Chapter I
World Openness Index: Concept and Theories

Modern civilization has continually grown amid opening-up and exchange of ideas among different countries. A country decides its own level and path of openness based on its own national conditions and stage of development. From a historical perspective, opening-up is the only way to achieve national prosperity and development, a key to solving development problems of the times, and the source of forces driving the progress of human civilization. Over the past few decades, the entire world has become increasingly integrated, and open-up and development have become a basic consensus. Description of the degree of integration of the world economy, analyzing its trends, analysis of its causes and trends, and exploration of its impact are important issues to which scholars, politicians and the public have paid much attention.

I. Concepts of Openness

In the existing literature, the basic meaning of opening-up to the outside world is clear and consistent, that is, the specific entitiess of at least two economies carry out exchanges at the economic, social and cultural levels to form the flow of goods, services, personnel, capital, information, knowledge and technology, so as to promote their respective development. However, when it comes to the denotation of the concept of opening-up to the outside world, there have been multiple definitions in various documents.

The subjects of opening-up to the outside world can be divided into three levels. One is the subject at the macro level, which refers to a specific economy (that is, a

country or territory) or region (including at least 2 economies) based on geographic scope, territorial or sovereign connotations, such as opening-up between economy A and economy B, between East Asia and South Asia, and between Asia and Europe, for example. Second, it refers to the subject at the meso -level, which mainly refers to the institutional sectors that make up the national economy, such as government departments (including non-profit institutions serving households), non-financial corporates, financial sub-sectors, and households; China's financial sector opening-up as an example is at this level. Sometimes it also refers to industrial sector (general or detailed classification) or administrative level (such as province, city, county, and so on), such as the opening-up of China's service industry or the opening-up of Beijing. Third, it refers to subject at the micro level, mainly corporates and individuals, such as China's Huawei investing in Europe, and foreign citizens studying or traveling in China. Accordingly, each type of subject has its own way to open up to the outside world. They are not independent of each other; there are top-down cross-nesting and bottom-up intersection and summation relationships among those three levels. The subject of opening to the outside world mentioned in this report mainly refers to the macro-level economy, that is, the specific national economy. This means that the openness index takes the entire economy as the basic unit of observation. The subjects at the meso level and micro level have not been included in the current focus of this report.

The objects of opening-up include major opening-up categories, such as economic, political, social and cultural opening-up, among which the most common in existing relevant literatures are cross-border economic opening-up, cross border social opening-up, and cross-border cultural opening-up. Considering the sovereignty and internality characteristics of political opening-up, it is seldom defined and discussed in existing literature. Cross-border opening-up, especially cross-border economic opening-up, is closely related to some well-known concepts, the most important of which include globalization, regionalization, and internationalization; they also include interconnectivity, interdependence, degrees of freedom, and so on.

There are a vast array of related papers discussing the definition, nature, origin, and timeline of globalization, and many politicians, business leaders, international institutions and scholars have had various descriptions of globalization. The primary key word of globalization is "global", which refers to the entire earth, at least most

countries and regions on most of the continents; the second is "transformation", that is, the trend of particular changes. "Globalization" encompasses the trend of cross-border opening-up and exchanges, which spread from a small number of countries and regions to a large number of countries and regions on multiple continents. Opening-up and exchanges limited to a certain continent or among a small number of countries and regions on a few continents are not globalization, but regionalization.

In most cases, *globalization* has actually been regarded as synonymous with "economic globalization", and typical definitions are as follows. First, economic globalization refers to the continuous internationalization of markets. The *market* here is in its broad sense, including commodities (goods and services), enterprises and industries, technology and competition. Second, economic globalization refers to the ever rising levels of interaction and penetration of human economic activities, including materials (goods, services, labor, capital, and technology, among others), system and concept. Meanwhile, economic globalization has always been accompanied by controversy, whether it is about its origin, development process, or various gains and losses. Those who support globalizatiion and those who are opposed to it have been violently debated over this issue for at least 20 years, and such debate has become even more fierce since the 2008 global economic crisis.

Internationalization is a trend of open exchanges between countries or regions — at least between two countries or regions (it does not need to be clarified if more than two countries and regions are involved). Of course, if a large number of countries and regions concerned are in a particular region (such as East Asia) of a particular continent, it can be defined as *regionalization*. If exchanges are among many countries or regions on multiple continents, then it can be defined as *globalization*.

The primary aspect of the connotation of globalization, regionalization and internationalization is the *extensity* or *breadth* of cross-border opening-up, rather than its *intensity* or *depth*. However, existing related indexes mainly measure the strength or depth of cross-border opening-up, leading to a dislocation of related concepts and connotations.

Box 1-1 Other Concepts Related to Cross-border Opening-up

1. Connectedness and interconnectedness

Connectedness refers to the degree of connectivity and smoothness between a country and the outside world, which can be described as participation in the international flow of products and services, capital, information, and people. Connectedness across the globe is global connectivity, and the corresponding concepts, naturally, are regional connectedness and local connectedness. In the Global Connectedness Index developed by DHL, globalization refers to global connectedness, that is, the concentration of relationships across borders: if there are more smaller countries in a country's international connectedness, the level of globalization will be lower; otherwise, it will be higher; and it has nothing to do with location or geographic distance.

