Proceedings of the 8th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/122/20242579

Analysis of the Competitiveness of Digital Service Trade Between China and RCEP Partner Countries

Qianhui Sun[1,a,*]

[1]*School of International Economics and Trade, Shandong University of Finance and Economics, Jinan, China*
a. 1781561610@qq.com
**corresponding author*

Abstract: Based on the digital service trade data from China and RCEP partner countries from 2008 to 2022, this study analyzes the current status of digital service trade, including export scale, structure, and policies. It calculates the international market share and trade competitiveness index, and provides an in-depth analysis of the overall competitiveness of digital service trade and the competitiveness levels by industry within RCEP countries. The study finds that while the international competitiveness of digital service trade between China and RCEP partner countries is relatively weak, the development speed is relatively fast. In response, China should increase efforts in digital infrastructure construction with RCEP partners, promote digital technology research and innovation; enhance digital security and privacy protection, and improve relevant laws and policies; reduce barriers to digital service trade, and increase the influence in formulating digital trade rules; strengthen political mutual trust among RCEP countries, and deepen cooperation in digital service trade.

Keywords: Digital service trade, RCEP, International competitiveness.

1. Introduction

1.1. Research Background and Significance

In recent years, global digital service trade has experienced rapid growth, playing a crucial role in improving trade structures, supporting economic recovery, and building strong trading nations. According to data from the United Nations Conference on Trade and Development (UNCTAD), the global export value of digitally deliverable services increased from USD 1.84 trillion in 2010 to USD 3.94 trillion in 2022, rising from 46.16% to 55.31% of global service trade exports. This indicates that digital service trade has become a primary engine driving global trade growth and is a strategic focal point for countries competing in the future of the digital economy. China's "14th Five-Year Plan for the Development of Trade in Services" explicitly states the need to "accelerate the digitalization of service trade and vigorously develop digital trade." Therefore, accelerating the development of digital service trade is an inevitable strategic choice for expanding, improving, and strengthening China's digital economy.

In 2023, the Regional Comprehensive Economic Partnership (RCEP) officially came into effect for the Philippines, signifying that RCEP is now fully effective for all its 15 signatory countries. The RCEP region accounts for approximately 30% of the global population, GDP, and merchandise trade

DOI: 10.54254/2754-1169/122/20242579

volume. Its full implementation marks the beginning of a new phase for the world's most populous, largest, and most development-potential free trade zone. How to leverage the advantages of RCEP, promote high-quality development of digital service trade, enhance the international competitiveness of digital trade, seize the initiative in global digital trade, achieve mutual benefit and win-win outcomes, and contribute new momentum to global economic growth is an important and urgent task and challenge for China and its RCEP partner countries.

1.2. Literature Review

Digital service trade is a new type of trade model, generally recognized in academic circles as the trade involving the transmission of information, goods, and services through the internet. The United Nations Conference on Trade and Development (UNCTAD)[1] first introduced the term "digitally deliverable services" in 2015. Both domestic and international scholars have systematically studied the role, competitiveness, and influencing factors of digital service trade between China and RCEP countries. Yue Yunsong[2], through the calculation of various competitive advantage indicators, concluded that global digital service trade is growing rapidly. Pan Ziyan[3] analyzed the significant export potential and expansion space of China's digital service trade using the stochastic frontier gravity model. Ma Huilian and Kang Chengwen[4], through stepwise regression analysis, empirically demonstrated that China's international competitiveness in digital trade holds a slight advantage. Yu Rongguang[5], Mo Funing[6], and Wang Qunyong[7] respectively concluded that digital provisions in regional trade agreements and the depth of these provisions promote global digital service trade, population size benefits digital service trade exports, and there is a synergistic relationship between digital service trade and digital infrastructure. Andreson and Wincoop[8] believe that the internet and related infrastructure are the cornerstones of digital trade development; these technologies not only reduce trade costs but also drive the expansion of service trade and stimulate the emergence of new service trade models. Freund and Weinhold[9] further pointed out that digital infrastructure has a significant impact on the transaction costs and scale of digital service trade.

