An Empirical Study on the Trade Potential of Sino-Russian Bilateral Trade

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ABSTRACT

In recent years, Relations between China and Russia are at their best ever. They have been maintaining close trade ties since the collapse of the Soviet union in 1991. Based on the research direction of Sino-Russian bilateral trade potential, this paper explores the Sino-Russian bilateral trade potential through empirical analysis. This paper estimates the trade potential value by building a trade gravity model. The empirical analysis shows that the trade potential of China and Russia is huge. Finally, policy Suggestions are put forward, that is, by changing the commodity trade structure between the two countries, increasing investment and optimizing industrial and technological cooperation, the trade development between the two countries can be further improved.

Keywords: Sino-Russian bilateral trade, the gravity model, trade potential

1. INTRODUCTION

According to General Administration of Customs of the People's Republic of China , China's imports and exports to Russia totaled $55.2 billion in 2018, increased by 23.9 percent compared to 2017 and it accounts for 3 percent of China's total imports and exports in 2018. Exports to Russia totaled $52.23 billion, increasing by 8.9 percent, and imports from Russia totaled $56.08 billion up 40 percent compared to last year. Meanwhile, in 2018,Sino-Russian bilateral trade exceeded 100 billion yuan for the first time, reaching $107.06 billion, surpassing the historical high point of over 30 years and an increase of nearly 28 percent over 2017. Since the financial crisis of 2008 , trade between China and Russia has reached a peak once again . It can be said that now is the best time for trade between China and Russia.

On the issue of bilateral trade potential between China and Russia, some domestic scholars have carried out a certain research. Zhu Zijing (2016) combined with trade complementarities between China and Russia to explore the factors affecting trade between the two countries,and he made a comparative analysis based on many data from calculating related trade index,and more is to confirm the trade complementarity between China and Russia. ya-xin liu li li (2018) the theme of this article was based on the analysis of present situation of Sino-Russian bilateral trade and gave a prediction about the future of Sino-Russian bilateral trade.It explored aspects to Sino-Russian bilateral trade from policy,tariff, population, GDP,exchange rate . Sang ning (2016), this article is more about the analysis of trade complementarity and competitiveness between China and Russia. It is a separate exploration from the perspective of export technology, involving a large number of trade theories, and finally it confirms the theory that China has more advantages in export[1].

There are few studies on the trade potential between China and Russia by foreign scholars, while more studies are on the comparative advantages and trade complementarities of the two countries based on the trade theory. Ostrovsky (2002) found in his article, that the progress of trade between China and Russia was less than the political relationship between the two countries, and the two countries had more military and political cooperation, while the economic and trade fields were often neglected, for the Russian government was more willing to develop military cooperation. Nikita (2016) explored the issue of trade complementarity and competitiveness between China and Russia, and also combined a large number of trade theories to comb the literature, and finally concluded that the two countries are not only highly complementary but also highly competitive.

Today, with the rapid development of information, the Internet economy is gradually popularizing, and human beings have higher and higher requirements on science and technology. There is also a larger trade space between China and Russia, which is worth exploring[2].

2. THE DEVELOPMENT COURSE OF BILATERAL TRADE BETWEEN CHINA AND RUSSIA

Collate bilateral trade data from 1992 to 2018, as shown in Table 1:

Table 1 Statistics of bilateral Trade between China and Russia from 1992 to 2018

Year	Bilateral trade volume between China and Russia（hundred million US dollars）	China exports to Russia (hundred million US dollars)	Russia exports to China （hundred million US dollars）
2018	1070.6	522.0	548.6
2017	842.2	428.3	413.9
2016	696.2	373.6	322.6
2015	680.2	347.6	332.6
2014	952.7	536.8	415.9
2013	892.6	495.9	396.7
2012	882.1	440.6	441.6
2011	792.7	389.0	403.7
2010	555.3	296.1	259.2
2009	387.5	175.2	212.3
2008	569.1	330.8	238.3
2007	481.5	284.7	196.9
2006	333.9	158.3	175.5
2005	291	132.1	158.9
2004	212.3	91.0	121.3
2003	157.6	60.3	97.3
2002	119.3	35.2	84.1
2001	106.7	27.1	79.6
2000	80	22.3	57.7
1999	57.2	15.0	42.2
1998	54.8	18.4	36.4
1997	61.2	20.3	40.9
1996	68.4	16.9	51.5
1995	54.6	16.6	38.0
1994	50.8	15.8	35.0
1993	76.7	26.9	49.8
1992	58.6	23.4	35.2

Data source: Ministry of Commerce of PRC

As can be seen from table 1, the development trend of bilateral trade between China and Russia from 1992 to 2018 can be roughly divided into the following four development stages:

Stage I-Stationary period (1992-1999).

After the collapse of the Soviet Union, the Russian government adopted efficient trade reform measures, which reduced the price of domestic products, but given the scarcity of domestic goods, it needed to import goods from China. In 1996, the trade mode of the two countries gradually changed from barter to spot exchange, and the size of the trade was reduced. Russia sharply increased import taxes, which reduced China's ability to make profits from exports and somewhat inhibited China's exports. From 1992 to 1999, although bilateral trade volume did not decline significantly, it remained at a stable level without breakthrough.