Another related concept is *interconnectedness*. From the perspective of English etymology, interconnectedness is subordinate to connectedness. Generally used in the term "interconnected economies", it mainly refers to the mutual economic links between different countries, including the international flow or dissemination of commodities, finance (including investment), labor, and information (especially knowledge).

2. Interdependence

Interdependence has been popular in the world economy since the early 1980s. It refers to the interdependence between a country and other countries through trade, currency and finance (including capital), and debt financing. "Other countries" can be further defined in different geographical scopes. Whether the dependency relationship between different countries is symmetric has not been made explicit in this term. In fact, there is asymmetric dependence or imbalance, which has attracted widespread attention many years ago in the field of world economy, especially international trade.

3. Freedom

Freedom or degree of freedom mainly refers to the power distribution between different subjects and its trend at the meso level or micro level, especially the power distribution between the government and other subjects and its trend. Taking into consideration the specific fields of freedom, freedom-related concepts include economic freedom and political freedom. The Index of Economic Freedom (IEF) developed by the Heritage Foundation of the US refers to economic freedom as the basic right of every one to control their own labor and property: in an economically free society, individuals can

work, produce, consume, and invest so long as they want to; the government allows labor, capital, and goods to flow freely, and does not force or restrict freedom beyond the scope necessary to protect and safeguard freedom itself. Both the Human Freedom Index (HFI) and the Economic Freedom of the World (EFW) Index, developed by the Fraser Institute in Canada, state that "individuals have economic freedom in the following circumstances: Property they have obtained not by force, fraud or theft is protected from violations by others, and they have the freedom to use, exchange or give it to others, as long as these actions do not infringe upon the same rights of others. Therefore, when there is voluntary exchange, competition, personal choice and property protection, there will be economic freedom. These two economic freedom indexes measure freedom at the micro-individual level. Obviously, the degree of freedom discussed here refers to the freedom of choice within a country or an economy.

Another related concept is *liberalization*, that is, the trend of the government loosening regulation of corporate behavior (See Smith, 2020[①]). This concept is sometimes related to the relaxation of laws related to social affairs, but it is most often used as an economic term, especially one that refers to reducing restrictions on international trade and capital. Obviously, liberalization includes both internal and external relations. Freedom related to opening-up to the outside world mainly refers to the distribution of power between local entities of a specific economy and foreign entities (overseas government, non-financial enterprises, financial enterprises, households, or a consortium of these entities). This is only a small part of the denotation of freedom as mentioned above, that is, cross-border freedom. Cross-border liberalization has played a central role in stimulating large-scale growth in international trade, foreign direct investment, foreign portfolios. However, companies in rich countries use cross-border liberalization policies to exploit workers in poor countries not only because the market is actually neither free nor fair, but also because rich countries cheat in the game of exporting to the rest of the world (Smith, 2020).

II. Theory of Opening-up to the Outside World

Among all the global practices so far, economy is the most important field of

① Smith, N (2020). Liberalization. *Encyclopaedia Britannica*, online edition.

opening-up to the outside world, and that of society, culture and politics are relatively secondary field of opening-up. Therefore, this report mainly focuses on cross-border economic opening-up while also analyzes cross-border social and cultural opening-up by putting them in the context of cross-border economic opening-up. This is because even if cross-border opening-up can be clearly divided into economic, cultural, social, and political opening-up, each of these four fields remains very complicated; therefore, they must each be analyzed thoroughly, a task that still faces huge and even insurmountable difficulties. In particular, the definition of cross-border political opening-up and the optimal form of interaction between political opening-up and domestic and foreign economic, cultural, and social opening-up remains to be studied in depth.

Economic opening-up, as a term, first appeared in the literature of comparative political economy in the early 1980s. However, as an idea, the history of economic opening-up is much longer, especially in the field of international economics. In Western economics, the history of studying the causes and effects of open economy can be traced back to the 18th century, and, at that time, it occupies an important position in the works of classical economists, such as Adam Smith and David Ricardo. These classical economists focused on the impact of international trade on the domestic economy and the positive and negative effects of free trade. Initially, the focus of their measurement was put on exchanges of commodities and currency exchange rates; at present, it is more on the impact of economic open-up on the domestic economic system.

According to traditional methods of measurement, generally speaking, the economic opening-up of an economy is negatively related to its size, especially its size of population: large countries tend to produce more for the domestic market, which, in the past, would lead to economic self-sufficiency through protection. These protections have been eased through the development of international governance (such as GATT and WTO; Keman, 2020[①]). In the history of Chinese thought, the Huainanzi-Sima Qian Theorem, which advocates that "using what one has in large amounts to exchange for what he or she lacks", "using what one has to exchange for what he or she lacks",

① Keman, H. (2020). Economic Openness. *Encylopaedia Britannica*, https://www.britannica.com/topic/economic-openness.

and "using what one is skilled (in making) to exchange for what he or she is incapable (of producing)", has concisely summarized the basic principles of modern market economies, especially cross-border market economies, in particular, the following three major trade theories: absolute advantage theory, comparative advantage theory, and factor endowment theory (Zhang et al., 2019[①]).

