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**| RESEARCH ARTICLE**

## **Analysis on the Cooperation Path of Digital Trade between China and Portugal**

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**| ABSTRACT**

In the rapidly developing modern society, digital technology has brought great changes to many traditional things. Digital trade is a new trade form born from traditional trade. Its appearance has changed the pattern of traditional trade to a certain extent and has been gradually concerned by all parties. At the same time, with the advancement of the times, the multi-polarization of the world has gradually become mainstream. For Portuguese-speaking countries, trade and cultural exchanges can strengthen the cooperation among countries and effectively promote the common development of all countries. Therefore, this paper takes China and Portugal as the main research objects, selects the relevant data of bilateral digital trade from 2008 to 2019 for research, analyzes the scale and structure of bilateral digital trade, and studies and analyzes the cooperation path of digital trade between China and Portugal.

**| KEYWORDS**

China; Portugal; Digital trade

**| ARTICLE INFORMATION**

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### **1. Introduction**

With the continuous development of the times, the way and content of trade have changed under the influence of the rise of the digital economy, and digital trade has also emerged with the technological changes triggered by the digital economy. At present, with the continuous development of digital technology, digital concepts such as big data analysis and artificial intelligence are developing rapidly. And digital trade is also progressing with the trend of this era and gradually becoming an important part of international trade. Since the COVID-19 epidemic ravaged the world in 2020, digital trade has gradually become the focus of attention of all countries in the world and has gradually become an important way in the global economic recovery due to its related factors, such as geographical location and transportation modes.

In the field of digital economy, Portugal, as one of the EU member states, has a rich foundation of digital economy, while China has always been the second largest digital economy in the world. At the same time, China and Portugal have a deep foundation for cooperation. Therefore, this paper draws up the relevant cooperation between China and Portugal in the field of digital trade and analyzes the path of bilateral digital trade cooperation.

### **2. Analysis of the Current Situation of Digital Trade between China and Portugal**

#### **2.1 Digital Trade Measurement Analysis**

The "White Paper on the Development and Impact of Digital Trade" issued by the China Institute of Information and Communications Technology in 2019 pointed out that digital trade refers to trade forms in which information and communications technologies play an important role and covers both physical commodity trade through information and communications technologies and trade in digital services transmitted through the network. The OECD Handbook on Measuring Digital Trade, published in 2020, considers that digital trade mainly consists of digital ordering trade, digital delivery trade and digital

intermediary platform enabling trade. In the digital delivery trade, OECD and WTO quoted the concept of "digital services" put forward by the UNCTAD working group to summarize the international service trade survey, international delivery reporting system, compilation of online delivery transaction volume using administrative tax data, household survey and capture of digital financial services provided by non-banking entities, and proposed that the digital delivery trade includes insurance and pension services, financial services, intellectual property royalty, ICT services, research and development services, professional and management consulting services and all services that can be transmitted online.

Therefore, combining the above related concepts with the measurement indicators of digital trade involved in the WTO database, the industry names and codes for the digital trade measurement in this paper are as follows: insurance and pension services, financial services, intellectual property royalty, communications, computer and information services, other businesses, excluding technology, trade-related and other business services, personal, cultural and entertainment services.

## ***2.2 Analysis of the Status Quo of Digital Trade between China and Portugal***

In the era of rapid development of information, the common development of the international economy is in a trend of cooperation. China has also signed relevant treaties with various countries in the world. Among them, "the belt and road initiative" China's major initiative in the past decade, has affected the relevant cooperation between China and various countries. In recent years, Portugal has always maintained an active participation attitude towards the "the belt and road initiative" initiative. The bilateral digital trade between China and Portugal has benefited from this, and its development has shown a rapid development trend.