2. Current Status of Digital Service Trade Development

In recent years, the rapid iteration of computer and communication technologies has driven the robust development of the global digital economy. The scale of global digital service trade has continuously expanded, profoundly impacting the international division of labor and becoming a key driver of trade growth. In 2008, the export value of digitally deliverable services in RCEP countries was USD 214.13 billion, which increased to USD 650.35 billion in 2022, a cumulative increase of USD 436.22 billion. The average annual growth rate has expanded rapidly, indicating significant development potential. This paper analyzes the current status of digital service trade development in RCEP countries from three perspectives: the export scale, export structure, and policies of digital service trade between China and RCEP partner countries. Due to the severe lack of data for Vietnam, Brunei, Myanmar, and Laos, these countries are not included in this study.

2.1. Export Scale of Digital Service Trade between China and RCEP Partner Countries

From an absolute scale perspective, the average export value of digital services in RCEP countries was approximately USD 19.284 billion in 2008, which grew to USD 58.939 billion in 2022, reflecting significant growth. In 2022, China had the largest scale at USD 208.913 billion, while Cambodia had the smallest at USD 364 million, with a considerable disparity between the two, the former being about 573 times the latter.

From a relative scale perspective, the average proportion of digital service export value to total service export value in RCEP countries increased from 22.06% in 2008 to 44.18% in 2022. Among

DOI: 10.54254/2754-1169/122/20242579

them, the Philippines had the highest proportion of digital service exports to total service exports in 2022, while Cambodia had the lowest. Japan, the Philippines, and Singapore all performed well in terms of proportion, each exceeding 50%.

From the perspective of growth rate, the digital service export value in RCEP countries showed positive and steady growth from 2008 to 2022. Thailand had the highest growth rate in digital service exports, approximately 21.18%, while the Philippines had the lowest average annual growth rate at only 1.17%. Most countries demonstrated good annual growth rates, including Australia, China, Indonesia, Japan, South Korea, Malaysia, New Zealand, and Singapore.

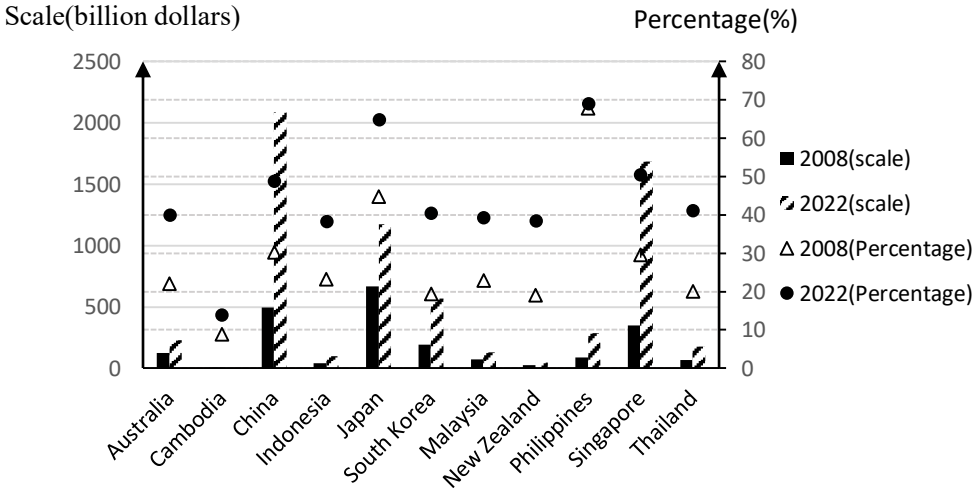

Figure 1: Export Scale and Proportion of Digital Service Trade between China and Major RCEP Partner Countries
Data Source: Calculated by the author based on data from the UNCTAD database

2.2. Export Structure of Digital Service Trade between China and RCEP Partner Countries

This paper uses six industries as components of digital service export trade: royalties and license fees, personal, cultural and recreational services, other business services, financial services, telecommunications, computer and information services, and insurance and pension services. The data indicates that other business services have the highest proportion in digital service exports, while financial services and insurance and pension services account for smaller proportions. Japan has a relatively high proportion of royalties and license fees, Australia has a larger proportion of personal, cultural, and recreational services, the Philippines has a high proportion of other business services, Singapore stands out in financial services and insurance and pension services, and China has a high proportion of telecommunications, computer, and information services.

