PUBLIC ADMINISTRATION

THE DUAL MARGIN OF CHINESE
AGRICULTURAL PRODUCTS EXPORT TO JAPAN

Wu Lingling
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine
ORCID: 0000-0003-2490-6192

Chen Fuli
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine
ORCID: 0000-0002-3929-3651

Zhang Fenghe*
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine
ORCID: 0000-0002-2475-1218

*Corresponding author email: c*1378153296@qq.com

Abstract. The purpose of the article is to investigate the reasons for the decline in trade activity between China and Japan, considering the fact that China is the largest source of Japanese agricultural products imports. Agricultural products trade plays an important role in the economic and trade relations between China and Japan, and the proportion of China's agricultural products exports to Japan's exports is increasing year by year. However, after 2013, China's agricultural exports to Japan have shown a downward trend year by year. What are the reasons for this change in trade? What is the structure of China's agricultural exports to Japan? This is a problem that must be understood. This article uses the HS4 quantile code data of China's agricultural exports to Japan from 2010 to 2019 by the United Nations Commodity Trade Statistics Database (UN Comtrade), and applies the binary marginal decomposition method to analyze China's agricultural exports to Japan. The results show that China's agricultural exports to Japan In export growth, the marginal contribution of expansion is weak, while the marginal contribution of intensive is larger. After further decomposing the intensive margin into the quantity margin and the price margin, it is found that the growth of China's agricultural exports to Japan is mainly due to the rapid growth of the quantity margin, while the price margin does not contribute much to export growth. In the future, if China wants to expand its exports of agricultural products to Japan, it must become familiar with and adapt to the access standards of the Japanese market as soon as possible, increase the added value of agricultural products, and enhance the comprehensive competitiveness of agricultural exports to Japan.

Keywords: agricultural products, export trade, expansion margin, intensive margin.
JEL Classification: F1 F12, F14.

INTRODUCTION

China and Japan are the world's major agricultural products trading countries, and both are important agricultural product trading partners. In recent years, Japan has surpassed ASEAN to become China's largest agricultural product export market. China is also the largest source of

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

Japanese agricultural product imports. With the implementation of the "Belt and Road" initiative, more and more countries and regions have joined the cooperation framework agreement, Japan has become an important economic partner of China, and the agricultural trade relationship has also become an important part of the economic and trade relationship between China and Japan. Through the study of China's agricultural exports to Japan in the past 10 years from 2010 to 2019, we believe that there are two stages in general, namely the growth stage from 2010 to 2012 and the slow decline stage from 2013 to 2019. With diversified development, can China's agricultural exports to Japan continue to grow? We must deeply analyze the dual margin of China's agricultural exports to Japan and study whether China's agricultural exports to Japan are mainly intensive growth or extensive growth. This article is based on the United Nations International Trade Standard Classification (HS) and the use of the United Nations Commodity Trade Statistics Database (UN Comtrade) 2010-2019.

LITERATURE REVIEW

The dual marginal research framework of trade growth comes from the new trade theory represented by Melitz (2003), which decomposes export growth into extended margins and intensive margins, providing a new perspective for the study of trade growth methods. In recent years, the literature on the use of this method to study the growth of agricultural exports has continued to emerge.

Based on the CEPII-BACI database, using the customs statistics of the "Belt and Road" countries from 2002 to 2017 as a sample, from the perspective of the survival of trade relations, a dual marginal analysis of the growth of China's agricultural exports is carried out of the study, conducted by Li Xingchen and Liu Hongman (2020). The results show that in terms of the expansion margin, the types of agricultural exports from China to the "Belt and Road" countries have grown rapidly, and the utilization rate of export relations has increased at a higher rate. At the same time, a large number of new relationships have entered while a large number of existing relationships have been disrupted. On the other hand, the marginal aspect of intensiveness has contributed more to the growth of China's agricultural exports. The increase in the survival rate of export relations can not only promote the growth of export volume, but also improve the stability of export growth (Wang Ling and Zhang Mei, 2020). Using relevant data on agricultural exports from China and Russia from 2003 to 2017, to study the dual margin of agricultural trade between the two countries, and to analyze the trends and trends in the expansion and intensive margins of agricultural exports between the two countries, influencing factors can be indicated. The research results show that in the agricultural trade between China and Russia, the expansion marginal contribution of agricultural exports is greater; the intensive margin of China's agricultural exports to Russia is higher than that of Russia's agricultural exports to China; the economic scale and production efficiency contribute to bilateral agricultural exports between China and Russia The margin of intensiveness has a positive impact and has a negative impact on the expansion margin. Therefore, the Chinese government should expand the types of agricultural products, encourage innovation in agricultural products, continue to implement the "Belt and Road" initiative, and expand Sino-Russian agricultural trade (Peng Shiguang and Zhang Yue, 2020). To conduct a dual marginal study on the export growth of Chinese products and to analyze the impact of factor endowment differences on the dual margin of exports the HK measurement method is using. The results show that the rapid growth of Chinese exports mainly comes from the number-led intensive marginal pull, the expansion margin and the price index's contribution to export growth continue to increase; in economies of different levels of development and the markets of major trading countries, the number-led intensive margin is also the main driver of China's export growth.

