An empirical study on the influence of border trade between Heilongjiang and Russia on regional economic development under the background of computer software analysis

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Abstract. In recent years, with the change of international economic and political pattern, Sino Russian border trade has been greatly developed, which has a significant impact on regional economy. Trade between China and Russia has a significant impact on bilateral economic development. However, due to various factors, there are still many problems in the border trade between Heilongjiang and Russia, for example, the industrial structure is single, the product structure level is not obvious, etc., which requires the joint efforts of China and Russia to promote the development of border trade. Based on the computer software Eviews, this paper analyzes the influence of border trade on regional economic development. Finally, some suggestions are put forward.

Keywords: Heilongjiang, Russia, Border Trade, Regional Economy, Empirical Study

1. Introduction
With the process of global economic integration, trade exchanges between countries become more important. Russia is the largest country adjacent to China. Through the border trade between China and Russia, especially Heilongjiang, we can not only promote the economic development of the two countries, but also affect the political stability and social harmony of the two countries. Heilongjiang Province is only a river away from Russia, with 25 open ports and 3 trade zones. Heihe bridge, Luohe bridge and railway constitute the important trading ports of Heilongjiang Province going deep into Russia. Therefore, Heilongjiang Province has a unique geographical advantage in the development of Sino Russian trade. In 2013, through the "Heilongjiang and Northeast Inner Mongolia border development and opening up plan" approved by the State Council, China has established the unshakable position of Heilongjiang Province in Sino Russian trade, which has brought great development opportunities for Sino Russian trade.

Through the Sino Russian trade agreement, it will be more convenient for Heilongjiang products to enter the Russian market, which can reduce the transaction costs of Chinese enterprises. By expanding the scale of trade between the two countries, we can enhance the level of bilateral trade. In recent years, the scale of border trade between Heilongjiang and Russia has been expanding, which has become an indispensable part of Heilongjiang's foreign trade. However, in 2015, due to various factors affecting Russia, such as western economic sanctions, depreciation of the rouble, etc., this will seriously affect the Sino Russian trade prospects. In this context, we must ensure the stable development of Heilongjiang's trade scale with Russia, which will become the focus of Sino Russian trade development.
2. An empirical study on the effect of border trade on regional economic development

2.1. Mode of trade
Heilongjiang province's border trade with Russia mainly includes general trade, border small trade and cross-border e-commerce. In terms of total trade volume, in 2015, the import and export volume of general trade reached 59.9%, occupying a priority position. In terms of growth rate, general trade is growing by leaps and bounds, cross-border e-commerce is developing rapidly with the rise of the Internet, while the growth rate of small border trade is relatively slow. However, due to the single mode of trade, it cannot effectively promote the development of local economy, which restricts the border trade between Heilongjiang Province and Russia to a great extent. From Russia's accession to the WTO, its tariff has been further adjusted. For example, the overall tariff level will be reduced from 10% to 7.8%, of which the tariff level of agricultural products will be reduced from 13.2% to 10.8%, and that of industrial products from 9.5% to 7.3%. The average protection period of tariff is 2-3 years, and that of sensitive commodities is 5-7 years.

2.2. Trade scale
With the deepening of trade cooperation between China and Russia, the import and export volume of Heilongjiang Province to Russia is also increasing rapidly. The total trade volume of Heilongjiang Province with Russia increased from 1.37 billion US dollars in 2000 to 23.28 billion US dollars in 2014. During this period, due to the emergence of the world financial crisis in 2008, the bilateral trade cooperation between Heilongjiang Province and Russia was at a low ebb in 2009 and 2010. In 2011, with the new promotion of Sino Russian trade relations, the bilateral trade volume continued to rise, reaching US $23.28 billion in 2014. The trade scale data is shown in Table 1.

| Year | Total imports and exports (US $100 million) | Imports | Exports | GDP of Heilongjiang (100 million yuan) |
|------|---------------------------------------------|---------|---------|--------------------------------------|
| 2000 | 13.7                                        | 4.7     | 9.1     | 3151.4                               |
| 2001 | 18                                          | 7.8     | 10.2    | 3390.1                               |
| 2002 | 23.3                                        | 9.7     | 13.6    | 3637.2                               |
| 2003 | 29.6                                        | 16.4    | 13.2    | 4057.4                               |
| 2004 | 38.2                                        | 21.5    | 16.7    | 4750.6                               |
| 2005 | 56.8                                        | 38.4    | 18.4    | 5513.7                               |
| 2006 | 67.9                                        | 45.4    | 21.5    | 6211.8                               |
| 2007 | 107.3                                       | 81.7    | 25.6    | 7104                                 |
| 2008 | 110.6                                       | 79.7    | 30.9    | 8314.4                               |
| 2009 | 42.7                                        | 27.6    | 15.2    | 8587                                 |
| 2010 | 74.7                                        | 42.8    | 31.9    | 10368.6                              |
| 2011 | 189.9                                       | 43.5    | 146.4   | 12582                                |
| 2012 | 213.1                                       | 51.6    | 194.5   | 13691.6                              |
| 2013 | 223.6                                       | 69.1    | 217.5   | 14454.9                              |
| 2014 | 232.8                                       | 22.95   | 209.85  | 15039                                |
| 2015 | 108.5                                       | 23.5    | 85      | 15083.7                              |