1. A hypothesis on U-shaped evolution of openness to the outside world

The degree of openness of most economies has undergone a U-shaped evolution following their improving economic development level. In the pre-industrialization stage, the level of openness was very high. Once local industries and enterprises are to be developed to promote industrialization, a fairly long protection period would be needed to protect local premature industries. In this way, the level of opening-up to the outside world will decline. As the competitiveness of local enterprises and industries improves, the level of openness of the economy will gradually rise and the economy may even enter a laissez-faire state.

Why has the level of a country's opening-up undergone such a U-shaped evolution path? First, the development of a less developed country is, to a large extent, a process of learning from developed countries, especially Western countries, and establishing local industries. Therefore, adopting a completely closed-door economic policy will block the country's exchanges with advanced countries, hinder the import of advanced science and technology and machinery and equipment, and be abandoned by modern civilization. Second, should backward countries go to the other extreme and adopt a laissez-faire open policy? No. In the early stage of economic development, if a country implements a policy of fully opening up to the outside world, it will be completely defeated by the developed countries in international competition, even in the local market competition. The local premature modern industries will be suppressed and, in the international divison of labor, it would be in a position of supplying primary products and raw materials. As a result, it would be difficult for these industries to develop. A controllable and limited opening-up process would be a better choice for both domestic demand-based and export-based economies. Last but not least, only

① Zhang, Y. (2019): *40 Years of Opening-up in China* (in Chinese). Beijing, China: Economy and Management Publishing House.

when the competitiveness of domestic enterprises and industries reaches a level that enables these enterprises and industries to compete with the developed countries can the country gradually increase the degree of openness to implement an open economy. In this way, the country's degree of openness will also undergo a U-shaped evolution during the entire process of its economic development.

2. Choices of path for the opening-up of economies of different scales

Does the degree of openness of all countries and economies go through the same U-shaped evolution trajectory? Not at all, because there are vast differences between countries and economies.

Modern civilization is based on the rise of nation-states, and the main support of the modern world economy is also nation-states and their derived economies. From the perspective of economic development, nation-states and their derived economies are very different. There are huge countries like Russia, which spans six time zones across Eurasia; there are also mini-countries, like the Vatican, with an area of less than one square kilometer; there are also super-large countries like India and China with a population of 1.3 to 1.4 billion; and there are also mini-countries, like the Vatican and Monaco, each with a population of less than 100,000. If we combine the two factors in our observation, we will find that there are not only sparsely populated major regional powers, such as Russia, Canada, and Australia, but also densely populated countries, such as Japan, Vietnam, India and other countries. Different types of countries have very different strategies and policy choices in pursuing development. Generally speaking, after World War Ⅱ, a nation-state or region with a population of more than 20 million ("region" here refers specifically to a nation-state that, for various reasons, implements independent tariff and economic policies and can be regarded as an independent economy, such as Taiwan region, Hong Kong, SAR and Macao, SAR) can have significant economic influence. We **use this as a criterion to divide countries in the world into two categories: large countries and small countries, or large economies and small economies**.

In general, a large economy undergoes a U-shaped opening-up process, while a small economy may not. If a small economy opts to implement a laissez-faire policy, such as the free port policy in Hong Kong, SAR, Singapore's policy of relying on multinationals and foreign investment, and other countries' international tax

haven policies, then its process of opening-up will not be U-shaped in the process of economic development; rather, it will be a slanting line with increasing openness, or a horizontal line without significant upward or downward trend.

3. Wave-shape changes in the opening-up trajectory

Admittedly, many factors have a bearing on the level of opening-up of a country or economy to the outside world. They do not only include size of the country or economy or economic development process. In reality, a more complicated scenario is that many countries and regions have experienced a bumpy and on-off economic development process, without a unified and clear track. In some countries, once a new government comes to power, it will readjust its policies; some will continue the policies of the previous government, and others will completely overthrow them. Even the current level of development has been the result of accumulation of various policies in many years; conversely, at this level of development, it is possible for policymakers to adopt a variety of completely different policy options in the future.

After the World War II, many developing countries adopted the protectionist policy of import substitution, with a very limited opening-up to the outside world, and they had achieved a certain degree of economic development. After the 1980s, for various reasons, they adopted an export-oriented opening-up policy, which greatly raised their level of opening-up. Later, after suffering from different forms of economic or financial crises, especially the 2008 global financial crisis, some protectionist measures were taken, leading to declining level of openness. Therefore, the trajectory and level of openness of these countries has shown a wave-shaped trajectory. As long as they do not reach a certain level of development, these countries will undergo similar wave changes in the future.

III. Opening-up Practices in Foreign Trade and Investment

Mankind has had opening-up practices in many fields, especially cross-border trade opening-up and investment opening-up. Both history and reality have shown that mankind has had very rich experiences in opening-up to the outside world, and they have been very different from each other, whether in terms of fields of opening-up or levels of opening-up, or in terms of process of opening-up or outcomes of opening-

up. The opening-up practices vary in different economies, or in different times within the same economy. Understanding these similarities and differences in opening-up to the outside world is essential for scientific understanding of the theories, methods, and results of analyzing opening-up to the outside world. This report takes human cross-border trade and investment opening-up as examples to understand the corresponding opening-up practices.

