

An Empirical Analysis of China's Agricultural Products Export Competitiveness

Fan Chenxin
School of Economics
Shanghai University
China
M18621660248@163.com

Abstract—Agriculture used to be China's advantageous industry, but now China's export competitiveness of agricultural products is declining. At the same time, the increasing import of agricultural products means that China has a strong demand market. The coexistence of these two situations means that there are many problems that need to be improved in the development of China's agricultural products. Therefore, it is of great practical significance to study the export competitiveness of China's agricultural products to improve the competitiveness of China's agricultural products export at this stage and to improve the export deficit of China's agricultural products.

This paper empirically analyzes the changes of China's agricultural products in the export competitiveness of China's agricultural products in the past decade from 2007 to 2016. The conclusion is that China's agricultural product export competitiveness is relatively stable, but the overall trend is weakening. The econometric regression model empirically analyzes the impact of labor quality, product processing, RMB exchange rate changes, and the importance of the primary industry to the national economy on competitiveness. The most important combination of empirical analysis and the status quo of China's agricultural exports and proposed policy advice.

Keywords—Agricultural products, Export status, Export competitiveness, Dominant competitive advantage, Trade competitiveness

I. THE STATUS QUO OF CHINA'S AGRICULTURAL EXPORTS

Since 2001, China's agricultural products industry has joined the WTO. The volume of imports and exports has expanded rapidly. China is now the third largest country in agricultural trade. The total trade volume from 2002 was 304.34. The US\$100 million was increased to US\$186.10 billion in 2016. China's export value increased from US\$18.02 billion in 2012 to US\$70.18 billion in 2015. , has grown nearly four times. Imports of agricultural products increased nearly tenfold from US\$12.41 billion to US\$115.92 billion. However, in addition to maintaining a trade surplus in 2002 and 2003, China's agricultural product trade has always had a deficit and the trend is growing. Before and after 2015, China's deficit reached 50 billion U.S. dollars, and export trade accounted for only 37.71% of total trade, and its proportion also continued to shrink.

The export of agricultural products in China is mainly concentrated in Asia. According to the 2016 export data, the amount of Asian export sales can reach about 65%. Japan and Hong Kong are major export destinations. The next step is the European region, but in recent years the share of exports in Europe has declined, from 20% to around 15%. The main reason is that European countries have set up new trade barriers. For example, various quality and quality requirements make it more difficult for China's agricultural products to be exported to Europe. The North American market accounts for about 12%. Japan and Hong Kong are one of China's major export destinations, but their export share has also shown a downward trend in recent years. The proportion of China's export trade to the United States is constantly increasing. The proportion of US imports to China has increased by 7 during this decade. Around the US, the United States has become China's third largest agricultural exporter. From the overall point of view, China's agricultural products trade exports are relatively simple, foreign trade dependence is large, but in terms of development trend, the proportion of European and American markets began to rise, gradually began to diversify, in the long run is a good development trend.

Compare the export volume of major import and export agricultural products and processed products for the past ten years as the main export destination. , aquatic products, vegetables. Fruit is the main advantage product, and the export volume of aquatic products and vegetables in China is growing rapidly. The export value of aquatic products is from 2001. The annual amount of 259.18 million US dollars to 2015. The year's \$19,563,300. The average annual growth rate is 16.83%. Vegetables and fruits increased from 175,207 in 2001 to 1,070,829 in 2015, with an annual growth rate of 14.94%. In 2015, exports accounted for agricultural products exported by China's agricultural products. 30%, the total value of exports reached 216.5. One hundred million U.S. dollars. The export of aquatic products, vegetables and fruits in China is generally on an upward trend. China's export trade is biased towards vegetables. Labor-intensive products such as aquatic products, and the proportion of exports is also constantly expanding. Corn has decreased from \$625.6 million to \$4.9 million. Cereal sales have fallen sharply. By 2015, cereals accounted for only 4.68% of the value of exported agricultural products. In 2012, the largest decline occurred, reaching two-thirds of grain exports, and China imported a large amount of cereals.