Data source: Heilongjiang Provincial Department of Commerce

2.3. Empirical analysis
Through Eviews, this paper makes an empirical analysis on imports, exports and GDP in Table 1. The analysis results are shown in Table 2. According to the analysis results, border trade is positively related to regional economic development. We can get a graph of the three, as shown in Figure 1.
Table 2. The analysis results

| Variable   | Coefficient | Std. Error | t-Statistic | Prob.       |
|------------|-------------|------------|-------------|-------------|
| C          | 4420.548    | 1130.379   | 3.910678    | 0.0018      |
| IMPORTS    | 28.21778    | 26.27931   | 1.073764    | 0.3025      |
| EXPORTS    | 45.92812    | 8.205948   | 5.596930    | 0.0001      |
| R-squared  | 0.750805    | Mean dependent var | 8496.088 |
| Adjusted R-squared | 0.712468 | S.D. dependent var | 4449.540 |
| S.E. of regression | 2385.934 | Akaike info criterion | 18.55993 |
| Sum squared resid | 7400489 | Schwarz criterion | 18.70479 |
| Log likelihood | -145.4794 | Hannan-Quinn criter. | 18.56735 |
| F-statistic | 19.58403 | Durbin-Watson stat | 0.783203 |
| Prob(F-statistic) | 0.000120 |                      |            |

Figure 1. The effect of border trade on regional economic development

3. Suggestions on the development of border trade between Heilongjiang Province and Russia

3.1. Improve the technical content and grade of export commodities

China should reduce the export of extensive and labor-intensive products, which will improve the technical content and grade of export commodities. Excessive export of labor-intensive products will lead to excessive consumption of local resources, which will not only cause the exhaustion of some resources as original products, but also curb the development and growth of local technology intensive products. Therefore, if the local development of Heilongjiang Province is restrained in general, China and Russia will affect the economic development. On the contrary, if we reduce the extensive export appropriately, we can reduce the dependence on imported technical products, which will greatly improve the local technical products and improve the industrial structure.

3.2. Improve port functions and upgrade port advantages.

By opening up multiple international channels, we can strengthen the port capacity, which will enhance the radiation function of the port. For example, China can vigorously support the construction of international shipping. At the same time, China should improve the utilization efficiency of transshipment points, which can improve foreign trade. At the same time, our country can strengthen the function of electronic customs clearance at ports, which will make ports develop to scale and modernization better.
3.3. Grasp the strategic opportunity and change the mode of foreign trade

Russia's entry into WTO will provide more convenient trade opportunities for border trade enterprises in Heilongjiang Province, which will bring more investment opportunities to Heilongjiang Province. The border trade enterprises in Heilongjiang Province should grasp the strategic opportunity, which will deeply study the change of trade policy. Combined with our own actual situation, we can adjust the trade direction in time. Enterprises should set up a long-term development vision. By expanding the scale of business, we can improve the quality of our products, which will expand the export of our products. At the same time, China can introduce and cultivate professionals with rich international trade experience, which will gradually strengthen policy insight and foresight. By improving the ability and accuracy of market information capture, Heilongjiang can actively look for new profit growth points, which will change the traditional concept of trade opportunities.

3.4. Set up service thought

China should set up the idea of service, which will further improve the economic and trade policy with Russia. Through economic and trade cooperation with Russia, we can create conditions for our economic and trade cooperation. China needs to standardize the port charge method. The daily work department shall implement various charges according to the regulations of the state and local governments. Without the approval of the relevant state departments, government departments shall not levy any fees. Therefore, China should make the policy open. At the same time, China needs to simplify procedures and delegate authority. For example, China should simplify the passport handling procedures for personnel going abroad to Russia, which will facilitate the development of enterprises.

4. Conclusion

The rapid growth of border trade has become an important factor for sustainable and healthy economic development of Heilongjiang Province. Therefore, we need to fully understand the importance of border trade development. By constantly adapting to the new situation of border trade development, China can promote the regional economic development of Heilongjiang Province. Therefore, Heilongjiang government should correctly guide border trade enterprises to change the traditional business model, which will encourage qualified enterprises to "go out", which will better deepen the border trade between China and Russia. Through border trade, Heilongjiang will gradually expand the trade field, which will strengthen investment cooperation with Russia and promote the high-level development of bilateral trade.

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