1. Effect of trade openness in economic development

A country's of choice of "optimal" trade openness system cannot be independent of its domestic economic characteristics (Edwards, 1993[①]). It is because trade openness has both positive and negative effects on the local economy of concerned countries. Given differences in development stages, resource endowments, and technological conditions, among others, countries should maintain a degree of trade openness that is compatible with their level of economic development.

Trade openness is conducive to giving play to domestic comparative advantages and promoting overall domestic economic growth through economies of scale effect. Trade policy and economic growth are endogenous to each other. Most literature have directly or indirectly proved that trade openness actively will promote overall economic growth (Grossman & Helpman, 1990[②]; Davis, 1996[③]). Trade liberalization can promote the division of labor and cooperation among different countries and thus improve the efficiency of the knowledge accumulation process of *learning by doing*, which is conducive to unleashing domestic comparative advantages (Devereux, 1990[④]). The openness of the domestic market is also conducive to improvement in market competition and weakening the degree of domestic market monopoly, thus forcing

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① Edwards, S. (1993). Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature*, 31(3), 1358-1393.

② Grossman, G. & Helpman, E. (1990). Trade, Innovation, and Growth. *American Economic Review*, 80(2), 86-91.

③ Davis, D. (1996). Trade Liberalization and Income Distribution. NBER Working Paper No. 5693.

④ Devereux, M. (1990). Growth, specialization, and trade liberalization. University College Dublin. School of Economics, UCD Centre for Economic Research Working Paper Series; WP90/4..

down the average market cost curve (Tybout & Westbrook, 1995[①]; Kim, 2000[②]). It can also promote domestic economic growth through economies of scale (Krugman & Helpman, 1985[③]). Historical facts and empirical studies have provided support for this. Historical studies by Kindleberger (1987)[④] and Bhagwati (1988)[⑤] found that the high growth stages since the World War I had basically been accompanied by low tariffs. Edwards (1993)[⑥] studied the first batch of developing countries that first adopted export-oriented policies and found those with lower degree of distortion in export sectors had registered faster growth than those with higher degree of distortion in export sectors. Bautista et al. (1998)[⑦] found that Zimbabwe's free trade measures, such as abolishing import and foreign exchange controls and lowering import taxes, had significantly increased the total disposable income of households.

Trade openness optimizes resource allocation through competition mechanisms and promotes productivity. Two channels promote productivity improvement as follows. First, competition leads to *the survival of the fittest* in productivity. Trade openness allows companies with low production efficiency to withdraw from the market, and the surviving companies with high productivity will have higher profit margins. Their high profit margins further attract more high-productivity companies to settle in, thereby pushing up the market's marginal productivity (Melitz, 2003). There will also be redistribution of resources among firms with varying productivity (Epifani, 2003[⑧]), with resources flowing from low-

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① Tybout, J. & Westbrook, M. (1995). Trade liberalization and the dimensions of efficiency change in Mexican manufacturing industries. *Journal of International Economics*, 39(1~2), 53-78.

② Kim, E. (2000). Trade liberalization and productivity growth in Korean manufacturing industries: price protection, market power, and scale efficiency. *Journal of Development Economics*, 62(1), 55-83.

③ Helpman, E. & Krugman, P. (1987). *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and The International Economy*. The MIT Press, Edition 1, volume 1, number 026258087x.

④ Kindleberger, C. (1987). *The World in Depression:1929-39*. Penguin Books Ltd, New Edition.

⑤ Bhagwati, J. (1988). *Protectionism*. Cambridge: The MIT Press.

⑥ Edwards, S. (1993). Openness, Trade Liberalization, and Growth in Developing Countries. *Journal of Economic Literature*, 31(3), 1358-1393.

⑦ Bautista, R., Lofgren, H. & Thomas, M. (1998). Does Trade Liberalization Enhance Income Growth and Equity in Zimbabwe? The Role of Complementary Policies. T*he TMD Discussion Paper* No. 32.

⑧ Epifani, P. (2003). Trade Liberalization, Firm Performance, and Labor Market Outcomes in the Developing World: What Can We Learn from Micro-Level Data? *SSRN Electronic Journal*, 3(5).

efficiency firms to high-efficiency trade firms (Pavcnik, 2002[①]), especially to more efficient, export-oriented, and skill-intensive firms (Epifani, 2003). *The survival of the fittest* mechanism, therefore, elevates the average productivity of the industry, and also optimizes the domestic industrial structure. Second, trade openness enables enterprises to have more methods to reduce costs. Trade openness encourages local enterprises to participate in international market exchanges and competition and corporate managers will have more choices in productivity improvement and cost reduction (Kruger, 1985)[②]. After tariff barriers are reduced, enterprises can obtain more and cheaper inputs (Khandelwal & Topalova, 2011[③]), and competition will improve the efficiency of resource allocation, alleviate economic distortion, and encourage R&D formation to promote local well-being (Grossman & Helpman, 1991[④]).