In terms of impact effects, the impact of factor endowment differences on the dual margin of exports is different. Therefore, improving China's domestic factor resources and promoting the

diversification of export products are effective methods to reduce resistance to export trade (Sang Mengqian and Wang Ling, 2020). With reference to the research methods of Hummels and Klenows, and based on relevant data from the CEPII-BACIHS 2002 database, this paper analyzes the dual margin of China's export growth to emerging market countries from 2003 to 2017.

The study found that China's export growth to emerging market countries mainly relies on the intensive margin, and the expansion margin has been relatively stable; the dual margin of China's export growth to emerging market countries has shown different upward trends, and the dual margins of each country are different. Significant factors, but basically relying on the intensive margin to drive export growth, are: economic scale, trade costs, trade resistance, productivity level and other factors. All of them affect China's exports to emerging market countries, and different factors have different effects. Based on this, countermeasures and suggestions can be put forward, such as focusing on technological innovation, improving the logistics system, and increasing the productivity of enterprises (Wang Sheng and Ren Xiaochang, 2019). Based on China's export data to 21 major aquatic product trading countries from 2000 to 2016, the PVAR model was used to test the impact of the dual margin on China's aquatic product export growth. The results show that, when the expansion margin is basically stable, the impact of the intensive margin on the growth of China's aquatic product exports is negative, that is, the export growth brought about by the intensive margin is diminishing, which shows that the continuous and stable export of Chinese aquatic products cannot be achieved by relying on the intensive margin alone increase. Therefore, we should start with product quality and added value to change the structure of China's aquatic products export (Xiang Songlin, 2019).

Through research on trade between China and countries along the "Belt and Road", it is found that after the implementation of the "Belt and Road" initiative, the growth of China's export trade with countries along the route has been significantly increased, as well as the expansion of new products and new markets. At the same time, the implementation of the "Belt and Road" initiative has differences in promoting the trade growth of countries along the route. For example, it has a greater impact on the intensive marginal growth of the "Silk Road countries on the land", while the expansion of the "Silk Road countries on the sea" has a greater marginal effect. The growth is higher in this case (Yang Fengmin, Wen Feng and Wei Linghui, 2019).

Using the HS-92 version of the United Nations Commodity Trade Database HS-92 (agricultural product data), based on the theory of enterprise heterogeneity, research on China's export to ASEAN agricultural products trade shows, that China's intensive margin of agricultural exports to the ASEAN market is smaller than the expansion margin, but the contribution rate of the intensive margin is higher than the contribution rate of the expansion margin. Moreover, the impact of each variable on the intensive margin and the expansion margin is different, and the impact of trade costs and the relative agricultural productivity of the importing country on the dual margin are both negative. The relative GDP of importing countries and the scale of agricultural economy have a positive effect on the intensive margin of China's agricultural exports to the ASEAN market, but have a negative effect on the expansion margin (Li Na, 2018).