2.3. Policy Leadership in the Development of Digital Service Trade in RCEP Member Countries

Since January 1, 2022, the Regional Comprehensive Economic Partnership (RCEP) has come into full effect for 15 countries, including China, Japan, South Korea, and Australia, making it the world's most populous, largest, and most promising free trade zone in terms of economic and trade scale. Among RCEP countries, China's digital trade is developing robustly, with a governance model that emphasizes digital sovereignty. The "Overall Plan for the Comprehensive Deepening of the Pilot Program for Innovative Development of Trade in Services" and the "14th Five-Year Plan for the

DOI: 10.54254/2754-1169/122/20242579

Development of Trade in Services" have clarified the focus and path for the development of China's digital trade in the coming period. The introduction of regulations such as the "Data Security Law of the People's Republic of China" is gradually establishing a system framework for the development of digital trade. The accelerated construction of infrastructure centered on 5G base stations, cloud computing, artificial intelligence, and big data is providing strong support for the rapid development of digital service trade. Japan has introduced the "Digital Procedure Law," "Digital Government Implementation Plan," and "Basic Bill on the Formation of a Digital Society," emphasizing technological innovation and digital infrastructure construction. Japan also focuses on protecting digital intellectual property and data privacy, and aims to create a fair and open environment for digital trade. Singapore, as a free trade port and the headquarters of Southeast Asia's cross-border e-commerce platforms, practices a free and open policy in data flow and digital trade, with relevant policies and bills such as the "E-commerce Promotion Plan," "Digital Economy Framework for Action," and "Smart Nation 2025."

3. Comparison of International Competitiveness in Digital Service Trade between China and RCEP Partner Countries

3.1. Analysis of Relevant Competitiveness Indices

International Market Share (IMS) refers to the proportion of a country's export value of a specific good or service relative to the global total export value of that good or service. Among RCEP countries, China and Singapore have the highest average IMS growth rates, at 0.05% and 0.060% respectively, demonstrating a positive development trend. In 2022, their IMS indices reached 5.132 and 4.146, leading the RCEP countries by a significant margin, indicating high international competitiveness and considerable potential. Japan's IMS index, which was the highest among RCEP countries in 2008, dropped to third place by 2022, with a negative annual growth rate, reflecting a decline in its international status in digital services trade and subpar development. Additionally, while the growth rates for Australia, Indonesia, South Korea, the Philippines, and Thailand are relatively modest, all show an improving trend.

The Trade Competitiveness Index (TC) represents the proportion of a country's trade surplus or deficit in a specific industry relative to the total trade volume in that industry. Most RCEP countries have negative TC indices, indicating weak international competitiveness. However, the Philippines maintained a relatively high TC value, demonstrating strong international competitiveness. In 2022, China and Singapore had positive TC indices, suggesting a positive development trend and significant potential.

The Revealed Comparative Advantage Index (RCA) represents the ratio of the export value of a specific product or service to the country's total export value compared to the ratio of the global export value of that product or service to total global exports. Japan, the Philippines, and Singapore had higher RCA values among RCEP countries, showing moderate international competitiveness from 2008 to 2022. The Philippines had the most notable RCA index, consistently above 1.1 each year. The RCA indices of Australia, China, South Korea, Malaysia, New Zealand, and Thailand increased over time, indicating improved international competitiveness and considerable potential.

