

## Research on the Path and Policy of Further Developing Open Economy in Ningbo City

Qiaoping Zhou<sup>1,\*</sup>, Ki-Hyung Bae<sup>2</sup>, Xuejiao Wang<sup>3</sup>

<sup>1</sup>Ningbo University of Finance & Economics, Ningbo, China

<sup>2</sup>Sejong University, Seoul, Republic of Korea

<sup>3</sup>College of Science & Technology Ningbo University, Ningbo, China

\* Corresponding Author

**Keywords:** Ningbo; Open type; Strategic path; Policy guarantee

**Abstract:** Due to the further adjustment of economic globalization, continuous growth of transnational flow of such production factors as capitals, technologies and talents and the further international integration in the industry chain, there have been significant changes in the factor endowment structure and industrial transformation path of an open economy. Figuring out how to allocate a region's production factors around the world and how to improve the local factor endowment structure and boost industrial transformation & upgrading and sustainable economic development has been a major strategy. The approved construction of China (Zhejiang) Pilot Free Trade Zone provides an opportunity for Ningbo to further develop an open economy. The profit center arising from international division of labor is shifting the focus from the traditional manufacturing and general service industries to the high-end manufacturing industry integrating IT and intelligent manufacturing and the digital service industry. Under the background, Ningbo must properly adjust the opening-up strategy, lead the world in technological and institutional innovation, improve the ability and level of enterprises and governments in terms of strategic layout of industry chain worldwide, and enhance China's position in the international division of labor. In the new stage of economic globalization development, Ningbo will take more initiatives in the profound change of global economic pattern by implementing a more positive and active opening-up strategy.

Ningbo has played a leading role in the pilot implementation of the policy for free trade zones. In the paper, an evaluation model was built by the analytic hierarchy process (AHP) to comprehensively evaluate Ningbo's opening-up path and strategy on a quantitative and qualitative basis. In 2017, Ningbo got the total score of 65.79 through the comprehensive evaluation, including 51.43 in behavior-oriented indexes (percent of realization: 70.24%), and 14.35 in ability-oriented indexes (percent of realization: 54.18%). Through research on the path and policy of further developing an open economy based on the score, Ningbo will step up efforts to become a part of the national strategy, and further consolidate and improve its economic status in the domestic and foreign markets. This will be of great significance for creating an economic circle of port with leading, radiating and driving functions.

### 1. Introduction

Since the reform and opening up, Ningbo has almost broken new ground in pursuing all-dimensional, multi-tiered and all-sectoral opening-up, making significant progress in developing an open economy. Based on the development scale of international trade and international direct investment, Ningbo has become one of China's top open cities famous to the world. However, in terms of the quality, benefit and efficiency of open economy, foreign trade structure, international direct investment structure and open economy development, Ningbo needs to more efforts to upgrade into a strong open economy.

With respect to the definition of opening-up, on the one hand, a country takes the initiative to

