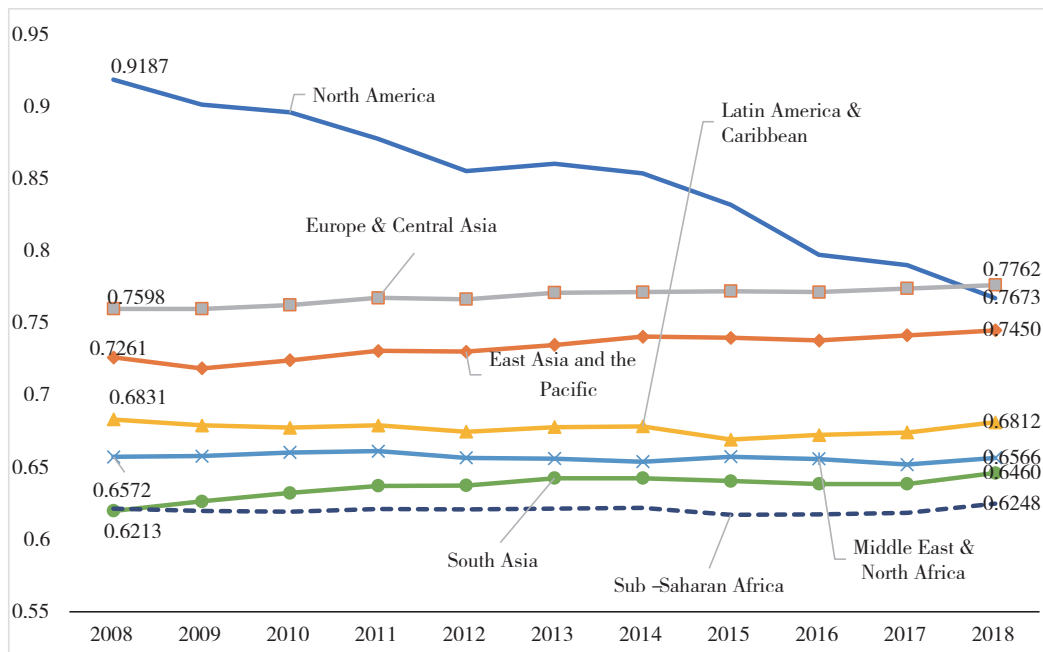


Figure 3-10 Openness Index, 2008-2019: East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, North America, South Asia, and Sub Saharan Africa

Among the seven regions, North America and Latin America & Caribbean saw their openness shrink. From 2008 to 2019, the openness index of North America, which includes Canada and the United States, fell by 16.3%. Canada's openness index increased by 1%, but that of the United States fell by 17.8%. As it accounts for 25% of the world economy, the United States has dragged down the regional and global pace of cross-border opening-up.

The openness of the other five regions had shown an expanding momentum. South Asia saw its openness expanded by 4%, the highest, while East Asia and the Pacific by 2.9%, Europe and Central Asia by 2.5%, and Sub-Saharan Africa by 0.4%, the lowest level of openness increase among the five regions. Among them, East Asia and Pacific and South Asia account for 35% of the global economy and 58% of the world's total population. Their openness improvement momentum, which leads the world, is naturally important to alleviate the decline in global openness.

3. Openness and economic development

Openness is closely related to economic development. From 2008 to 2019, the correlation coefficient between the GDP per capita of 129 measured economies and their openness index is 0.7392. The coefficient of the 129 economies for each year of the sample period is shown in the figure below. Except for the year 2008, when it was below, the coefficients for the other ten years of the sample period all fell between 0.73 and 0.77, and the standard deviation of the 11 correlation coefficients was only 0.028, indicating that this value sequence had been very stable.

The correlation between openness and economic development will be heterogeneous due to specific differences among different economies. The Figure 3-11 shows that openness and economic development of different economies show a common trend of development (see the openness index trendline in Figure 3-11), but there is also heterogeneity.