Stage Ⅱ- Rising period (2000-2008).

Since vladimir putin took over as President in 2000, the economic and trade relations between China and Russia have reached a breakthrough that has not happened in the past decade , with a steady increase in the overall situation. During the eight-year period, the volume of bilateral trade recovered from a decline of $5.72 billion and grew by 39.8% in just one year, and maintained a rapid growth.

Stage III -the oscillatory period (2009-2014).

In 2008, the financial crisis affected the world, many countries suffered a sharp economic impact.In 2008, the financial crisis spread to the world, and the economies of many countries were severely affected. Similarly, China and Russia could not escape the whirlpool. Compared with 2008, the Sino-Russian trade volume showed a sharp decline in 2009. All countries have adopted policies to protect their countries from greater economic damage. With the gradual recovery of the global economy, the trade environment between China and Russia has also been improved. Finally, in 2010, the trade volume did not decline, and the two countries entered the second stage of steady growth in

imports and exports[3].

Stage IV- Recovery Period(2015 -today)

In 2014, when the bilateral trade volume of Russia reached nearly 100 billion US dollars, economic sanctions from western countries have led to a sharp drop in oil prices. The trade volume between China and Russia, with natural gas as the main trade product, has also been affected[4]. After nearly a year of rapid adjustment, the bilateral trade volume began to bounce back in 2016, reaching the third round of growth. In just two years, the bilateral trade volume exceeded 100 billion US dollars in 2018, reaching 107.06 billion US dollars, and the bilateral trade volume reached another new high.

3. Empirical Analysis of the Potential of Sino-Russian Bilateral Trade Based on the Gravitational Model

3.1. Model Form and Variable Description

Based on the bilateral trade data between mainland China and 30 trading partners in 2017, this paper constructs a trade gravity model in the form of:

$$\log（CE）= \beta 1\log(GDPE) + \beta 2\log (D) + \beta 3 (PE) + \beta 4(APEC) + \mu \qquad (1)$$

In the formula (1), C indicates China, E represents the trading partner, D represents the distance between the two capitals, the PE is the population of country E. and the APEC virtual variable E, whether country E has joined APEC. CE represents the trade volume between China and E country, that is, the total import and export trade between China and E country in 2017, μ is constant. GDPE represents the GDP of country E. We have chosen the capital of the Capital Beijing and the trading partners, and the space distance is a straight line, which is an obstacle. PE represents the total population of E-State in 2017, and the APEC virtual variable indicates whether the E-State has joined the APEC organization, if it has joined, then refers to the data 1, and the reference data 0 is not added.

3.2. Data Sources and Descriptions

The source of variable data in the trade model is shown in Table 2 below.

Table 2 30 nation's data sources

Explanatory variable	Variable symbol	Data sources
E country's GDP	GDPE	World Bank data Network
Total population of E country	PE	World Bank data Network
The distance between China and E	D	Google Maps
Whether or not to join APEC	APEC	APEC Official Website
The Import and Export of China and E country	CE	National Statistical Yearbook

Data sources: Official website of The World Bank、National Statistical Yearbook

The sample selects the trade data of 30 countries with close trade relationship with China in 2017, as shown in table 3 below.

Table 3 30 nation's data sources

Country	GDP （million）	Population （thousand）	Bilateral trade volume （Ten thousand dollars）	Distance （kilometre）	APEC
US.	19390604	325719	58367590	11143.98	1
Holland	826200	17133	7840371	7818.36	0
Japan	4872137	126786	30305294	2102.36	1
Korea	1530751	51446	28025693	956.28	1
Germany	3677439	82695	16807451	7354.54	0
UK.	2622434	66022	7904247	8137.3	0
Singapore	323907	5612	7962892	4479.02	1
Hong Kong China	341449	7392	28652856	1954.9	1
Italy	1934798	60551	4969790	8122.8	0
Canada	1653043	36708	5179846	10447.98	0
France	2582501	67119	5446245	8213.67	0
Australia	1323421	24599	16344735	9010.5	1
Malaysia	314710	31624	9613842	4346.93	1
India	2600818	1339180	8438762	3779.98	0
The United Arab Emirates	382575	9400	4103512	5960.9	0
Spain	1311320	46572	3094271	9240.04	0
Indonesia	1015539	263991	6333169	5219.15	1
Thailand	455303	69038	8013781	3297.28	1
Belgium	492681	11372	2328802	7958.41	0
Vietnam	223780	95540	12199187	2326.84	1
Mexico	1150888	129163	4770863	12455.77	1
Brazil	2055506	209288	8780769	16928.99	0
Philippines	313595	104918	5130511	2851.14	1
Turkey	851549	80745	2190494	6830.13	0
Kazakh	162887	18038	1794313	3651.13	0
South Africa	348872	56717	3919736	12954.95	0
Saudi Arabia	686738	32938	5013688	6594.74	0
Finland	251885	5511	710503	6318.72	0
Pakistan	304952	197016	2008401	3883.93	0
Iran	454013	81163	3713851	5588.82	0
Ireland	333731	4814	1103055	8275.51	0