expand international economic exchanges; on the other hand, efforts are made to develop an open economy by relaxing policies, lifting or cancelling various restrictions and cancelling the protective policies which block domestic market and investment places. For the purpose of opening-up, it is necessary to strengthen international economic, technical and cultural exchanges and cooperation, expand foreign trade, utilize foreign funds in a proactive and effective manner, introduce advanced technologies and foreign talents, encourage competitive enterprises to open businesses abroad, and allocate production factors around the world [1]. According to the characteristics of factor endowment for development of an open economy, the stages of labor export, capital export and technology export were included. As a port city, Ningbo has a good basis for opening up. However, Ningbo involves a large proportion of primary manufacturing and processing industries, with the products featuring low tech and low added value. This results in the lack of international competitiveness. Although Ningbo has been striving for the development of service and high-tech industries after the economic crisis, the poor basic and external policy environment and other factors make it difficult for transformation and upgrading. In spite of the possibility of introducing foreign investments, core technologies are still being held by foreign-invested enterprises, resulting in the poor competitiveness [2]. In respect of foreign investment-based industrial layout, foreign investments are mainly made in Ningbo's secondary industries which consume energy and raw materials a lot, especially the manufacturing and processing industries which pollute the environment greatly; but few investments have been made in the tertiary industries. That's why foreign investments have made few economic and social contributions. Guided by the Belt and Road Initiative, it is proposed to open wider to the countries along the Belt and Road, and push for the construction of free trade zones and a global network of free trade zones [3]. As an important part of China's opening-up strategy, the Belt and Road Initiative should take into account international and domestic development, as well as the complementarity between international and domestic capabilities and demands [4]. To comprehensively evaluate the opening-up quality, it is necessary to, on the basis of quantitative analysis, prepare a set of scientific and complete comprehensive evaluation index system for further analysis according to the opening-up policy. Policy-based measure of openness is a direct method used to measure the openness, but its effectiveness is greatly reduced due to the complexity, subjectivity and the discreteness of data obtained. Additionally, the openness research aims to boost the stable and healthy development of regional economy by controlling the flow of regional production factors, such as commodities and capitals. Therefore, the result-based openness research is more direct. Relying on data availability and comparability, the result-based openness research makes it more convenient to comprehensively measure the openness. As a result, the result-based openness research is promising.

Based on the literature analysis, case analysis and analytic hierarchy process, in combination with the definition of opening up, factor endowment, open development concept and Ningbo's basic conditions in the previous literature, the paper prepares an opening-up index system in the fields of trade, investment, service, human capital and infrastructure, and proposes to Ningbo substantial suggestions on the further improvement of opening-up level, with an aim to enhancing the city's international influence, creating an international business environment, and developing Ningbo into a strong open economy as its long-term economic development strategy.

## **2. Current situation of Ningbo's opening-up**

With the promotion of the Belt and Road Initiative, free trade zones and bonded zones play an increasingly important role in advancing China's opening-up, thus greatly simulating the export growth. According to the statistics of Ningbo's customs, Ningbo significantly increased its exports to the countries and economies along the Belt and Road (see Figure 1). Ningbo is located at the joint between the Yangtze River Economic Zone and the Silk Road, providing the traffic convenience for market trade. By virtue of the opportunity under the Belt and Road Initiative, Ningbo is expected to achieve a new round of development, and become stronger to promote economic development. The paper will describe the current situation of Ningbo's opening-up and

its strengths from the view of policy, trade basis and port advantages.