From 2008 to 2019, the total digital trade between China and Portugal has been showing a steady development stage. Since the establishment of the comprehensive strategic partnership between China and Portugal in 2005, bilateral trade has developed rapidly, with an increase of US\$ 82 million from 2008 to 2010. In 2010, China and Portugal signed the "Statement of the Ministry of Commerce of People's Republic of China and the Ministry of Economy, Innovation and Development of the Portuguese Republic on Further Strengthening Economic Cooperation", which accelerated the growth of bilateral digital trade and exceeded US\$ 300 million in 2011. In 2018, China and Portugal signed the "Memorandum of Understanding between the Government of People's Republic of China and the Government of the Portuguese Republic on the Joint Promotion of the Silk Road Economic Belt and the Construction of the 21st Century Maritime Silk Road", which marked the faster development of bilateral cooperation between China and Portugal through the "the belt and road initiative". The bilateral digital trade volume exceeded 500 million US dollars, reaching 530 million US dollars. In 2019, the bilateral trade volume reached 578 million US dollars, which has increased 3 times as compared with 2008, with an increase of 410 million US dollars.

## ***3. Analysis of Digital Trade Structure between China and Portugal***

Through the analysis of digital trade measurement, six important industries in digital trade are selected. With reference to this indicator, the specific trade volume of each industry in the digital trade between China and Portugal from 2008 to 2019 is summarized, and the bilateral trade structure, import structures and export structures are analyzed.

### ***3.1 China and Portugal Digital Trade Structure Analysis***

From 2008 to 2019, communication, computer and information services and other businesses, excluding technology, trade-related and other business services, accounted for a relatively high proportion of the bilateral digital trade volume between China and Portugal. At the same time, the year-on-year growth volume was the most stable, with no significant growth fluctuation. The bilateral trade volume between the two countries reached US\$ 226 million and US\$ 292 million, respectively, in 2019. Other commercial services, which always rank first in the total trade volume, are the most important component of bilateral digital trade between China and Portugal. Compared with communication, computer and information services and other business services, the growth rate of trade volume of financial services and personal, cultural and entertainment services between China and Portugal and the volume of trade volume are the smallest. The four-year trade volume of personal, cultural and entertainment services between 2008 and 2011 was only US\$ 2 million, and even when the bilateral digital trade between China and Portugal reached its peak in 2019, the combined trade volume of financial services and personal, cultural and entertainment services was only US\$ 16 million. Thus, the cooperation space between China and Portugal in these two aspects is still to be developed. In addition, the share of intellectual property royalty in digital trade between China and Portugal gradually increased. The trade volume reached in 2019 increased nearly 9 times as compared with the initial trade volume in 2008, and its share in bilateral trade also gradually increased, which proves that the two sides will continue to cooperate and trade in the digital field related to intellectual property in the future.

### ***3.2 China and Portugal Digital Trade Export Structure Analysis***

During the 12 years from 2008 to 2019, other commercial services remained the dominant position in China-Portugal digital trade, accounting for a higher proportion than other digital trade items. Communication, computer and information services are second

only to other commercial services in China's digital trade with Portugal and account for an increasing proportion of the total trade volume. However, the share of insurance and pension services trade declined totally from 4% to 2.66% in 2008 and stabilized in the later period. Personal, cultural and entertainment services accounted for the smallest share of the total, accounting for only 0.88% in 2019. On the whole, the structural changes in China's digital services exports to Portugal are relatively stable.

### **3.3 Analysis of import structure between China and Portugal**

In the import structure of China's and Portugal's digital trade, the fluctuation was more drastic than that of the export structure. Before 2015, insurance and pension services accounted for a higher proportion than other digital trade items, except for other commercial services, which accounted for more than 10% of the total. Since 2015, the use of intellectual property rights and the proportion of communications, computer and information services increased year by year and, to some extent, contributed to the stability of the overall structure. Different from the export structure, including other commercial services always accounted for more than 60% of the digital services imported from China to Portugal, which was the leading service item in the digital services imported from China to Portugal, while the personal, cultural and entertainment services accounted for the least in the import structure, which continued to be 0 from 2008 to 2011 and accounted for 2.34% more than the export structure in 2019.