The Michoely Index (MI) represents the difference between the proportion of a country's export and import value of a specific product or service relative to its total export and import value (i.e., net export share). The Philippines had the highest MI index among RCEP countries, consistently above 0.1, indicating a competitive advantage. In 2022, China and Singapore had positive MI indices, suggesting significant potential. Japan's MI shifted from positive to negative, indicating a decline in competitiveness.

DOI: 10.54254/2754-1169/122/20242579

Table 1: Relevant Indices of Digital Service Trade between China and Major RCEP Partner Countries in 2022

Time / Country	IMS(%)	TC	RCA	MI
Australia	0.557	-0.051	0.78	0.053
Cambodia	0.00	-0.237	0.27	-0.057
China	2.603	0.126	0.86	0.144
Indonesia	0.203	-0.407	0.74	-0.110
Japan	3.484	-0.127	1.23	-0.019
South Korea	1.016	-0.080	0.75	-0.064
Malaysia	0.375	-0.246	0.72	-0.072
New Zealand	0.129	-0.322	0.74	-0.138
Philippines	0.471	0.368	1.22	0.177
Singapore	1.826	0.087	1.01	0.031
Thailand	0.352	-0.228	0.75	-0.013

Data Source: Calculated by the author based on data from the UNCTAD database.

3.2. Industry-Specific Revealed Comparative Advantage Index (RCA)

By calculating the RCA indices for the digital service export trade of six industries in 2022—Insurance and Pension Services, Telecommunications, Computer and Information Services, Financial Services, Other Business Services, Personal, Cultural and Recreational Services, and Royalties and License Fees—we compare and analyze the international competitiveness of industry-specific digital service exports.

According to the data, the most notable advantages among RCEP countries are found in Australia's Personal, Cultural and Recreational Services and Japan's Royalties and License Fees, both with RCA indices exceeding 4, indicating a very strong comparative advantage and high competitiveness. In comparison, Other Business Services across RCEP countries show the best overall performance in terms of RCA indices, demonstrating strong competitiveness.

Table 2: Industry-Specific RCA Indices for Digital Service Export Trade between China and Major RCEP Partner Countries

Industry / Country	Insurance and Pension Services	Financial Services	Other Business Services	Personal, Cultural and Recreational Services	Royalties and License Fees
Australia	0.60	0.58	0.75	4.84	0.39
Cambodia	0.20	0.19	0.29	0.33	0.12
China	0.41	0.14	0.98	0.26	0.51
Indonesia	0.26	0.43	1.05	0.43	0.15
Japan	0.49	0.82	1.09	0.73	4.45
South Korea	0.07	0.30	1.05	0.97	0.95
Malaysia	0.74	0.21	0.92	1.59	0.14
New Zealand	0.52	0.42	0.60	2.14	1.53
Philippines	0.09	0.07	2.14	0.20	0.00
Singapore	0.98	1.56	1.18	0.56	0.68
Thailand	0.21	0.22	1.59	0.19	0.10

Data Source: Calculated by the author based on data from the UNCTAD database.

DOI: 10.54254/2754-1169/122/20242579

4. Policy Recommendations

Based on the current development status and competitiveness analysis of digital service trade in China and RCEP countries, the following policy recommendations are proposed to better cultivate and enhance the competitive advantages of digital service trade in China and RCEP countries:

4.1. Strengthen Digital Infrastructure Construction and Promote Digital Technology R&D Innovation

In the digital era, robust digital infrastructure is the core pillar and essential condition for supporting the development of digital service trade. RCEP member countries face inadequate investment in digital infrastructure and significant regional disparities. Most countries' logistics systems are outdated, and cross-border logistics face severe challenges. Further investment and development in digital infrastructure should be encouraged, focusing on systematic and scalable growth. For countries with relatively mature infrastructure, such as China, Singapore, and Japan, comprehensive planning for the construction of key infrastructures like 5G base stations, data centers, and cloud computing centers is essential to ensure the rationality and foresight of the overall layout. Additionally, R&D innovation in core technologies is crucial. Increased investment in digital technology R&D should be emphasized, focusing on achieving significant breakthroughs in key technologies. Technology innovation should revitalize the digital service trade sector, fundamentally improve efficiency, and solidify and expand the competitive advantages of digital service trade through continuous innovation.

