origin, individual and network), which can be used for analyzing a wide range of topics related to technological change and patent activity, including industry-science links, corporate patent strategy, and study of internationalization and patent value indicators. Patent-based statistics reflect the invention performance of countries, regions, and companies, as well as other aspects of the dynamics of the innovation process, such as cooperation on innovation or technological paths. The data come from World Intellectual Property Organization (WIPO) or the World Bank's World Development Indicators.

International citations of science documents. The data come from the SCImago journals and country rankings. The country rankings are scientific indicators developed based on the information contained in the Scopus database (Elsevier B.V.). Citation data come from more than 34,100 articles and country performance indicators from more than 5,000 international publishers in 239 countries around the world.

Cross-border trade in cultural goods includes export and import of cultural goods. According to the definition of the 2009 UNESCO Framework for Cultural Statistics, cultural products refer to consumer products that convey ideas, symbols and lifestyles, namely, books, magazines, multimedia products, software, sound recordings, movies, videos, audiovisual programs, handicrafts and fashion. Data are from the *UNESCO Statistical Yearbook*[1].

III. Basic Indicator Data Processing and Weight Setting

Statistical methods are adopted to process the missing valuesof basic indicators, and the basic indicator data have been nondimensionalized in accordance with the supply and demand principle of economics (see Appendix for details).

The weighting of the indicator system is based on expert survey method. On the basis of a questionnaire survey of 41 experts on international economics, the arithmetic average of the results obtained through the questionnaire was taken as the weight of each indicator. The results are as follows.

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[1] http://data.uis.unesco.org/Index.aspx?DataSetCode=EDULIT_DS&popupcustomise=true&lang=en.

Table 2-3   **Weights of Indicators**

Secondary indicator	Tertiary indicator	Basic indicator
Openness policy (0.518)	Economic openness policy (0.9), and Social openness policy (0.1)	Weighted applied tariff rate (0.339)
		Non-tariff trade barrier (0.259)
		Inbound openness of concerned free trade agreement(s) (0.051)
		Outbound openness of concerned free trade agreement(s) (0.051)
		Inbound openness of concerned international investment agreement(s) (0.05)
		Outbound openness of concerned international investment agreement(s) (0.05)
		Financial openness policy (0.1)
		Cross-border visa openness policy (0.1)
Openness performance (0.482)	Economic openness performance (0.69)	Export of goods (0.169)
		Import of goods (0.169)
		Exports of services (0.161)
		Import of services (0.161)
		Foreign direct investment (0.141)
		Outbound direct investment (0.141)
		Porfolio investment inflows (0.029)
		Porfolio investment outflows (0.029)
	Social openness performance (0.17)	Inbound tourists (0.1896)
		Outbound tourists (0.1896)
		Inbound students (0.215)
		Outbound students (0.215)
		Immigrants (0.0954)
		Emigrants (0.0954)
	Cultural openness performance (0.14)	Intellectual property export (0.183)
		Intellectual property import (0.183)
		Patent application by non-residents (0.171)
		Patent application abroad by residents (0.171)
		International citations of science documents (0.11)
		Cultural goods import(0.091)
		Cultural goods export(0.091)