First, on the whole, the more developed the economy, the higher the openness index. Before a country's GDP per capita reached \$2,000 (the first vertical line in Figure 3-11), its openness index increased almost linearly with economic development. When its GDP per capita was between \$3,000-\$5,000 (between the first and second vertical lines in Figure 3-11), the upward rising momentum of its openness index would slow down and even start to decline.

When a country's GDP per capita was between \$5,000-\$45,000 (between the 3rd and 4th vertical lines in Figure 3-11), its openness index would rise steadily, before the upward trend slowed down. Therefore, the relationship between the two factors can be divided into the following four stages for observation: Stage I , GDP per capita reached \$2,000; Stage II , GDP per capita was at \$2,000-\$5,000; Stage III , GDP per capita stood at \$5,000-\$45,000; and Stage IV , GDP per capita was more than \$45,000.

From Stage I to Stage III, the relationship between openness and economic development had been getting ever closer: the more the economy develops, the higher the openness, and vice versa. At Stage IV, the closeness of relationship between the two factors had been greatly reduced. As shown in Figure 3-11, the correlation coefficient between a country's openness index and its GDP per capita was 0.4367 at Stage I . It rose to 0.4818 at Stage II , reached the highest point of 0.763 at Stage III , before declining significantly to 0.2139 at Stage IV .

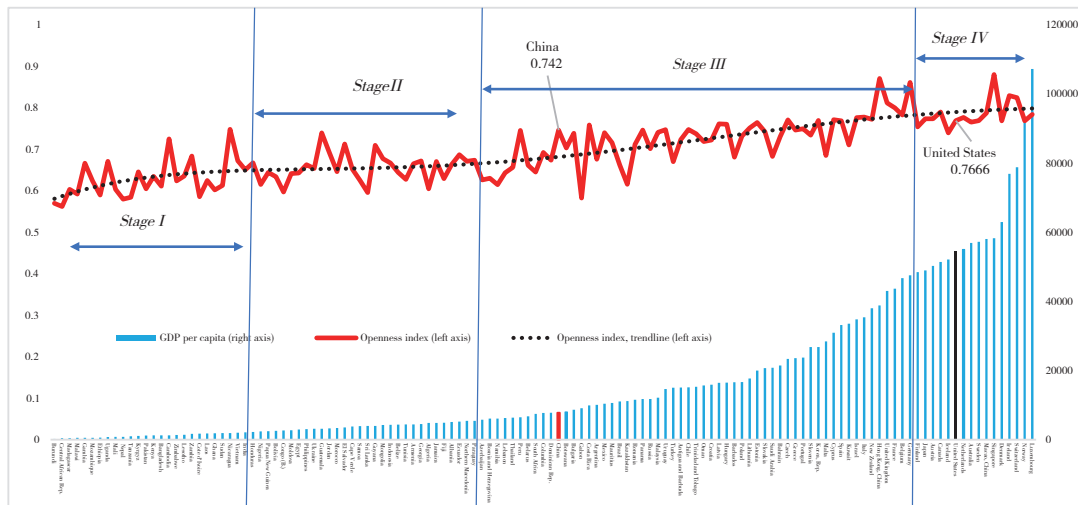


Figure 3-11 Openness and Economic Development, 2019: 129 Economies

Note: GDP per capita is measured by 2010 constant US\$.

Second, the stability of the relationship between openness and development varies at different stages of development. Regardless of theory or practical experience, the level of openness is only one of the many factors that influence development. Figure 3-12 above shows that the openness of most economies fluctuates around the trendline of the openness index and GDP per capita. If the trendline shows the theoretical relationship or long-term trend between the two factors, then these fluctuations show the diversity

of the relationship between the two factors in reality. The coefficient of variation, that is, the standard deviation of a sequence divided by its mean, can measure the degree of fluctuation of the sequence around the mean. As shown in Figure 3-11, from Stage I to Stage IV, the coefficient of variation of the openness index is 0.0732, 0.0584, 0.0842 and 0.0432. It indicates that the volatility of openness worsens when a country's economic development is at Stage I, about 20% at Stage II lower than that at Stage I, but 44% higher at Stage III than that at Stage II, and then decreased by 49% at Stage IV than that at Stage III.