Trade openness accelerates the diffusion of technology and promotes the local technological upgrading. Countries that adopt opening-up policies are more capable of absorbing advanced technology (Barro & Sala-i-Martin, 1995[⑤]). With opening-up policies, the less developed countries can make use of the large amount of knowledge capital that has already accumulated in industrialized countries to promote their domestic technological upgrading (Grossman & Helpman, 1990). Trade has become an important channel for the diffusion of technology among countries (Lichtenberg & Potterie, 1996[⑥]; Kelle, 2002[⑦]; Bylde, 2004[⑧]). Developing countries can import large amounts of intermediate goods and capital goods and, through them, benefit from foreign technological knowledge spillover to promote their domestic technological

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① Pavcnik, N.(2002). Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants. *Review of Economic Studies*, 69(1), 245-276.

② Krueger, A. (1985). *Developing-country trade policies and the international economic system*. The World Bank.

③ Khandelwal, A. & Topalova, P. (2011). Trade Liberalization and Firm Productivity: The Case of India. *The Review of Economics and Statistics*, 93(3), 995-1009.

④ Grossman, G. & Helpman, E. (1991). Trade, knowledge spillovers, and growth. *European Economic Review*, 35(2~3), 517-526.

⑤ Barro, R. & Sala-i-Martin, F. (1995). Technological Diffusion, Convergence, and Growth. *NBER Working Paper* No. w5151.

⑥ Lichtenberg, F. & van Pottelsberghe de la Potterie, B. (1998). International R&D spillovers: A comment. *European Economic Review*, 42(8), 1483-1491.

⑦ Keller, W. (2002). Trade and the Transmission of Technology. *Journal of Economic Growth*, 7, 7-24.

⑧ Blyde, J. (2004). Trade and Technology Diffusion In Latin America. *The International Trade Journal*, 18(3), 177-197.

upgrading (Coe et al., 1997[①]; Acemoglu, 2003[②]; Ishikawa, 2007[③]). Imports of machinery and equipment can also increase the demand for skill-based technological change (Gourdon, 2011[④]). Technology can also spill over through the supply chain interaction between foreign-invested and local enterprises (Epifani, 2003[⑤]). The generous market rewards generated by technological innovation can further stimulate new technological innovation and market entry of foreign capital (Bustos, 2009[⑥]). After foreign enterprises enter the market, they authorize domestic companies to use their technology, which is conducive to reducing domestic production costs (Hwang et al., 2016[⑦]).

Trade openness promotes employment and increases the average factor income, thus narrowing the development gap between different countries. The empirical studies of some developed and developing countries (Salimi et al., 2014[⑧]), OECD countries (Dan, 1993[⑨]), Bangladesh and other countries (Munshi, 2006[⑩]) show that trade openness is conducive to income growth and reduction of income inequality. It is based on the factor price equalization theory, that is, in an open economy, the prices of production factors tend to be equalized across countries as a result of the global

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① Coe, D., Helpman, E. & Hoffmaister, A. (1997). North-South R & D Spillovers. *The Economic Journal,* 107(440), 134-149.

② Acemoglu, D. (2003). Patterns of Skill Premia. *Review of Economic Studies*, 70(2), 199-230.

③ Ishikawa, J. (2007). Trade Liberalization and Technology Transfer through an Intermediate Product. *The International Economy*, 11, 3-10.

④ Gourdon, J. (2011). Wage inequality in developing countries: South–South trade matters. *International Review of Economics*,58(4), 359-383.

⑤ Epifani, P. (2003). Trade Liberalization, Firm Performance and Labour Market Outcomes in the Developing World. What Can We Learn from Micro-Level Data. The World Bank Policy Research Working Paper No. 3063..

⑥ Bustos, P. (2009). Trade Liberalization, Exports, and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms. *American Economic Review*, 101(1), 304-340.

⑦ Hwang, H., Marjit, S. & Peng, C. (2016). Trade liberalization, technology transfer, and endogenous R&D. *Oxford Economic Papers*, 68(4), 1107-1119..

⑧ Salimi, F., Akhoondzadeh, T. & Arsalanbo, M. (2014). The Triangle of Trade Liberalization, Economic growth and Income Inequality. *Communications on Advanced Computational Science with Applications*, 1-14, doi:10.5899/2014/cacsa-00026.

⑨ Dan, B. (1993). Equalizing Exchange: Trade Liberalization and Income Convergence. *Quarterly Journal of Economics*, 108(3), 653-679.

⑩ Munshi, F. (2006). Does openness reduce wage inequality in developing countries? A Panel data Analysis. Working Papers in Economics 241, University of Gothenburg, Department of Economics.

flowing of the factors (Samuelson, 1967[①]; Chipman, 1969[②]).

Excessive trade openness will also cause problems such as harming the development of domestic industries, solidifying dependence on external value chains, and weakening the build-up of domestic value chains. For example, in the value chain system dominated by Europe, the United States and Japan, China not only faces the risk of trade sanctions as a result of protectionism, but also faces the risk of its own value chain being *locked in* and *captured*. In terms of mode of trade, China has long focused on processing trade and OEM-based production, putting it in the middle and low end of the global value chain hierarchy. It is very difficult for China to break through the low end of the value chain. Although it grasps manufacturing technologies, it has failed to build many high-quality brands that is recognized globally. And it is difficult to achieve the transition from *Made in China* to *Created in China*.