II. ANALYSIS OF CHINA'S AGRICULTURAL PRODUCTS EXPORT COMPETITIVENESS

From the results of the explicit comparative advantage index calculation, we can see that China's agricultural product trade competitiveness is weak, and from the trend, China's agricultural product export competitiveness is weakening. From the results

of the agricultural trade index, the index is always less than zero. This means that the export competitiveness of China's agricultural products is weak, and it can be seen from the trend that competitiveness is steadily weakening.

TABLE1.AGRICULTURA DOMINANT COMPARATIVE ADVANTAGE INDEX

YEAR	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
RCA	0.45	0.43	0.41	0.41	0.40	0.40	0.40	0.37	0.37	0.36

TABLE2.AGRICULTURAL TRADE INDEX

YEAR	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
TC	-0.02	-0.16	-0.18	-0.14	-0.19	-0.22	-0.28	-0.27	-0.26	-0.28

III. AN EMPIRICAL ANALYSIS OF THE FACTORS AFFECTING THE EXPORT COMPETITIVENESS OF CHINA'S AGRICULTURAL PRODUCTS

A. Introduction of Variables

Through the collation of the previous literature, several factors that have a high repetition rate and have a greater impact on China's agricultural products have been selected. Through analysis, the influence of these factors on the competitiveness of China's agricultural products export is obtained. It mainly includes several factors such as the improvement of labor quality, the optimization of industrial structure, the change of RMB exchange rate, and the pulling of GDP by the primary industry.

B. Modeling

Based on the above factors and the interaction between them, the following model is established:

$$Y = Y_i = C + B_1 * X_{1i} + B_2 * X_{2i} + B_3 * X_{3i} + B_4 * X_{4i}$$

Y---China's agricultural product export RCA index

X1---China's participation in rural technical training

X2-----RMB against the U.S. dollar

X3-----Processing trade ratio

X4-----The pull of the primary industry on GDP

C-----Constant term

B1 , β2 , β3 , β4 are the coefficients of X1i , X2i , X3i , X4i , respectively.

The unit root test is performed on the variables first. It is known that the variable X1 is stable in the case of the second-order difference and the lag period is 1. The variable X2 is stable. The variable X3 is stable in the case of a first-order difference with a lag period of one. The variable X4 is stable.

The OSL analysis using Eviews 8.0 yields the following results: (retains two decimal places):

$$Y = 2.12 * X_1 - 2.92 * X_2 + 0.19 * X_3 + 0.19 * X_4 + 0.23$$

(4.96) (2.67) (-0.43) (3.25) (6.13)

$$R^2 = 0.994996 \text{ Corrected } R^2 = 0.90993 \text{ F} = 248.5532$$

From the regression results, it can be concluded that the goodness of fit of the model is very good, the goodness of fit $R^2 = 0.994996$, and the F value is also significant, but the significant effect of the variable X2 is not good, indicating that the independent variable is dependent variable. The interpretation is not good, or there is multiple collinearity that makes the T value not obvious. So next do the test of multicollinearity.

Next, perform multi-collinearity test. From the test results, it can get a conclusion that x2, x4 have a high dominant correlation, and x2 has a lower degree of interpretation of the independent variable, so it is decided to eliminate the x2 variable. The model after culling the variable becomes:

$$Y = Y_i = C + B_1 * X_{1i} + B_3 * X_{3i} + B_4 * X_{4i}$$

The model was tested for heteroscedasticity. With a significant level of 0.5, the R^2 value was $2.7 < 8.82$ so there was no heteroscedasticity in the model. DW can verify the sequence correlation of the model, which is $DW = 2.54$. DW is greater than the critical value of 1.73, so the model does not have autocorrelation, and there is no partial correlation.

Final equation and result:

$$Y = 0.17 * X_1 + 0.16 * X_3 + 0.17 * X_4 + 0.22$$

(17.67)(4.66) (3.89) (10.51)

$$R^2 = 0.994806, \text{ corrected } R^2 = 0.992608; \text{ F} = 383.2047$$

From the modified model, the F value and the T value are both significant, and the test passes, so it is finally determined as the model.