To measure quantitatively and to test empirically the dual marginal effect of China's export trade, the author proposes to use the trade gravity model. As a result, the intensive margin and the expansion margin show an increasing trend over time in China's export trade, but the contribution of the intensive margin is greater than the expansion margin. The dual marginal effect of China's export trade is positively correlated with the size of the importing country and China's economy, and is negatively correlated with bilateral trade costs and bilateral trade resistance (Zhu Lina, 2017). Data from the United Nations Trade Statistics database, research on non-tariff barriers to China's agricultural exports and the dual margin of exports from 1992 to 2014 show that non-tariff barriers hinder the export of Chinese agricultural products; however, different types of non-tariff barriers have different effects on trade, and the effects of non-tariff barriers on different types of products are significantly different, while the impact on cereals is not significant. The export of fish, meat,

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

fruit and vegetable products has a significant inhibitory effect; the non-tariff barriers set by countries of different developed levels have significantly different effects on China's exports. The non-tariff measures of developed countries have a significant inhibitory effect on China's exports. The impact of non-tariff barriers in low- and middle-income countries on China's agricultural exports is not significant.

PAPER OBJECTIVE

China and Japan are very close geographically. Due to China's large population, Japan, as an island country, is not suitable for the large-scale cultivation and production of agricultural products. Therefore, both China and Japan are major agricultural products trading countries in the world. Japan is an important market for China's agricultural exports, China is the largest source of Japanese agricultural imports, and agricultural trade occupies an important position in the total bilateral trade.

However, through research on China's agricultural exports to Japan in recent years, it is found that the trade volume has increased first and then slowly declined. Then, in the current period when China's agricultural exports are geographically diversified, what is the trade structure of China's agricultural exports to Japan? What factors have affected China's agricultural exports to Japan? These questions state the paper objective. This article uses the dual marginal research model to divide export growth into expansion margins and intensive margins, analyzes the trade structure and influencing factors of China's agricultural exports to Japan, and makes recommendations for expanding the development of agricultural trade between the two countries.

METHODOLOGY

This article uses the extended marginal (EM) and intensive marginal (IM) measurement models proposed by Hummels and Klenow, and uses the HS4 quantile code data of China's agricultural exports to Japan from 2010 to 2019 by the United Nations Commodity Trade Statistics Database (UN Comtrade) to export to China. The article analyzes the expansion and intensive margins of Japanese agricultural products, studies the structure of agricultural exports, and improves China's competitiveness in Japanese agricultural exports.

RESULT AND DISCUSSION

The status of China's agricultural exports to Japan

As it can be seen from Figure 1, the changes in China's agricultural exports to Japan from 2010 to 2019 can be divided into two stages: The first stage is the rapid growth stage from 2010 to 2012, when China's agricultural exports to Japan have increased from USD 9.43 billion in 2010 to USD 12.34 billion in 2012 – an increase of 30.86%. The Japanese market continues to be more attractive to China's agricultural exports. The second stage is a period of overall decline from 2013 to 2019. China's agricultural exports to Japan have increased from USD 11.53 billion in 2013 and fell to USD 10.51 billion in 2019 – an overall decrease of about 10%. The Japanese market's attractiveness to Chinese agricultural exports continued to decline.
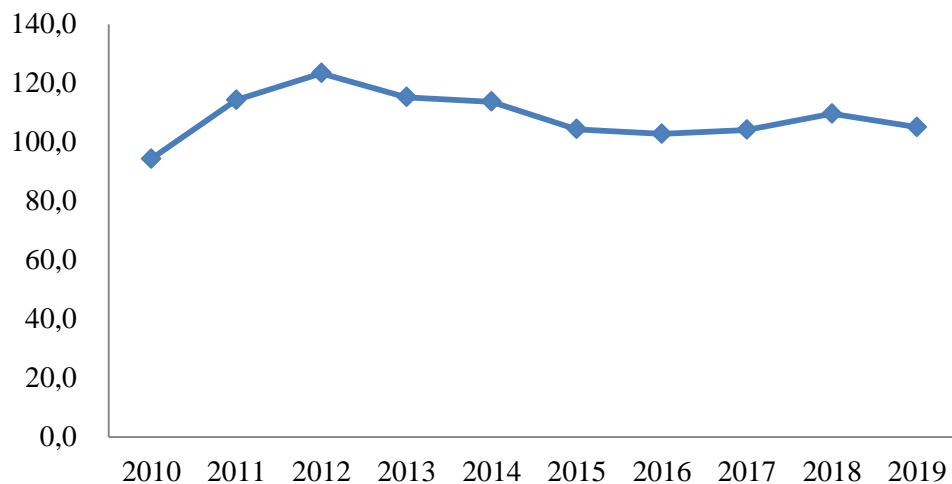
Figure 1. 2010-2019 China's agricultural exports to Japan

Source: United Nations Commodity Trade Statistics Database, 2020.