Source: National Bureau of Statistics, General Administration of Customs of the PRC

3.3. Regression Process and Results of Models

Table 4 Regression result

Argument	Coefficient	t value	p value	Whether or not to pass the test
GDPE（X1）	0.3	1.0396	0.0078	pass
PE（X2）	0.76	3.7308	0.0009	pass
D（X3）	-0.52	-1.8524	0.0000	pass
APEC	0.43	3.2635	0.0946	pass
C	-8.59	-6.2652	0.0121	pass

Table 4 shows that the P value of each variable t value is less than 0.1, which indicates that each variable passes the test, R2 is 0.660484, the goodness of fitting of the model is good, and the P value of the F value is less than 0.01, the model passes the test, the GDPE, the PE and the APEC are positive correlation variables, and the coefficient of the μ is negative, There was a negative correlation between the two groups[5].

The variables and models of the gravity model are tested to calculate the equation of the simulated value of the bilateral

trade volume between China and Russia, and to bring the relevant data of China and Russia into the equation in 2017, the simulated value of the bilateral trade between China and Russia in 2017 can be calculated, and the ratio of the simulated value to the true value can be calculated, as shown in Table 5.

Table 5 Simulation value and Real value

	Simulation value	Real value	Simulation value/Real value
2017	1594.144	849.2	0.6

In order to confirm the development potential of the two countries in the future, it is necessary to compare the Simulation value with the Real value, and if the value of the Real value/ Simulation is greater than 1, the trade between the two countries has been closely related or even reached the excess trade, and if the ratio is less than 1, The trade between the two countries also has a developing space. As can be seen from Table 5, the trade Simulation value in 2017 is lower than the Real value of 0.6 and the ratio is less than 0.8. According to the classification standard of Liu Qingfeng and Jiang Shuzhu (2002) on the trade potential, If the value is less than 0.8, it proves that there is a shortage of trade between China and Russia, which means that there is a lot of room for trade development between China and Russia, and it also further confirms the great potential of trade between the two countries[6].

4. CONCLUSION AND COUNTERMEASURES FOR THE DEVELOPMENT OF BILATERAL TRADE BETWEEN CHINA AND RUSSIA

Based on the problems existing in Sino-Russian trade and the huge potential space for the development of trade, this paper puts forward some policy suggestions on promoting the development of Sino-Russian bilateral trade.

4.1. To Expand the Investment and Improve the Trade Structure

Investment is a major reason that affects the scale of trade development between two countries. The main products of trade between China and Russia are labor-intensive products and natural resources. The field of investment cooperation is relatively single, the result is a market that is not fully open. Therefore, appropriate expansion of investment policy is helpful to open up the markets of the two countries and better meet the market demand of the two countries. Both China and Russia should strengthen the investment consciousness, expand their investment field and scope, and match their investment scale and relationship. China should take advantage of its own advantages to seize opportunities and expand its overseas market，and Russia should take advantage of its geographical advantage, and take advantage of China's The Belt And The Road policy ,increase investment and take this as a breakthrough to expand their own market.[7]

4.2. To Optimize the Structure of Sino-Russian Commodity Trade

Although the structure of bilateral trade commodities between the two countries is single，optimizing the existing industrial cooperation is also a way to maintain the trade potential of the two countries. Russia is rich in natural resources and natural resources is China's main imports. Therefore, it is of great significance to deepen cooperation in the field of energy. Extending the energy transmission line between the two countries would bring convenience to China and greater benefits to Russia. In 2017, the china-russia crude oil pipeline transported 16.5 million tons of crude oil resources, which not only benefited Russia, but also accelerated the original transmission efficiency, thus further increasing the energy cooperation scale[8].

4.3. To Strengthen Technical Cooperation in Advantageous Industries

If the inferior industries of China and Russia only rely on imports, it will have a negative impact on their long-term development. If the two countries can further develop each other's competitive industries, then the trade cooperation areas of the two countries will be wider, such as in the new energy automobile field, the nuclear heat energy field, transportation manufacturing and so on. Through technological exchange, the technical field of the two countries can be improved. which can not only improve the product quality and improve the competitiveness of domestic technological products, but also expand the industrial structure, so that the two countries are not limited to the exchange of trade complementary industries[9].

4.4. To Improve the Bilateral Trade Management System

From the gravity model, it can be observed that the coefficient of the distance is negative, indicating that the distance is a certain obstacle to the trade between the two countries. Both China and Russia have a great deal of wealth, and also vast in territory, which has promoted the development of border trade. As the neighbors China and Russia both have border ports in the northeast, Mongolia, and so on. It is necessary to strengthen their regional cooperation in the management of ports, customs and quarantine, to ensure the healthy and safe development of border trade. Meanwhile, to promote the construction of a free trade zone between China and Russia, which can effectively solve the problem of grey customs clearance. [10]So that the cost of the entry of the commodity can be reduced, the production cost is reduced. We should reduce market access restrictions and create a clear management system to facilitate trade and investment.

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