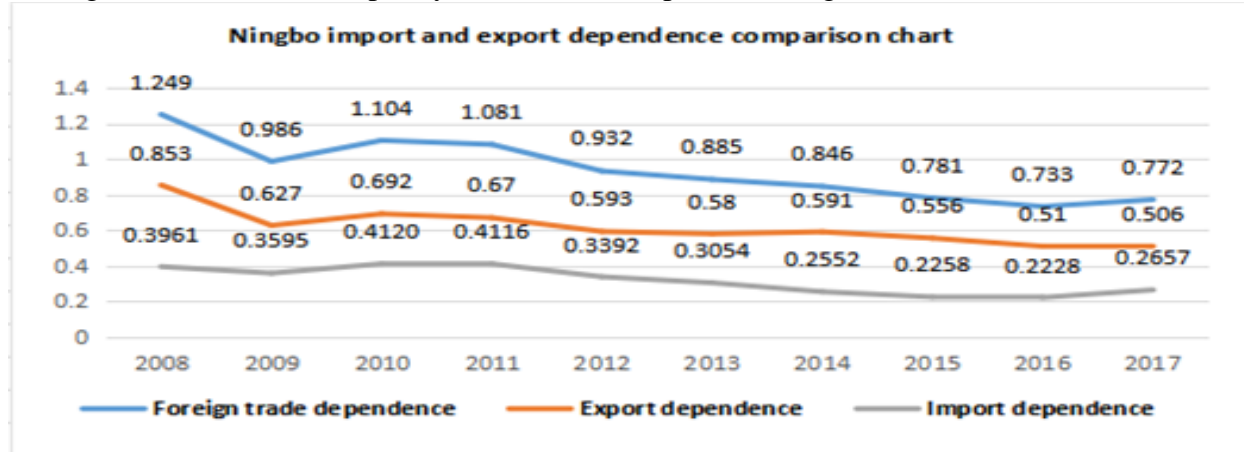


Figure 1 Ningbo import and export dependence comparison chart (Ningbo Statistical Yearbook 2008-2017)

## 2.1 Great policy supports

In terms of functional policy, as one of the national-level all-type corolla cities, Ningbo is home to special zones supervised by air-sea-land customs, and four special zones, including bonded zone, bonded port area, export processing zone and bonded logistics zone. Free trade zone is China's first special zone supervised by customs. In the functional policy design of a zone which is most similar to an international free trade zone, domestic non-bonded goods are approved to enter the zone, and enterprises are allowed to carry out domestic trade, and taxes are levied on the processed and manufactured products sold at home as materials and parts of imports. The free trade zone and export processing zone, bonded zone and port logistics zone are combined into a most advantageous special customs zone, with complete functions, policy supports and positioning advantages. Relying on the functional policy, Ningbo's special customs zones, especially Meishan Bonded Area and Ningbo Free Trade Zone, further enable the economic circles of the ports effectively to stimulate the development of surrounding areas. The free trade zone integrates the functions of import and export processing, international trade and display of bonded warehouse goods, and enjoys the "bonded, tax-free and exemption" policy. Goods can be free exchanged between the bonded zone and the foreign market without declaration, and it is only required to submit business documents to the customs for filing; overseas products can also be stored and displayed in a bonded manner in the zone. In the bonded zone, enterprises are exempt from the import linkage taxes and duties on the devices imported for self-use.

On the basis of national, provincial and municipal-level supportive policies, the free trade zone puts into effect the industrial support policies by giving special funds for industrial development, encouraging and guiding the faster development of key fields, especially bonded manufacturing, bonded lease, bonded display, cultural creativity and design service. From the view of innovative vitality, Ningbo Free Trade Zone boasts superior systems, and takes the lead in making various pilot reforms, with the institutional advantages in developing economic circles of the ports.

## 2.2 Solid foundation of trade

With a long history of opening up, Ningbo has become one of China's most important coastal cities that develop foreign trades. Ningbo has formed a sound industry chain, with an unobstructed logistics system; the special zones supervised by customs are developing well on the whole. In 2017, on the basis of occupation of 0.1% of the whole city's land, the zones realized the total export-import volume of USD 28.4 billion, accounting for 15% of the total contributions; among them, Ningbo Free Trade Zone (including Ningbo Export Processing Zone) contributed the export-import volume of USD 21.6 billion, accounting for 13.1% of the whole city's volume, and ranking the third among the zones of the county (city). In 2017, Ningbo realized the GDP of RMB 985 billion, up 7.6% year-on-year; gained the general public budget revenue of RMB 124.51 billion, up 10.9%;

completed the fixed-asset investments of RMB 501 billion, up 3.5%; increased the private investments by 11.9%; contributed the total export and import trade value of RMB 760.06 billion, up 21.3%; put foreign investments of USD 4.03 billion in actual use; achieved the total retail sales of consumer goods up to RMB 400 billion, up 10%; and achieved the per capita disposable income of urban and rural residents exceeding RMB 55,000 and RMB 30,000 respectively, up 7.9% and 8%.