Share of Chinese agricultural exports to Japan in China's total agricultural exports

As can be seen from Figure 2, the proportion of China's agricultural exports to Japan in China's total agricultural exports from 2010 to 2019 is similar to the changes in China's agricultural exports to Japan. It can also be divided into two stages:

Phase 1 (2010-2012) – the growth stage, when China's agricultural exports to Japan accounted for the proportion of China's total agricultural exports from 14.96% in 2010 to 15.72% in 2012;

Phase 2 was a slow decline stage from 2013 to 2019. The proportion of total exports dropped from 13.48% in 2013 to 11.24% in 2019, showing a slow downward trend overall. The above changes indicate that since China proposed the "Belt and Road" initiative in 2013, China's agricultural export market has developed a diversified strategy. As a result, China's agricultural exports rely on a single market and will continue to change.
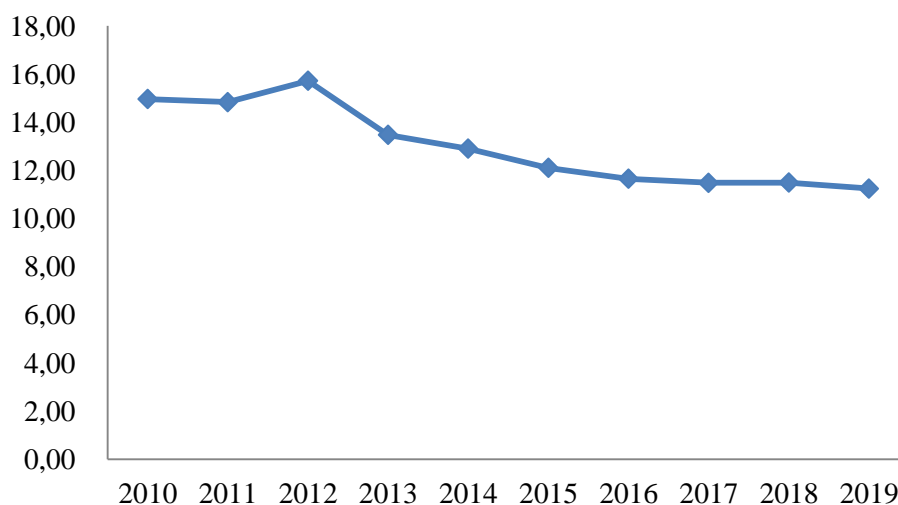

Figure 2. Share of Chinese agricultural exports to Japan in China's total agricultural exports

Source: United Nations Commodity Trade Statistics Database, 2020.

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

The dual margin of Chinese agricultural products export to Japan

1. Binary marginal research methods

The dual marginal research mainly studies the trade growth of a country from the expansion margin and the intensive margin (which can be decomposed into the price margin and the quantity margin). The calculation formulas for the expansion margin and the intensive margin are as follows:

$$EM_{jm} = \frac{\sum_{i \in l_{jm}} P_{rm} X_{rm}}{\sum_{i \in l_{rm}} P_{rm} X_{rm}} \tag{1}$$

$$IM_{jm} = \frac{\sum_{i \in l_{jm}} P_{jm} X_{jm}}{\sum_{i \in l_{jm}} P_{rm} X_{rm}} \tag{2},$$

where EM_{jm} represents the expansion margin of country *j's* agricultural exports to country *m*,
IM_{jm} represents the intensive margin of country *j's* agricultural exports to country *m*,
P_{rm} represents the price of agricultural exports
X_{rm} represents the quantity of agricultural exports
r represents the world,
l_{jm} represents country *j* to *m* and the set of types of agricultural products exported by the country,
l_{rm} represents the set of types of agricultural products exported by the world to country *m*,
$l_{jm} \in l_{rm}$. The larger the expansion margin, the more abundant the types of agricultural products exported from country *j* to country *m* is.
Intensive margin can be decomposed into price margin and quantity margin:

$$IM_{jm} = P_{jm} Q_{jm} \tag{3}$$

$$P_{jm} = \prod_{i \in l_{jm}} \left(\frac{P_{jm}}{P_{rm}}\right)^{W_{jm}} \tag{4}$$

$$Q_{jm} = \prod_{i \in l_{jm}} \left(\frac{X_{jm}}{X_{rm}}\right)^{W_{jm}} \tag{5},$$

