Chapter II
World Openness Index: Methodology

The term *opening-up to the outside world* has rich connotations and extensions. The World Openness Index integrates a number of statistical indicators related to opening-up to the outside world, such as economy, society, and culture, and can measure the level of openness of an economy in a more comprehensive and systematic manner. The index system measuring the level of opening-up to the outside world is the core content of the world openness index. The statistically measurable quantitative indicators are created through quantifying economic, social, cultural and other related openness factors, which provides a new way to quantitatively analyze the openness and open-up trend of various economies.

Compared with other similar indexes on openness, this index has the following characteristics. First, it is positioned to measure economic openness and non-economic openness that is closely related to economic openness. Second, the results of openness and openness policies are equally emphasized, and inward and outward openness are equally emphasized. Third, the dimensionless methods of inward and outward opening indicators are rigorously based on the supply and demand theory.

In this chapter and subsequent chapters, unless specified, the word "country" can be used in common with the word "economy".

I. Principles of Measuring Opening-up to the Outside World

1. Scientific natures

Scientific theory and method have been adopted in this study. The openness index focuses on *on-the-border* openness and does not measure phenomena

beyond the border. The setting of the indicator system and data conversion processing are strictly based on professional openness theory and the processing of basic data and the weighting of indicators have strictly followed statistical theories and methods.

The balance of two-way openness. Cross-border openness includes the entry of foreign factors and the exit of domestic factors and both are the measurement content of this indicator system. Under the premise of data availability, they will be treated equally, including the setting of weighting.

The objectivity of openness data. The index numbers must be in line with reality. It requires the selection of indicators to be able to reflect the main openness practices and the method for determining the weight of each indicator must be rational. Moreover, the assumptions made when supplementing some missing data must be consistent with the actual situation.

The heterogeneity of openness measures. Specifically, what indicators measure should not overlap each other. There should be no theoretical causal relationship among indicators, but the designing of this index needs to meet the following requirements. The openness policies as the cause should be measures and the openness performance based on the cause should also be measured. For this reason, in the designing of this indicator system, the overlapping caused by combining openness cause and openness performance must be minimized. Such overlapping basically does not affect the relative openness rankings of concerned economies, and, therefore, the design is acceptable. However, when the total openness of all economies aggregated or the openness of the world as a whole is assessed, such overlapping means that the openness of each economy and that of the world as a whole would be overestimated.

For that reason, such overlapping effect of the index has been reduced from the following two aspects. First, even if some indicators measure the same target, they should be measured from different angles. For example, indicators such as cross-border tourists, international students, and cross-border migrants measure the headcount-based scale of cross-border population movement in social openness, and the corresponding cross-border economic costs (such as transportation, education service and travel consumption costs) are measured using the cross-border economic openness. (cross-border trade in goods and services). Second, if, for various reasons, it is impossible to find suitable, different angles for separate measurement, which inevitably leads to

overlapping. Therefore, the overlapped parts will be deducted in this index when those indicators are aggregated to prevent the overall index from being higher than the actual level of openness. For example, cross-border intellectual property trade and cross-border cultural product trade measure the level of cross-border cultural openness, but they have actually included in the economic openness measurement. For this reason, such repetition needs to be deducted from the overall openness of the concerned country. Unless the original data cannot support it, the aforementioned principles have been observed to the greatest extent in the designing and calculation of this index.

2. Representativeness

The representativeness of this index is reflected in two aspects.

Representativeness of fields of openness. This report measures cross-border openness in the following three areas: economy, society, and culture. Economic openness has so far been the main area of global cross-border openness and has in turn promoted related social and cultural openness. Social and cultural openness, which is not so directly related to economic openness, and political openness (or international governance), which lag far behind economic openness, are not main areas of human openness so far, and, therefore, are not included in this index. The aforementioned fields that have been included are sufficient to represent the openness practices of mankind.

Representativeness of openness entities. This index measures the cross-border openness of 129 economies, which not only accommodate the vast majority of the total population and economic output of the world, but are also the main entities of human cross-border openness activities. Human cross-border communication involves governments, for-profit market institutions and individuals, as well as non-profit institutions and individuals. They are added up according to their economies to form the basic unit of observation in this index —national economy (country or region). These economies are added up to constitute the vast majority of the human world, becoming largely representative of the world.

3. Sustainability

Data availability is high. Data in this indicator system come from public sources,

such as the International Monetary Fund's balance of payments statistics, the World Bank's World Development Indicators, the United Nations' social and cultural statistics, the World Trade Organization's cross-border trade opening-up policy data, and the UNCTAD's cross-border investment liberalization policy data, are publicly released on their respective official websites, and are free and available to readers around the world.

The source of data is stable. The data of the above indicators are all released by the aforementioned international organizations at a fixed frequency for a long period of time. These data are mainly provided by international inter-governmental organizations based on the official statistical authorities of countries, or compiled by those organizations based on the scattered official data of relevant economies.

The quality of data is high. The compilation of the above indicator data by the aforementioned international organizations or authorities of concerned economies is based on the statistical systems, methodologies and best practices established by authoritative international statistical manuals. The quality of the original data sources has generally been guaranteed by official authorities, and even if the statistical practices of some economies are different from those of others, the differences would be explained thoroughly so that readers can fully understand, evaluate and use the data.

Last but not least, this index would have a broad prospect of expansion and application. The reputation of an index comes in part from its ease of application. When this index releases the rankings of economies, it will also release the scores and original valuesof the secondary, tertiary, and basic-level indicators to facilitate users to understand, assess, and apply it.

II. Indicators Measuring Opening-up to the Outside World

1. List of indicators measuring opening-up to the outside world

This indicator system has 21 measurement indicators for openness performance, which measure the performance of economic openness, social openness, and cultural openness.