The relationship between openness and development can also be examined by dividing the 129 measured economies into four income groups. The statistical criterion for income grouping comes from the World Bank and it includes the following four groups: high-income group, middle-high-income group, middle-low-income group, and low-income group. The relationship among these four groups during the 2008-2019 period is shown in the figure above. The conclusions shown in Figure 3-12 are consistent with those obtained from the above analysis based on 129 economies.

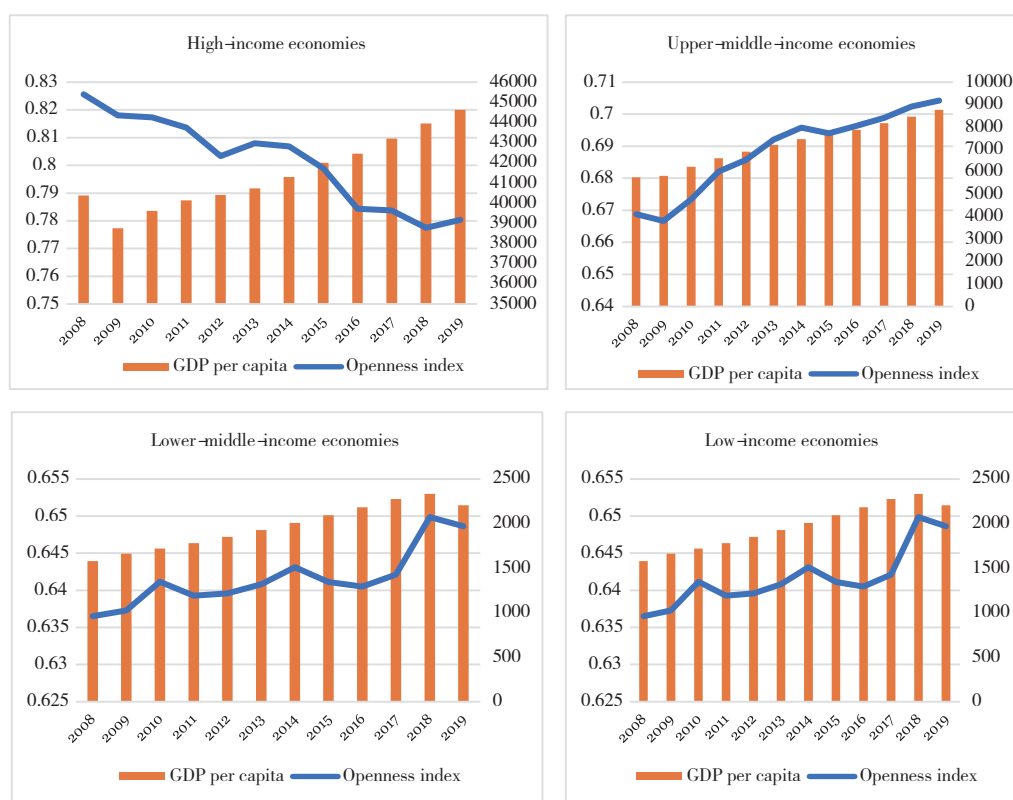


Figure 3-12 Openness and GDP Per Capita, by Income Groups, 2008-2018

Note: GDP per capita is measured by 2010 constant US\$.

In summary, the higher the level of economic development, the higher the level of openness, and the closer the relationship between the two factors. When the a country's GDP per capita is less than \$2,000 or between \$5,000 and \$45,000, the openness will be expanded at a faster pace, and fluctuation will worsen; when the GDP per capita falls between \$2,000 and \$5,000 or more than \$45,000, the level of openness will move steadily to a higher level. At present, the development of most economies is far from reaching Stage IV, and the level of openness fluctuates dramatically.