Economic historian Paul Bairoch once said that historically, free trade is an exception and protectionism is the norm (Felber, 2019[③]). Although free trade is more conducive than protectionism to economic growth and social well-being increase (Poole, 2004[④]; Mankiw, 2015[⑤]), trade protectionists believe that free import will affect domestic employment and corporate competitiveness, and, therefore, import barriers should be imposed on foreign goods. Contrary to the ultra-conservative view, whether a country's degree of trade openness is appropriate should hinge on the capacity of its economy in sustaining such openness and the characteristics of the country's economic development stage. If a country is to maintain the appropriate degree of openness that matches its economic and system fundamentals, it will need to bring out the role of trade liberalization in contributing to economic growth, while preventing excessive openness from harming its economic development.

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① Samuelson, P. (1967). Summary on Factor-Price Equalization. *International Economic Review*, 8(3), 300-306.

② Chipman, J. (1969). actor Price Equalization and the Stolper-Samuelson Theorem. *International Economic Review*, 10(3), 399-406.

③ Felber, C. (2019). Trading for Good: How Global Trade Can be Made to Serve People Not Money. London: Zed Books Ltd.

④ Poole, W. (2004). Free Trade: Why Are Economists and Noneconomists So Far Apart?. *Review*. 86 (5), 1-6.

⑤ Mankiw, N. (2015). Economists Actually Agree on This: The Wisdom of Free Trade. *New York Times*, April 24..

2. Effect of investment openness on economic development

Cross-border direct investment can be seen in most economies in the world, and has a profound impact on the economic and social development of relevant economies. It has a positive effect in terms of promoting technological innovation, upgrading the industrial structure, and increasing international competitiveness. And China is a typical case in point and attention should be paid to direct investment in China.

First, foreign direct investment in China used to be an important part of China's domestic fixed-asset investment. In the 1980s and 1990s, the proportion of foreign direct investment in China's fixed-asset investment was obviously on the rise, jumping from an average 4% in the 1980s to hit 11.8%, the highest record, in 1996. The large amount of direct investment had eased China's financing pressure as it planned to boost its economy through increasing investment, and provided good indigenous incentive for the long-term sustainable development of the Chinese economy①.

Second, FDI has promoted China's foreign trade development, in terms of not only *quantity*, but also *quality*. From 1992, when Deng Xiaoping carried out his *southern tour* to encourage China to further deepen reform and expand opening-up, to the years ahead of China's accession into the World Trade Organization (1992-2001), the average annual export growth rate of foreign-invested enterprises reached an average 27.9%, and the total export volume of foreign-invested enterprises accounted for 50.8% of the national total, making them the backbone of China's export. The continuously increasing foreign direct investment in capital-intensive and technology-intensive industries has, it is fair to say, promoted the structural upgrading of China's export products.

Third, FDI has increased job opportunities in China and raised the income level of employees. In 1987, there were only 210,000 employees in enterprises invested by investors from Hong Kong, SAR, Macao, SAR and Taiwan region and foreign investors, accounting for 0.15% of the country's total urban employment. By 2017, the proportion had risen to 6.08%. In terms of employee income, the salary level of employees in foreign-invested enterprises is relatively high, and since 1998, their salary level has always been higher than that in urban enterprises, and it has, in most of these years, also been higher than that of joint-venture enterprises. In 1998, the average salary of foreign enterprise employees was more than 1.7 times that in urban

① Source: *China Statistical Yearbook*, relevant years.

enterprises; by 2017, the average salary level in foreign interprises was still 1.2 times that in urban enterprises.

Fourth, FDI helps China's industrial upgrading and technological progress. The pace of foreign direct investment has been basically the same as that of China's industrial upgrading. In the 1990s, the proportion of China's secondary industry, especially manufacturing, in the national economy had risen rapidly and gradually become the most important driving force for national economic growth, contributing to about 60% of China's GDP, which had been quite stable at that time. The key industry for foreign-funded enterprises at that time was also manufacturing. In recent years, the tertiary industry has gradually become an important growth engine for the Chinese economy, with its proportion in national GDP rising from 42.2% in 2002 to 53.3% in 2018. Meanwhile, the focus of foreign direct investment has gradually shifted from the secondary to the tertiary industry. It can be seen that the industrial upgrading of investment openness has been moving in the same direction with the industrial upgrading of the Chinese economy. With foreign investors continually increasing direct investment in China's capital- and technology-intensive industries, advanced production techniques and management know-how have also been introduced into China, which, thanks to the spillover effect, have contributed to the country's technological progress.

Fifth, FDI has helped China improve its *soft environment*. In the early stage of Reform and Opening-up, the entry of foreign direct investment into China required Chinese laws and regulations to match it. Statistics show that from 1979 to the end of 1985, China enacted more than 300 economic laws (including administrative regulations and rules), about half of which were related to foreign economy[①]. Since then, China has continually enacted or amended laws and regulations related to the introduction of foreign investment. In recent years, as China's traditional advantage in attracting foreign investment has gradually weakened, the focus of its opening-up has been upgraded from *factor flow-based opening-up* to *rule- and system-based opening-up*. At present, improving the business environment has become an important starting point for maintaining and enhancing China's attractiveness to foreign businessmen.