4.2. Improve Relevant Laws and Policies to Build a Digital Service Trade Governance System

Among RCEP member countries, many face issues such as incomplete legal systems, lax enforcement, and inadequate regulation. To meet international digital rule requirements and gradually align with high-level international regulations, the strategic goals and development paths of digital trade need to be clarified as soon as possible. Relevant policies for digital service trade in various countries need continuous improvement to build a comprehensive digital service trade governance system, which will significantly promote high-quality development in digital service trade. Additionally, digital technologies should be leveraged to enhance regulation of the digital service trade process, encouraging the involvement of governments, industry organizations, enterprises, and the public to form a multi-regional governance system.

4.3. Enhance Digital Security and Privacy Protection to Ensure Healthy and Orderly Development of Digital Service Trade

With the rapid development of digital service trade, data security and personal privacy protection have become crucial issues for maintaining trade order and protecting consumer rights. RCEP member countries need to strengthen cooperation on digital intellectual property and personal privacy protection. They should clearly define individuals' rights to be informed, to choose, and to delete their data, ensuring that personal privacy is adequately protected. More stringent regulations on the collection and use of personal data should be established and implemented to improve personal privacy protection mechanisms. At the same time, there should be increased investment in R&D for data security technologies and enhanced data protection measures. Improving key technologies such as data encryption and identity verification is essential to ensure data security and reliability during cross-border transmission, storage, and processing. Establishing a data security protection mechanism based on data information sharing and mutual recognition of standards will create a trustworthy trade

DOI: 10.54254/2754-1169/122/20242579

environment for participants, thus ensuring the healthy and orderly development of digital service trade.

4.4. Enhance the Role in Formulating Digital Trade Rules and Participate in Building Global Digital Trade Regulations

In the current global digital trade landscape, RCEP member countries, as representative groups of many developing nations, generally lack participation and influence in the formulation of international rules. Since digital trade rules have not yet formed a unified standard, RCEP countries should collaborate to actively adapt to international division of labor trends and proactively align with high-standard international digital trade rules to gain an early advantage in the global rule-making process. Firstly, they should learn from and engage with high-standard digital trade rule systems in regions such as the European Union and North America to enrich their own experience. Secondly, they should actively participate in negotiations and formulation of international digital trade rules, incorporating their development needs and perspectives into these rules to enhance their voice and influence. Contributing to the creation of a fair, open, and inclusive global digital trade environment will promote the healthy development of digital service trade both within and beyond the region.

4.5. Strengthen Political Trust Among RCEP Countries and Deepen Cooperation in Digital Service Trade

Within the RCEP framework, there are significant differences in the economic development levels and interests of member countries. To enhance cooperation in digital service trade, it is essential to start from the political level. Political trust is the foundation for deepening economic cooperation. It is important to respect the territorial sovereignty of each country and to enhance political trust through strengthening political consultations and cultural exchanges. Economically, countries should seek common ground in their economic interests through dialogue and negotiations, develop mutually beneficial trade policies, and actively sign regional trade agreements. These measures will help improve the digital service trade environment, increase trade efficiency, and provide more convenient cross-border trade conditions for businesses in each country. Additionally, it is necessary to deepen industrial cooperation and explore new drivers for future trade development. Cooperation should focus on key elements such as digital trade cooperation mechanisms and carriers, and digital infrastructure construction, to unlock the cooperative potential of bilateral digital trade.