4. Openness and scale of economy

The openness of an economy has a low correlation with its size. As shown in the figure below, the correlation coefficient between GDP (current price, 100 million US dollars) and the openness index of 129 measured economies was 0.2359 in 2018 and 0.2561 from 2008 to 2019, which is much lower than the corresponding correlation coefficient of openness index and GDP per capita, which stood at 0.7408 and 0.7391, respectively.

Figure 3-13 below shows that in 2019, as a whole, the openness index seemed to have risen with the expansion of the size of the economy. However, among all groups of economies, whether their scale is small, medium, and large, the openness index of some economies was low, and their openness had not expanded linearly as their economic scale increased. The openness indexes of almost all the economies had fluctuated dramatically around the openness index-economic scale trendline, which obviously reflects the quite complicated relationship between economic growth and openness. That is, the economic growth of some economies is accompanied by a higher level of openness than other economies of similar size, while there are also some economies for which the relationship between economic growth and openness is just the opposite or unclear. For specific individual economies, their level of openness may vary when they have the same economic scale.

The 129 economies are divided into the following three groups: the trillion group, including 16 economies with a GDP exceeding \$1 trillion in 2019; the 100-billions group, including 41 economies with a GDP between \$100 billion and \$1 trillion; and the 10-billions group, including 72 economies with a GDP of less than \$100 billion (including 13 economies with a GDP of less than \$10 billion). Then the three groups of economies are arranged in descending order based on GDP scale, and the numerical

openness index is shown in Figure 3-13.

Economies with a GDP of more than \$1 trillion (current prices) have a high and stable level of openness. In 2019, the openness index of the \$10-billions group economies (using the current price GDP share as the weight) was 0.6795, while that of the \$100-billions group economies was 0.7287, and that of the trillions group economies was 0.7621. Obviously, the larger the economy, the more open it becomes. The coefficients of variation of openness index of corresponding groups was 0.087, 0.181 and 0.076, respectively, with fluctuation of the openness index of the \$100-billions group being much more dramatic than that of the other two groups.

Specifically, the relationship between openness and economic scale is relatively stable in both large economies (GDP reaching \$1 trillion) and small economies (GDP less than \$10 billions), and it is more stable in large economies than in small economies. The next two figures show that the openness indexes of these two categories of economies have less dramatic fluctuations around the trendline. However, the level of openness also varies. Some large economies have a high level of openness, but there are also some large economies whose openness is low, although, on the whole, their level of openness increases slightly as their sizes grow. In small economies, the level of openness, on the contrary, decreases significantly as their scales increase. This once again points to the complexity of economic growth, and openness is only one of the factors influencing its performance.