where P_{jm} represents the price margin of country j's agricultural exports to country *m*,
Q_{jm} represents the quantity margin of country *j's* agricultural exports to country *m*.
The calculation method of the weight W_{jm} is as follows:

$$W_{jm} = \frac{\frac{S_{jm} - S_{rm}}{Ins_{jm} - Ins_{rm}}}{\sum_{i \in l_{jm}} \frac{S_{jm} - S_{rm}}{Ins_{jm} - Ins_{rm}}} \tag{6},$$

where S_{jm} represents the proportion of the amount of *i-th* agricultural products exported from country *j* to country *m* in its total agricultural exports,
S_{rm} represents the proportion of the *i-th* agricultural products exported from country *m* in the world to its total agricultural exports among the overlapping agricultural products.

2. Results of Binary Marginal Analysis

We use formulas (1) and (2) to calculate the binary marginal values of Chinese agricultural exports to the Japanese market. The results are shown in Table 1. From 2010 to 2019, the expansion margin of China's agricultural exports to Japan tends to decline in general fluctuations. The average annual growth rate is 89.16%, and the average expansion margin is 0.771, indicating the China's agricultural exports to Japan and the world's agricultural exports to Japan. The similarity is relatively high, and China's agricultural exports to Japan are more diverse and cover a wide range, which shows that the contribution of the expansion margin to the growth of China's agricultural exports to Japan is extremely weak. From the perspective of the types of Chinese agricultural products exported to Japan, according to the HS 4-digit code, the types of Chinese agricultural products exported to Japan from 2010 to 2019 are: 168, 173, 167, 162, 157, 160, 162, 165, 165, 167. In the past 10 years, the change was not large, showing a slight downward trend.

The intensive margin of China's agricultural exports to Japan declined first and then increased. It increased from 0.121 in 2010 to 0.127 in 2019, an average annual increase is of 0.55%. Therefore, it can be said that China's share of agricultural exports to Japan from 2010 to 2019 has overall trend to decline, including both the expansion margin and the intensive margin. Further decomposing the intensive margin into price margins and quantity margins, the margins of China's agricultural exports to Japan declined slightly in volatility, with an average annual decline of 7.82%. However, it is worth noting that from 2010 to 2019, except for 2015, the price margins of other years and the export price margins are all greater than 1, which shows that China's agricultural export prices to Japan are generally lower than the world average. Except for 2011, the overall margin of China's agricultural exports to Japan has shown an increasing trend, which shows that the number of Chinese agricultural exports to the Japanese market is increasing year by year.

Table 1

The expansion and intensive margins of China's agricultural exports to Japan from 2010 to 2019

Years	Extended margin	Intensive margin		
		overall	Price margin	Quantity margin
2010	0.792	0.121	2.475	0.051
2011	0.820	0.138	2.692	0.053
2012	0.788	0.147	2.532	0.062
2013	0.761	0.142	1.824	0.074
2014	0.730	0.139	1.925	0.067
2015	0.748	0.131	0.846	0.143
2016	0.764	0.126	1.398	0.083
2017	0.767	0.125	1.742	0.066
2018	0.764	0.125	2.454	0.056
2019	0.773	0.127	2.483	0.057
Growth（%）	-0.28	0.55	0.04	1.31

Source: Authors' calculations, based on the UN Comtrade database.

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

An analysis of the factors influencing the growth of China's agricultural products exports to Japan based on the dual margin

1. Model setting and variable description

Studies have shown that the contribution of the extended margin to the growth of China's agricultural exports to Japan is relatively weak, and the intensive margin is the main factor in the growth of China's agricultural exports to Japan. In the next step, we further quantify the contribution of the extended margin and the intensive margin to the growth of agricultural exports, using linear regression analysis to analyze and set the time series data model as:

$$L_n V_t = \beta_0 + \beta_1 L_n EM_t + \beta_2 L_n IM_t + \mu_t \tag{7},$$

where V represents China's agricultural exports to Japan,
EM and IM are the extended margin and the intensive margin, respectively,
t refers to the period from 2010 to 2019,
β_0 is the intercept term,
μ_t is the random disturbance term.

2. Calculation results

It can be seen from Table 2 that for the unit root test of the total sample, the level series of all variables have a unit root, which is an unstable time series. However, after the first-order difference, they all reach a plateau, which is a first-order single integer variable.