### **2.3 Significant port advantages**

Ningbo Free Trade Zone is adjacent to the port which integrates the functions of customs clearance service and operation and connects the special zone supervised by customs, giving the convenience for product circulation. Zhejiang Free Trade Zone is close to the Beilun Port Area of Ningbo Zhoushan Port; Meishan Bonded Area, close to the Meishan Port of Ningbo Zhoushan Port, is located at the center of the coastal port coastline in Ningbo. Domestically, the Chuanshan Highway for Port, Daqi Highway for Port, Coastal Midline and Meishan Bridge are designed to facilitate the access to the main cities in Yangtze River Delta region and Eastern China by fast connecting to such trunk roads as Ningbo beltway, Ningbo-Taizhou-Wenzhou expressway and Hangzhou-Ningbo expressway; internationally, via the Asia-Pacific International Main Channel from Ningbo Zhoushan Port, Hong Kong, Macao, Taiwan, Southeast Asia and the whole Pacific region are accessible. Meanwhile, the zone is provided with direct customs clearance services at the important international airports, airlines and customs of Shanghai, Hangzhou and Ningbo, making it possible to fast complete the customs clearance procedures in the free trade zone and facilitating the trades. As one of the most important trunk container ports and one of China's main hub ports, Ningbo Zhoushan Port boasts unique advantages in location and resource, and has been recognized as an international shipping hub. Situated at the key T-junction under the Belt and Road Initiative, Zhoushan Port enjoys a good geographical location and excellent shipping conditions, with routes to or from more than 600 ports in the world. Zhoushan Port is a high-quality deep-water port which accommodates a large number of above 10,000-DWT deep-water berths, with the cargo throughput and container throughput among the best in the world. As China's important hub for bulk commodity processing, production and transaction, Zhoushan Port has made significant contributions in improving China's ability to allocate bulk commodities across the world.

In recent years, Ningbo has been proactively promoting the integrated land, sea and air transportation construction, and been committed to developing into a tier-1 traffic hub city of China. The Ningbo-Taizhou-Wenzhou expressway and the Ningbo-Jinhua expressway have been built and open to traffic, and Hangzhou Bay Bridge, Jintang Bridge and Ningbo Lishe International Airport have been constructed. With increasingly improved concentration and evacuation network, Ningbo has gradually been accepted as a transportation center.

### **3. Empirical analysis on opening-up level of Ningbo**

Analytical hierarchy process (AHP), proposed by T.L.Satty - Operations Researcher of the University of Pittsburgh in the early 1970s, is a scientific method used to determine the weight of multi-level elements. It is also a decision-making method for comprehensive evaluation of multi-index on a qualitative and quantitative basis. AHP has yielded good effects in the evaluation of economic indexes. On the basis of investigation, AHP is used to build an evaluation model for the qualitative and quantitative evaluation of Ningbo's opening-up path and strategy. Basic steps are detailed as follows: first, construct a judgment matrix and select related experts to judge the relative importance of index with the ratio scaling method; then take the mean to build a matrix, and consider the comprehensiveness, sensibility, independence and creditability while determining the importance of index. Second, calculate the weight of each index by the square root method. Third, carry out a consistence test for the judgment matrix by calculating the CR index.

In consideration of the data availability and experimental operability, the paper decides to use AHP for comparative analysis on some specific unquantifiable factors that affect Ningbo's opening-up by building a hierarchical structure and a pairwise comparison-based judgment matrix to calculate the weights of alternative elements. Nine experts were invited to make research on

international trade and port economy, drawing a conclusion of the rationality and representativeness in terms of age group, education degree and employers' nature (see Table 1).