At the same time, we should have a rational view of direct investment openness. On

① The editorial committee of Almanac of China's Foreign Economic Relations and Trade (1986). *Almanac of China's Foreign Economic Relations and Trade*. Zhanwang Publishing House of China, p53.

the whole, it promotes economic development, but it also may causes inefficiency and even negative effects in some aspects. Some foreign-funded enterprises have become monopolistic through mergers and acquisitions. In some premature industries, the entry of multinational companies squeeze out host-country companies, and ultimately make it difficult for host-country companies to grow. FDI also poses risks to the host country's economy in terms of capital flow. The influx of foreign capital en masse can push up the exchange rate of the host country's currency and may cause asset bubbles, while the withdrawal of large amounts of foreign capital will put the host country's currency under depreciation pressure. In late 1990s, a financial turmoil erupted in Southeast Asian countries, and the inflow and outflow of foreign capital was an important reason for the formation and eruption of the crisis. The large inflow of foreign capital at that time boosted the region's rapid development. Without the rational guidance of the government, however, large amounts of foreign capital had flown into such industries as securities and real estate instead of industries that play a central role in improving social productivity. As a result, while speculative capital owners gained enormous profits, foreign investment had failed to fundamentally change the development structure of Southeast Asia. When foreign capital owners found that it was difficult to continue to make profits from speculative activities, they would inevitably withdraw capital in large quantities out of those countries, leaving behind an unsustainable development mode that had been built on extravagance and capital speculation. Coupled with the introduction of large amounts of foreign capital, it had led to aggravated foreign debt burden for those countries, ultimately triggering a crisis. Thailand's foreign debt was $20 billion in 1992, then reached $86 billion before it started to depreciate its currency in 1997.

Judging from the experiences of major countries all over the world, after World War Ⅱ, especially after the Cold War, global investment openness and economic integration have become a major trend. However, governments of concerned countries have not had a fixed attitude towards direct investment openness. They have often made discretionary decisions.

— The United States' attitude towards FDI after World War Ⅱ had gone through a process from *investment liberalization* to *neutral position* and then to *simultaneous openness and supervision*. Tensions between the United States and Middle East oil-producing countries in the 1970s, the large-scale direct investment by Japanese companies in the United States in the 1980s, and the deterioration of Sino-US relations

after 2018 were all important reasons for the tightening of FDI in the United States.

— After World War Ⅱ, Japan was prepared to reconstruct its economy from scratch. In order to prevent foreign capital from taking the opportunity to enter and control its market, the Japanese government implemented a conservative policy for foreign direct investment in Japan. With the rise of the Japanese economy, Japan has begun to gradually loosen control of FDI, although its effect remains questionable. The Japanese government has always encouraged ODI and the country has eventually become a major ODI power.

— Brazil's attitude towards FDI has also undergone changes. In the early post-war period, the Brazilian government had guided and encouraged foreign investment to enter machinery, automobile and other manufacturing industries. However, in the 1970s, the problems of profit remittance by multinationals and trade deficits became more and more serious. The Brazilian government imposed restrictions on foreign direct investment in terms of localization rate and proportion of profit remittance. In the 1980s, a debt crisis broke out in Brazil. To relieve the pressure brought about by the crisis, the Brazilian government started again to encourage the entry of foreign capital, marking another U-turn of its policy stance.

IV. A Framework on Opening-up Model of National Economy

An opening-up economy can form a *sub-system*, that is, an open economy. If it is attached with geographical or territorial limits, such as a country, it can be made more concrete, such as an "open Chinese economy" or an "open world economy". There can be another cycle within this sub-system, including four major links: production, distribution, exchange and final use. In fact, this open sub-system is not independent of other "non-open sub-systems" of the economy to which it belongs, but is inextricably linked to them, whether their linkage is strong or weak.

In the field of economic openness, cross-border exchanges undoubtedly have had the longest history, including but not limited to cross-border trade. Economic opening-up to the outside world 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 proportion of intermediate products has gradually risen 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.

As mentioned earlier, there are different schools of cross-border trade theory, but they can be unified within the same framework and reflected by setting different parameters. In other words, the various schools of cross-border trade theory can be nested in the same theoretical framework, which can contain the essence of the various schools of the theory. Costinot & Rodríguez-Clare (2014) proposed a macro framework that embeds various frontier mainstream cross-border trade models to reflect the price determination mechanism of products in cross-border trade. The independent variables related to cross-border openness are as follows: production costs, export costs, bilateral variable trade costs, fixed costs for entering a partner economy, and costs for a partner economy to enter the reporting economy. Based on this framework and our measurement of openness, this report makes the following assumptions.

1. Cross-border trade openness

Trade openness factors that affect bilateral variable trade costs include tariff rates and non-tariff measures. Cross-border trade opening-up includes the opening-up of final product trade as well as that of intermediate product trade. Among them, the cross-border intermediate goods will enter the production process of the partner economy, thereby having a bearing on the production cost of the corresponding production process. Obviously, trade policy of intermediate goods has a significant bearing on trade of intermediate goods. In the past two decades, trade in intermediate goods has gradually become a powerful factor that has a significant bearing on the development of trading partners.