According to the above analysis, it can be seen that the digital trade between China and Portugal has gradually developed from a unitary structure dominated by other commercial services to a diversified structure. With the passage of time, the fluctuation range of the bilateral trade structure has decreased, and the overall structure has been adjusted and changed, which, to a certain extent, has ensured the sustained, stable and healthy development of bilateral digital trade between China and Portugal.

## **4. Analysis of Factors Affecting Digital Trade between China and Portugal**

### **4.1 Gross Domestic Product**

As the most basic embodiment of a country's strength, gross domestic product can effectively reflect the level of economic development and international competitiveness of bilateral trading countries. The level and scale of economic development of trading countries have a positive effect on bilateral trade volume. The higher the level of economic development, the greater the trade value of the countries. From the perspective of digital trade analysis, the higher the level of economic development, the higher the domestic infrastructure construction level and digital technology, the better able to meet the infrastructure and digital technology requirements for the development of digital trade so as to improve the type and efficiency of digital trade, increases the proportion of digital trade in total exports, and promote bilateral exchanges and common development in digital technology.

### **4.2 Population size**

In the analysis of digital trade, the analysis of population size can effectively reflect the supply and demand of a country's market. However, the interaction between population size and digital trade is not clear because population size can effectively analyze the supply and demand of national digital trade. According to the theoretical analysis of relevant scholars, in terms of the supply-demand relationship, the expansion of the population size of the importing country represents the increase in the number of consumers in the importing country's market; the increase in consumption will and the expansion of the consumption market, thus increasing the demand for imports and enhancing the importing country's import capacity and import management. However, from the perspective of production, due to the increase in population, the productivity of the importing country has been improved, and the related products produced are preferentially supplied to the domestic market. Moreover, the improvement in productivity indicates that the domestic production volume can already meet the demand in the domestic consumption market. As a result, the consumer market of the importing country has gradually become an internal circulation situation, with a decrease in the demand for foreign imports and a decrease in the proportion of the import share in the total import and export volume. At the same time, the research subjects in this paper are China and Portugal. The population size of the two countries is quite different. This premise will lead to the difference in the effect of population size on digital trade.

### **4.3 Internet popularity and Internet development level**

The Internet level is measured by the number of people subscribing to fixed broadband per 100 people. Although there are many definitions of digital trade, its core points to trade forms of goods and services relying on digital technologies such as the Internet. And through that analysis of the internet level, the degree of internet use and the level of digital infrastructure that exists in the bilateral countries of digital trade can be extended.

Through systematic conceptual analysis of digital trade, the development level of the digital economy determines the development of digital trade. The digital economy is inseparable from digital technology and penetration rate. In addition to the internet level mentioned above, internet popularity, i.e. the proportion of Internet users in the total population, can also be used as an important indicator to measure the level of development of the digital economy. From the perspective of the country as a whole, the higher the popularity of the Internet, the greater the number of citizens participating in Internet activities, the greater the demand for digital trade and the greater the market for digital trade. From an individual point of view, in countries with high Internet

penetration, citizens use the Internet more frequently, have a higher degree of understanding of the Internet and demand for Internet-related products, are more likely to be trained and appointed for relevant digital talents, and have a faster rate of updating and development of digital technology. As a result, the problems encountered in the domestic development of digital trade are fewer, the market is effectively developed, and the development and progress of digital trade in the country are promoted.

#### ***4.4 Cultural and institutional differences between the two countries***

Due to the existence of cultural differences in the bilateral countries that conduct digital trade, many kinds of digital products can be effectively exchanged to meet the needs of consumers in the domestic market, thus driving the development of digital trade and in-depth digital exchanges in many fields between the bilateral countries.