Table 1 Distribution of survey experts

Age distribution		Education level		Nature of the work	
Aged 20-29	1 (11.1%)	Doctor' degrees	4 (44.4%)	Government officials	3 (33.3%)
Aged 30-39	3 (33.3%)	Masters' degrees	4 (44.4%)	Business executives	3 (33.3%)
Aged 40-49	4 (44.4%)	Bachelor' degrees	1 (11.1%)	School professor	3 (33.3%)
Aged over 50	1 (11.1%)				

### 3.1 Establishment of index system

In this study, through review of a great deal of literature, in combination with the evaluation method for similar urban opening index system, according to the development status of Ningbo, Ningbo's opening index system was established as shown in Table 1. The index system is divided into two types, i.e. behavior-oriented index and ability-oriented index. Behavior-oriented indexes are mainly used to measure the opening-up behavior, including trade, investment and service evaluation indexes. Ability-oriented indexes are mainly used to measure the feasible ability to open to the world, including human capital and infrastructure. Ningbo's opening index system involves 5 level-I indexes, 10 level-II indexes and 20 level-III indexes is listed in Table 2.

Table 2 The Initial Index System of Ningbo's Opening Analytic Hierarchy Process

Initial Index System of AHP			
Level-I index	Level-II index	No.	Level-III index
Trade	Scale	1	Dependence on export
		2	Dependence on import
	Quality	3	Proportion of high-tech and electromechanical product export value in gross export value (positive)
		4	Proportion of cross-border trade
Investment	Scale	5	Total amount of foreign investments attracted
		6	Amount of investments abroad
	Quality	7	Proportion of foreign investments utilized by wholly foreign-owned enterprises
		8	Proportion of employment by foreign-invested enterprises
Service	International tourism	9	Number of inbound tourists
		10	Foreign exchange earnings from tourism
	International finance	11	Number of foreign-funded financial, securities and insurance institutions
		12	Number of enterprises that are listed and carry out financing campaigns abroad

	International exchange	13	Number of international meetings held each year
		14	Number of foreign workers
Human capital	Human capital	15	Proportion of population speaking foreign languages in urban population
	Science, education, culture and health	16	Number of employees in foreign-funded education and cultural institutions
		17	Number of employees in foreign-funded research and medical institutions
Infrastructure	Infrastructure	18	Number of international airlines
		19	Number of service institutions for foreigners in education and medical fields
		20	Number of star hotels for foreigners

### 3.2 General hierarchical ranking and consistence test

General hierarchical ranking is designed to confirm the comprehensive importance of each element to the general target. The evaluation index system weight is listed in Table 3. A consistence test was made on the general hierarchical ranking of level-II indexes. Based on the normalized result, the weights of indexes at each level were re-ranked to obtain the following results:

Table 3 General ranking chart of Ningbo's opening index system

Level-I index	Target weight	Level-II index	Original weight	Target weight	Level-III index	Original weight	Target weight
Trade B1	0.259	Scale C1	0.500	0.130	D1	0.539	0.070
					D2	0.461	0.060
		Quality C2	0.500	0.130	D3	0.539	0.070
					D4	0.461	0.060
Investment B2	0.222	Scale C3	0.500	0.111	D5	0.558	0.062
					D6	0.442	0.049
		Quality C4	0.500	0.111	D7	0.461	0.051
					D8	0.539	0.060
Service B3	0.239	International tourism C5	0.297	0.071	D9	0.424	0.030
					D10	0.576	0.041
		International finance C6	0.500	0.120	D11	0.500	0.060
					D12	0.500	0.060
		International exchange C7	0.203	0.049	D13	0.402	0.020
					D14	0.598	0.029
Human capital B4	0.139	Human capital C8	0.391	0.054	D15	1.000	0.054
		Science, education, culture and health C9	0.609	0.085	D16	0.500	0.042
					D17	0.500	0.042
Infrastructure B5	0.141	Infrastructure C10	1.000	0.141	D18	0.409	0.058
					D19	0.328	0.046
					D20	0.263	0.037

### 3.3 Comprehensive evaluation of Ningbo's openness

Based on the related statistics of 2017, a comprehensive evaluation was made on the openness of Ningbo. In 2017, Ningbo got the total score of 65.79 through the comprehensive evaluation, including 51.43 in behavior-oriented indexes, with the percent of realization up to 70.24% (22.14, 14.94 and 14.35 in international trade, international investment and international service respectively, with the percent of realization up to 85.15%, 69.03% and 61.47%), and 14.35 in ability-oriented indexes, with the percent of realization up to 54.18% (5.12 and 9.23 in human capital and infrastructure respectively, with the percent of realization up to 46.1% and 62.27%) (see Table 4).