2. Cross-border investment openness

It includes the opening-up of foreign investment and the opening-up of outbound

domestic capital investment. The introduction of foreign capital can not only ease capital shortage, but also improve productivity of local enterprises in the host country through the competition effect and the spillover of technology and management know-how. The main role of foreign investment is also to make full use of overseas resources to enhance international competitiveness. Therefore, the degree of investment openness mainly affects production technical parameters.

3. Cross-border financial openness

Financial openness can reduce the financing costs of export and foreign investment of enterprises, and significantly promote internationalization activities that carry huge fixed costs. Both theoretical models and empirical studies emphasize the impact of the financial system on the fixed export costs of enterprises.

4. Cross-border knowledge openness

The openness of knowledge, especially technology, can enable a country to make use of the world's advanced technologies. It is of great significance, especially for late-comer countries that China represents.

5. Cross-border institutional openness

Institutional openness is committed to removing institutional barriers to international economic and trade exchanges, fostering a good business environment, and improving the quality of institutions. The impact of institutional quality on the production and operation of enterprises is related to two theoretical frameworks in institutional economics; one is the contract theory; the other is the property theory. When these two theoretical frameworks are introduced into the basic model of international trade, they can be treated as an institutional cost variable, which is a structural variable that is composed of a series of parameters measuring contract quality and strength of property rights protection.

After incorporating the above five assumptions, the determinants of the price of cross-border trade products would cover these five openness factors. For theoretical framework and detailed mathematical derivation of the various schools of international trade, please refer to the appendix of this report.

It should be emphasized that although the above model includes openness factors

in the fields of investment, finance, technology, and institutions, it still belongs to the international trade model. This is very consistent with the reality of global cross-border opening-up. The breadth and depth of the current cross-border investment, finance, technology and institutional openness have reached an unprecedented level, but cross-border trade openness remains the most attractive area in global opening-up. There is a close link between cross-border non-trade openness and cross-border trade openness.

Based on the above-mentioned theoretical model, the main contents that should be measured for opening-up to the outside world are as follows.

— Cross-border trade, including export and import of goods and services, and the traded goods and services can be seen as either final products or intermediate products;

— Cross-border direct investment, including foreign direct investment (FDI) and outbound direct investment (ODI);

— Cross-border financial investment, which mainly refers to inbound and outbound cross-border financial investment with a debt maturity of less than one year. It mainly refers to cross-border securities investment;

—Cross-border knowledge openness, especially technology openness, including the import and export of knowledge and technology;

— Cross-border institutional arrangements, including institutional or policy arrangements, such as cross-border contracts and property rights protection.

Cross-border trade, cross-border direct investment, and cross-border financial investment are all very mature fields of international economics research, on which there has been general consensus and so there is no need to go into details here. However, cross-border knowledge, technology, and institutional openness should be further expounded.

Cross-border flow of knowledge, especially technology, can be put in not only the economic category, but also the social and cultural categories. This is because knowledge and technology are intangible and need to be externalized in other tangible carriers or recorded in a certain form so that it becomes easy for them to be observed and measured. They are either externalized in products, such as cultural and high-tech products, or exist in a specific carrier, such as people (cross-border students, tourists, and migrants), or are recognized as specific rights, such as patents and other intellectual property rights. This means that the observation of knowledge or technology needs to be defined in a broader sense. Therefore, this report will indirectly monitor the cross-border flow of knowledge

and technology through openness in the cultural and social fields.

The same is true for cross-border institutional arrangements. A general system can only become conveniently observable when it is transformed into a specific cross-border system or even a cross-border policy. When we analyze cross-border system or policy, we need to start from studying cross-border behavior, that is, we need to make legal, regulatory and policy arrangements for a specific cross-border behavior. To facilitate monitoring, this report has mainly measure cross-border institutional arrangements through cross-border policies.

In summary, this report defines cross-border openness as cross-border economic openness and the directly related cross-border social, cultural and policy and institutional openness as follows.

1. Economic openness. That is, cross-border economic openness, including cross-border trade, direct investment and securities investment;

2. Social openness. That is, cross-border social openness, mainly referring to specific cross-border interpersonal movement, including flows of cross-border tourists, students, and migrants;

3. Cultural openness. That is, cross-border cultural openness, including cross-border flows of cultural goods, intellectual property rights, patent applications, and science documents citations;

4. Policy openness. That is, cross-border policy and institutional arrangements closely related to the above-mentioned economic, social and cultural openness.

The above division of cross-border openness areas aims to distinguish the performance of cross-border openness from cross-border openness policies: the first three categories are the performance of cross-border openness, and the fourth category is cross-border openness policy. This is because one of the main focuses of the cross-border openness measurement is to clarify whether the target of measurement is the performance of cross-border openness, or the cause of cross-border openness, or some sort of combination of these two categories of factors. This is also where major differences arise in existing literature: policymakers and those who are heavily influenced by policies mainly focus on cross-border openness policy, while others mainly focus on the performance of cross-border openness. Index compilers may want to meet these two needs simultaneously, but they have to face the challenges of corresponding difficulties.