C. Empirical Analysis

It can be seen from the final revised model that there is a positive correlation between labor quality and China's

agricultural export competitiveness. For each additional educational investment unit, the dominant competitive advantage index can be increased by 0.17 units. From the statistics, the number of people participating in rural technical training in China has been decreasing, showing a clear downward trend. This is not good for agricultural development and is not conducive to the export of Chinese agricultural products. The number of people participating in rural technical training is decreasing. It may also be closely related to the decline of agriculture, the rapid development of other high-tech industries, the loss of rural labor and the aging of the population.

The export competitiveness of agricultural products is positively related to the added value of agriculture. For each additional value-added unit of product, the dominant advantage index can be increased by 0.16 units. With the improvement of the economic level, people's requirements for the quality and processing level of agricultural products are getting higher and higher, and the consumption pattern of agricultural products is changing. China's agricultural products supply can basically meet domestic demand, but at the same time, it was found to be a large part of similar processed products imported from abroad. This also indicates that China's agricultural product processing industry has not yet developed. Agriculture has increased for every unit of GDP, and the main competitive advantage of agriculture has increased by 0.22. It can be seen from the statistics that the GDP of the primary industry is gradually decreasing from 2006 to 2015. From 0.6 in 2006 to 0.3 in 15 years, it has been cut in half. It can also be seen that the proportion of agriculture in China's national economy is declining. By the end of 2014, the proportion of agricultural production in China's national economy had fallen below 10%.

IV. POLICY RECOMMENDATIONS

Encourage agriculture to innovate, and agricultural innovation can increase the productivity of agricultural products, such as the establishment of agricultural technology innovation awards, etc. to stimulate China's agricultural science and technology innovation.

We can also conclude that China's agricultural technology education and training can enhance China's agricultural export competitiveness. The government should invest more funds in special agricultural education special support, invest more in rural towns and villages, and disseminate more advanced and correct agricultural knowledge. To agricultural workers, cultivate more agricultural technical talents and transfer experienced technical talents for agricultural development.

China's agricultural product enterprises should pay more attention to the brand effect and establish a good international image. The government can also strengthen the brand building of China's agricultural products. For example, we can refer to the United States, put the export subsidies for the soybean industry on the promotion of foreign US soybeans, establish promotional sales centers in various countries, and actively promote domestic products.

REFERENCES

- [1] Hua Jiang, Junhu Ruan., "Applying Rough Set Theory to Evaluate Network Marketing Performance of China's Agricultural Products, "JOURNAL OF COMPUTERS AUGUST 2010.
- [2] Mary-Francoise Renard, "China's Trade and FDI in Africa, African Development Bank Group,"2011.
- [3] Robert Howse and Tim Josling "Agricultural Export Restrictions and International Trade Law: A Way Forward, International Food & Agricultural Trade Policy Council,"2010.
- [4] Wuhan China, Guoxue Wei, Linghong Xie, "The Impact of Environmental Non-Tariff Measures on China's Agricultural Exports, Proceedings of International Conference on Engineering and Business Management,"2011-03-22.
- [5] Buwajian Abula, CHEN Jian, "Analysis of China's Agricultural Exports to Five Central Asian Countries, Management Science and Engineering," 2012(2).
- [6] Akiyama, T. and K. Kajisa., "Agricultural Pricing Policies in Three East Asian Countries: Series Analysis over Four Decades,[M], Washington DC: World Bank Publications, 2000.
- [7] Daman Prakas, "Development of Agricultural Cooperatives-Relevance of Japanese Experiences to Developing Countries ,"2011.
- [8] FAO, "Agricultural commodity markets and trade: New approaches to analyzing market structure and instability," A. Sarris & D. Hallam, eds., pp. 187 217. Rome, FAO and Cheltenham, UK, Edward Elgar.
- [9] Dong Haiying, "Thinking on improving the competitiveness of China's agricultural products export,"[J]. Journal of Sichuan College of Education .2007.
- [10] Lin Liangmin "Analysis of China's Agricultural Products Export Competitiveness,"[J]. International Economy.2016
- [11] Yu Qianqian, "Research on the Status Quo and Countermeasures of Agricultural Products Export in China,". Southeast University.2013.