According to the scores, we can see that, in the field of international service, the percent of realization was low for the foreign exchange earnings from tourism, number of enterprises that are listed and carry out financing campaigns abroad and the number of foreign workers. Generally, ability-oriented indexes were characterized by low percent of realization, especially the number of employees in foreign-funded education and cultural institutions and the number of employees in research and medical institutions. The table also presents the uneven development of trade structure, fast development of high-tech and electromechanical industries, low proportion of foreign investments utilized by and large proportion of population employed by foreign-funded enterprises.

Table 4 Comprehensive evaluation of Ningbo's opening to the outside world

Reflection level		Index	Unit	Standard	Weight	Total score in 2017		
Reflective level		Indicator noun	unit	Standard quantity	Weights	Actual value	Percent of realization	Score
Trade B1	Scale C1	D1	%	50	7	50.60	98.8	6.92
Trade field	Scale indicator	D2	%	34	6	26.56	78.1	4.69
Trade field	Quality C2	D3	%	59	7	49.97	84.7	5.93
Trade field	Quality Index	D4	%	60	6	46.09	76.8	4.61
Investment B2	Scale C3	D5	USD 100 million	36	6.2	45.13	74.63	4.63
Investment areas	Scale indicator	D6	USD 100 million	30	4.9	35.13	91.45	4.48
Investment areas	Quality C4	D7	%	54	5.1	61.98	85.22	4.35
Investment areas	Quality Index	D8	%	19	6	4.72	24.8	1.49
Service B3	International tourism C5	D9	%	263	3	187	71.1	2.13
Service area	international travel	D10	家	17	4.1	9.9	58.2	2.39
Service area	International finance C6	D11	10,000 person-time	20	6	15	75	4.5
Service area	International finance	D12	USD 100 million	31	6	14	45.2	2.71

Service area	International exchange C7	D13	No.	122	2	115	94.3	1.89
Service area	International exchange	D14	No.	12	2.9	3	25	0.73
Human capital B4	Human capital C8	D15	No.	32	5.4	115	94.3	5.09
human capital indicator	Science, education, culture and health C9	D16	1,000 persons	30	4.2	9	30	0.01
human capital indicator	Science, education, culture and health	D17	%	50	4.2	22	44	0.02
Infrastructure B5	Infrastructure C10	D18	No.	39	5.8	95	100	5.80
Infrastructure indicator	infrastructure	D19	No.	49	4.6	15	30.6	1.41
Infrastructure indicator	infrastructure	D20	No.	249	3.6	140.00	56.2	2.02

Source: Calculated and collated according to Ningbo Statistical Yearbook 2017

#### 4. Problems in Ningbo's opening-up

With strong economic strengths, regional advantages and policy supports, Ningbo has the superiority and potential for further opening to the world. However, some underdevelopment problems need to be solved in the process of Ningbo's further opening-up.

##### 4.1 Inadequate openness of service sector

According to the international experience, the service sector has made great contributions to foreign trade. Especially in many developed countries, its contribution accounted for over 70% of GDP. In 2017, the added value of Ningbo's service sector reached RMB 36.2731 billion, accounting for 47.1% of the city's GDP. It is still far inferior to developed countries. This is mainly presented by the low percent of realization of the important indexes of opening-up in the service sector, such as the number of foreign-funded financial institutions in Ningbo, number of enterprises which are listed and carry out financing campaigns abroad and foreign exchange earnings from tourism. The finance sector comes with the development of service sector to a certain extent. The finance sector's prosperity indicates the service sector's prosperity to some extent. Therefore, the small quantity of foreign-funded financial institutions in Ningbo also shows the inadequate openness of Ningbo's service sector.