4.6. Reduce Barriers to Digital Service Trade and Develop a Multi-Layered Digital Service Trade Network

To strengthen trade cooperation among RCEP countries and enhance the trade benefits within the RCEP framework, it is advisable to appropriately reduce tariff barriers, improve fiscal and financial regulation capabilities, and increase government investment in digital service trade. Through multi-channel cooperation methods such as e-commerce conferences and summits, gather the digital interests and trade rule demands of partner country governments, industry associations, businesses, and internet users. This will enhance mutual understanding of international digital trade rules and domestic e-commerce policies, promote the establishment of an inclusive and mutually beneficial digital trade environment, reduce bilateral digital trade policy barriers, and gradually form an inclusive, open, and mutually beneficial global digital community. This will advance high-level openness in the digital service industry.

5. Conclusion

This paper, based on an analysis of the current state of digital services trade in China and major RCEP countries, compares and measures the international competitiveness indicators of digital services trade across different countries, with a focus on both overall and sector-specific competitiveness. The study finds: First, there has been significant growth in the level of digital services trade development among major RCEP countries, with substantial development potential. Currently, China has the largest absolute scale, while Cambodia has the smallest. Relative to scale, the Philippines has the largest share, and Cambodia the smallest. Thailand has the highest growth rate, while the Philippines has the lowest. Second, other business services have the highest share in the digital services trade sector, while financial services and insurance and pension services have smaller shares. Third, by calculating the IMS, TC, RCA, and MI indices, it is found that RCEP countries are in a stable development phase for digital services trade, with China, Singapore, and the Philippines showing strong competitiveness, while Japan's international competitiveness is declining. Finally, policy recommendations include: China should work with RCEP partners to enhance digital infrastructure construction and promote digital technology research and innovation; improve relevant laws and policies to build a governance system for digital services trade; enhance digital security and privacy protection to ensure healthy and orderly development of digital services trade; collaborate with RCEP countries to increase influence in the formulation of digital trade rules and participate in establishing global digital trade rules; strengthen political mutual trust among RCEP countries and deepen cooperation in digital services trade; reduce barriers to digital services trade and develop a multi-layered digital services trade network.

References

[1] *United Nations Conference on Trade and Development (UNCTAD). International Trade in ICT Services and ICT-enabled Services [R]. UNCTAD Publication, 2015.*

[2] *Yue, Y., & Li, R. (2020). Comparative analysis of international competitiveness in digital services trade and its implications for China. China Circulation Economics, 34(04), 12-20. DOI:10.14089/j.cnki.cn11-3664/f.2020.04.002.*

[3] *Pan, Z. (2024). Efficiency and potential of China's digital services trade exports to RCEP partner countries: Based on a stochastic frontier gravity model. China Circulation Economics, 38(02), 105-116. DOI:10.14089/j.cnki.cn11-3664/f.2024.02.010.*

[4] *Ma, H., & Kang, C. (2022). International competitiveness of China's digital trade and its influencing factors. China Circulation Economics, 36(11), 60-71. DOI:10.14089/j.cnki.cn11-3664/f.2022.11.006.*

[5] *Yu, R., & Wang, H. (2024). Promoting the liberalization of China's digital services trade through high-level openness. Journal of Hebei University of Economics and Trade, 45(02), 77-89. DOI:10.14178/j.cnki.issn1007-2101.20240009.002.*

[6] *Mo, F., & Chen, Y. (2024). Exploring the export potential of China's digital services trade to RCEP countries. Contemporary Economic Management, 46(04), 63-70. DOI:10.13253/j.cnki.ddjjgl.2024.04.007.*

[7] *Wang, Q., & Miao, P. (2024). Coordinated development of digital services trade and digital infrastructure. Contemporary Finance & Economics, (02), 125-138. DOI:10.13676/j.cnki.cn36-1030/f.20231115.001.*

[8] *Anderson, J., & E. Wincoop. (2004). Trade costs. Journal of Economic Literature, 42(3), 691-751.*

[9] *Freund, C. L., & Weinhold, D. (2004). The effect of the Internet on international trade. Journal of International Economics, 62(1), 171-189.*