In terms of relevant systems, the policies and legal provisions of both parties are somewhat different, which is not conducive to the development of digital trade. At the same time, the EU countries have restrictions on the digital economic policies of the member countries. The digital trade carried out within the EU is not conducive to foreign countries such as China entering the market. The difficulty of carrying out the digital trade will increase accordingly, thus inhibiting the development of bilateral digital trade.

### **5. Analysis on the Cooperation Path of Digital Trade between China and Portugal**

#### ***5.1 Strengthen the Internet, logistics and other infrastructure construction, laying a solid foundation for the development of digital trade***

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#### ***5.2 Strengthen bilateral cultural exchanges and optimize the trade structure***

At the same time, the EU countries have restrictions on the digital economic policies of the member countries. The digital trade carried out within the EU is not conducive to foreign countries such as China entering the market. The difficulty of carrying out the digital trade will increase accordingly, thus inhibiting the development of bilateral digital trade. In the analysis of the current situation of digital trade between China and Portugal, it is found that the products with a relatively high share of bilateral digital trade are other business services and communication, computer and information services, while the other types of digital trade account for a smaller share of the trade volume, especially personal, cultural and entertainment services. It can be seen from this that the bilateral countries lack exchanges and cooperation in digital cultural exchanges and have great potential for cooperation. Therefore, in order to ensure the stable development of digital trade, bilateral countries should actively seek cooperation in the categories that account for a relatively small proportion of the trade volume, especially cooperation and exchange on the cultural level, and strive to fill the gap in personal, cultural and entertainment services of bilateral digital trade, so as to stimulate the development of bilateral digital trade in this sector, improve the structure of bilateral digital trade and promote the stable development of bilateral digital trade.

#### ***5.3 Improve the bilateral personnel training system to ensure the sustainable development of bilateral trade***

In the current bilateral digital trade, cross-cultural management problems such as cultural, linguistic and technological differences exist in most trade items, which is likely to have a certain impact on bilateral digital trade. At the same time, bilateral technology and language talents play a sustainable role in promoting the common development of bilateral digital trade. Therefore, while bilateral countries are developing infrastructure construction, language and digital technology talents should be trained to effectively drive the digital transformation and cultural exchange of bilateral countries, thus promoting the stable development of bilateral digital trade.

#### ***5.4 Deepen the bilateral cooperation mechanism and exploring more cooperation paths***

After the signing of the "the belt and road initiative" memorandum of understanding between China and Portugal in 2018, the digital trade volume reached its highest value since 2008. At the same time, the bilateral countries have established a series of communication platforms, such as the China-Portuguese Countries Economic and Trade Cooperation Forum and the Sino-Portuguese International Trade Center (2021), through the bilateral multi-level exchanges between Macao and China. Especially in recent years, Hengqin is an important hub connecting Macao and the mainland. The process of "Qin-Macao integration" will also

play a role in promoting the exchanges between China and Portuguese-speaking countries. Under the mechanism of the Sino-Portuguese Forum, corresponding institutions can be established to continue to deepen the cultural and trade exchanges between China and Portugal. Through relevant platforms, bilateral digital trade will be steadily promoted, and bilateral digital trade will also drive exchanges in digital culture and technology. In addition, as Portugal is a member of the European Union, the two sides will inevitably face the test of trade barriers. Therefore, the two sides should broaden their cooperation paths and seek more opportunities to promote the common progress of the two countries, especially in the post-epidemic era.

## 6. Conclusion

Through the analysis of the bilateral digital trade between China and Portugal, we can see that the overall digital trade between China and Portugal shows a steady growth trend, but the share of total trade in bilateral trade is low, and the total is small. The major industries in the bilateral digital trade between China and Portugal are other business services and ICT services. In the bilateral digital trade between China and Portugal, the fluctuation of the import structure is more severe than that of the export structure. With the passage of time, the structure of bilateral digital trade has been gradually optimized, and its integration and complementary have been gradually strengthened. There is a large room for development, but there are still certain constraints. Therefore, China and Portugal should strengthen their ties and jointly explore the development of digital trade in bilateral countries.

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