##### 4.2 Unsound policy system

In the process of accelerating opening-up, Ningbo has made some adjustments to related policies, but some still need to be improved, such as the trade management system, customs management system and foreign exchange control system. These are still in conflict with the requirement of accelerating foreign trade construction and internationalization. Particularly, many problems are found, such as the unclear market access standard in the foreign trade and investment fields in the free trade zone, the failure to timely update web portal information, the absence of a



single window to facilitate trades; the absence of sound laws and regulations of the special zones supervised by customs, which makes it impossible to solve any disputes arising in the process of further opening-up and to achieve the coordination and uniformity; less strict financial regulation which causes the vulnerability of illegal arbitrage. Along with the wider opening to the world, the inflow of foreign funds will probably result in financial risks, which will slow down the opening-up process, and even cause an adverse effect to a greater extent.

#### **4.3 Four kinds of structural unbalance in opening-up**

First, unbalance between trade scale and trade structure due to large scale of trade, but low technical level and low added value of exports; second, unbalance between service trade and goods trade structure caused by underdevelopment of service trade; third, unbalance between foreign direct investment and outward direct investment as a result of less outward investment; four, the three kinds of unbalance above are actually related to the unbalance in opening-up policy. The previous opening-up policies of Ningbo were mainly made for the fields of export trade and foreign direct investment, and focused on the development of manufacturing, with less attention to the high-end service sector, outward indirect investment and environment issues. That's why there is unbalance in opening-up policy.

#### **4.4 Weak ability to integrate factors**

In the massive economy condition, Ningbo is troubled by the problems of extensive development, low level, scattered layout and incomplete supporting functions. In the traditional industrial economy conditions, it is also troubled by the problems of project dependence, factor dependence, shortage of innovation and weak source. There are also many problems, such as redundant low-quality industrial factors, low configuration efficiency, and lack of advanced factors required for transformation and upgrading, including technology, capital, talent, management and information. Due to the weak ability to integrate factors, especially advanced factors and innovation factors, it is difficult to take advantage of global factors, which obstructs the transformation and upgrading of enterprises.

### **5. Path and strategy of opening Ningbo wider**

#### **5.1 Promoting the transformation of foreign trade development mode**

Ningbo now is in sore need of transformation from the extensive development mode to intensive development mode. It needs to further develop and research capital-intensive and technology-intensive products while continuing to develop the comparative advantage in exporting labor-intensive and resource-intensive products. The purpose of transforming the foreign trade development mode is to control the expansion of high investment-supported foreign trades, improve the foreign trade structure and benefit. Efforts should be made to improve the labor conditions of labor-intensive industries, to give supports for integrating domestic labor-intensive industrial resources and forming a design, R&D, brand and marketing network, and to facilitate the transformation from cost and price competition to innovative technology, design level and brand competition; it is necessary to give supports to some strategic industries, to make a breakthrough in some aspects of high-tech industries, to take the high ground in industrial technologies by following the frontier of international high technologies, and to accelerate the development of service trade through the opening-up of service sector.

#### **5.2 Optimizing the structure of exports and imports**

Optimizing the structure of exports and imports is a key strategy for transforming the foreign trade growth mode of Ningbo, as well as a top priority for Ningbo to achieve the sustainable development of foreign trade. To realize such sustainable development, Ningbo should strive for diversified and advanced exports through gradual changes; leverage the integration advantages of Ningbo Zhoushan Port for further deep processing of products and concentrated development of the shipbuilding industry; encourage export enterprises to use advanced and applicable technologies to

upgrade traditional industries, to improve the technology content and design level of products, to increase the deep processing rate and the added value of labor-intensive products, agricultural products and resource-based products, and to enhance the diversity and competitiveness of Ningbo's exports; take the initiative to expand the overseas market for diversifying the regional structure of foreign trade without any economic fluctuation caused by the extreme intensiveness of trade partners.