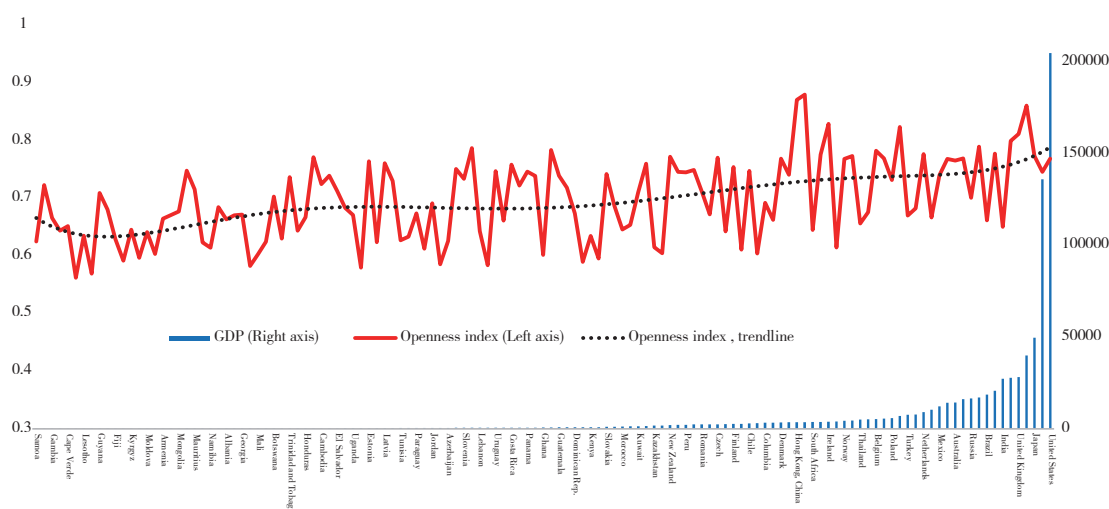


Figure 3-13 Openness and Economic Size, 2019: 129 Economies

Note: The size of national economy is measured by current price GDP (unit: 100mn USD).

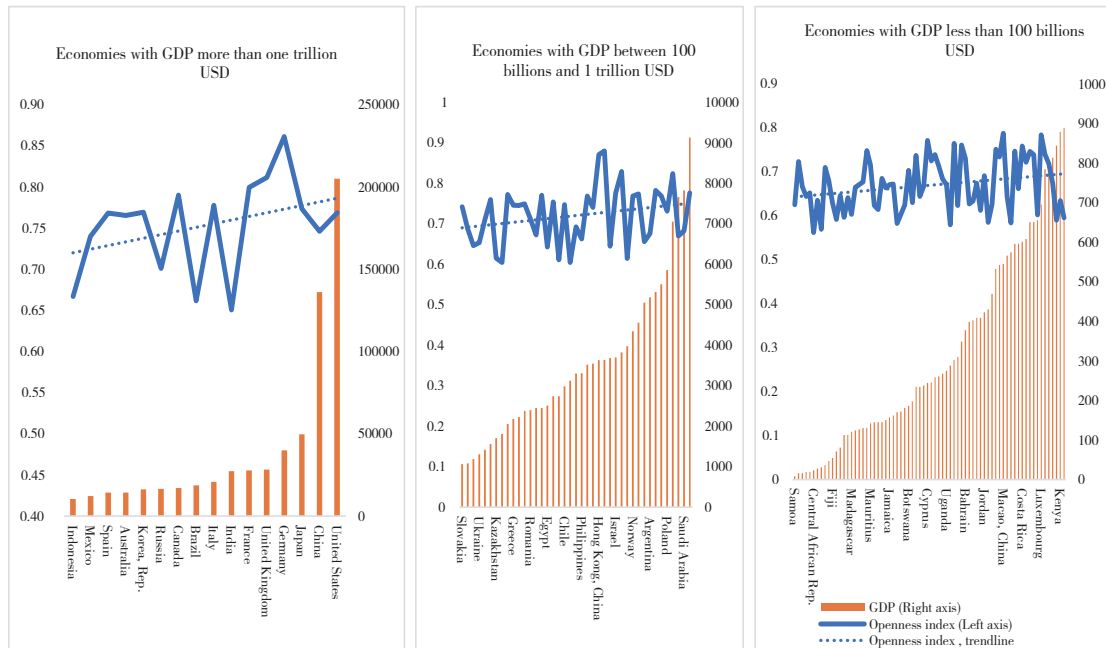


Figure 3-14 Openness and Economic Size, 2019, by Three Categories

Note: The size of national economy is measured by current price GDP (unit: 100mn USD).

III. Optimal Level of Openness

What is the best or optimal level of openness? From the distribution of the openness indexes of measured economies in this report, the openness of a country is highly correlated with its level of economic development, but it does not show a completely linear incremental relationship. Given the complexity of the openness-development relationship, it is not easy to find the optimal level of openness. Both relevant theories and practices show that **the optimal openness should be the appropriate openness, and the appropriate openness is reflected in balanced openness.**

The appropriateness of openness should be examined from static and dynamic perspectives as well as passive and active perspectives. First, in a static system where all variables are in the same period, openness interacts with multiple influencing factors or variables, and, from a mathematical point of view, it must be convergent. If it diverges, it will inevitably lead to disorder and chaos. The converging point as a result of the interaction of many variables is the static equilibrium point of openness. Second,