### **5.3 Improving the added value of foreign trade products**

With the development of technology, innovation is a must. Enterprises should make investments in R&D, introduce foreign talents, take full advantage of the world's high-end innovative talents to achieve innovative development, own their core technologies and intellectual properties, take the initiative to participate in the division of high-level international value chain, and utilize global resources to ensure the higher added value of R&D, design and brand marketing and to create new comparative and competitive advantages. Ningbo's foreign trade enterprises should step up efforts to strengthen the brand construction and increase the added value of foreign trade products for the sustainable development of foreign trade. First, enterprises should be aware of brand protection by preventing trademarks being stolen, since the loss of trademark means the loss of market and the loss of development possibility. Second, enterprise leaders should understand that a brand is an enterprise's intangible asset, and it will take a long time to build a brand, so it is necessary to take a long-term perspective in the process of advertising and product development. Finally, enterprises should strengthen the construction of proprietary brands for export, and implement the national policies and measures that support the development of brands for export, and expand the export of proprietary brands.

### **5.4 Capital introduction and selection strategy**

It is required to transform the concept of introducing foreign capitals through change of the focus from "quantity" to "quality" to realize accurate, key and effective investment attraction. It is also necessary to build a professional, market-oriented and normalized investment attraction system and mode. Meanwhile, efforts should be made to explore market in the countries and regions along the Belt and Road while expanding the market in the regions pursuing traditional investment attraction mode. It is required to selectively introduce foreign capitals, upgrade and improve sunset industries in a reasonable manner, transform the industrial structure according to the actual situation, and enhance the positive role of foreign capitals in promoting the regional industrial upgrading and technological progress and in improving management and competitiveness. Additionally, it is also required to put more foreign investment policies into effect for some service industries, and to pursue greater investment and cooperation in the fields of science, education, health and culture.

## **6. Conclusion and prospect**

Based on the opening index system and related statistics, a comprehensive evaluation was made on Ningbo's openness, indicating some indexes characterized by low percent of realization, such as foreign exchange earnings from tourism, number of enterprises that are listed and carry out financing campaigns abroad, number of foreign workers in the field of international service, and number of employees in foreign-funded education and cultural institutions and the number of employees in research and medical institutions in the field of human capital. This shows a low proportion of foreign investments utilized by foreign-funded enterprises, unsound structure of exports and imports, defective trade development mode and a lack of balance between import and export scales. However, with mature infrastructure and rapidly developing high-tech industries, Ningbo should make the most of its strengths and make up for its weakness to open wider. The result-based openness measure is also defective to a certain extent, and the result obtained by the method is probably not enough to provide policy guidance. This is because the change in the flow of production factors, such as commodity and capital, is a result not just from the change in

openness, but also from geological factors, cultural conventions and domestic policies. In the author's opinion, on the basis of result-based openness measure, it is necessary to analyze the sensitivity of opening-up policy through further research on the relationship between the change in opening-up policy and the change in openness.

## References

- [1] Cheng Huifang, Chen Chao, 2017, "Knowledge Capital and The Total Factor Productivity Under Open Economy, the International Experience and China's Enlightenment", economic research, 10th album, pp. 21-36.
- [2] Ding Xiaoyi, Cheng Huifang, 2018, "High, Low-end Products In The International Division of Labor Pattern Change and Driving Factors Analysis", the number of economic and technical economic research, 9 series, pp. 94-78.
- [3] Wang Xiaohong, 2015, "Strategic Thinking of Expanding The Opening To The Outside World In The 13th Five-year Plan Period", international trade, volume 9, pp. 11-38.
- [4] Long Yongtu, 2016, "One Belt And One Road" strategy and new features of China's opening-up strategy ", Regional economic review, series 5, pp. 5-8.