Table 2

Unit root test of statistical variables

	Fisher – ADF		Fisher – PP		
Variable	Statistics	P	Statistics	P	conclusion
LnV	-4.103	0.0062	-3.873	0.1632	unstable
D(LnV)	-3.768	0.0430	-2.715	0.0315	stable
LnEM	-2.179	0.9148	-2.196	0.9113	unstable
D(LnEM)	-4.156	0.0008	-3.504	0.0013	stable
LnIM	-3.924	0.6422	-3.947	0.6301	unstable
D(LnIM)	-4.731	0.0037	-4.699	0.0041	stable

Source: Authors' calculations

According to the "EG-ADF test" proposed by Engle and Granger (1987), we conduct a total sample cointegration test on whether there is a stable long-term relationship between the expansion margin, the intensive margin and the export value of agricultural products. Regress with LnEM and

LnIM as the dependent variables and LnV as the independent variable, and then separately test the stationarity of the regression residuals.

From the test results in Table 3, we can see that there is a long-term equilibrium between the extended margin, the intensive margin, and China's agricultural exports to Japan relationship.

Table 3

Residual error stationarity test

Regression variable	ADF Statistics	P	Conclusion
LnEM and LnV	-4.7134	0.0092	stable
LnIM and LnV	-4.1659	0.0016	stable

Source: Authors' calculations

The result obtained of setting the model according to formula (7) to perform linear regression, is shown in formula (8), which indicates that the equation has a higher degree of fit and better overall significance.

$$L_nV_t = 4.533 + 0.347L_nEM_t + 1.057L_nIM_t \qquad (8)$$

At a significance level of 1%, the coefficient of the variable LnIM is greater than 1 and significant, indicating that the intensive margin has a significant positive effect on the growth of China's agricultural exports to Japan. However, the coefficient of the variable LnEM is 0.347 – although greater than 0, which is not significant and also shows that the contribution of the expansion margin to the growth of China's agricultural exports to Japan is weak.

CONCLUSION

The dual marginal analysis method was used to analyze the situation of Chinese agricultural exports to the Japanese market. The results showed that China's agricultural exports to Japan mainly depend on the intensive margin, and the contribution of the expansion margin is weak. For every 1% increase in the intensive margin, it exports to Japan's agricultural products. The amount will increase by an average of 1.06%. We further decompose the intensive margin into price margin and quantity margin. From the perspective of growth, the average annual growth rates of price margin and quantity margin from 2010 to 2019 are 0.04% and 1.31%, respectively. This shows that China's agricultural exports to Japan mainly increase depend on the expansion of numbers.

Relying solely on quantitative export growth to expand the growth mode of agricultural exports is not conducive to the improvement of China's terms of trade with Japan's agricultural products. Therefore, during the period of deepening agricultural production reform, for the Chinese government, in order to promote the sustained and healthy development of China's agricultural exports to Japan, it is necessary to further expand the pragmatic cooperation between China and Japan in the agricultural field. While China and Japan are strengthening trade in agricultural products, their cooperation in agriculture should develop in the fields of agricultural science and technology innovation, agricultural products and food processing technology, food quality and safety, etc. Only by deepening practical cooperation in various fields of agriculture, it is conducive to strengthening the trade exchanges between the two countries and further activating the growth

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

potential in agricultural trade. For Chinese agricultural product export enterprises, they should become familiar with and adapt to the access standards of the Japanese market as soon as possible. Through innovative marketing, create green agricultural products and improve the quality of agricultural products, accelerate the transformation and upgrading of agricultural export trade, and continuously improve the comprehensive competitiveness of agricultural exports to Japan.

REFERENCES

Besedeš, T. and Prusa, T.J. (2011), "The role of extensive and intensive margins and export growth", *Journal of Development Economics*, 96(2), pp.371-379. Available at: http://dx.doi.org/10.1016/j.jdeveco.2010.08.013.

Fengmin, Ya., Feng, W. and Linghui, W. (2019), "Research on the Influencing Factors of China's Agricultural Products Export to the ASEAN Market Based on the Empirical Study of Dual Margin", *International Business Research*, 40 (3), pp. 25-38, (in Chinese).

Hongkun, Ma and Shiping, M. (2019), "From defense to offense: The enlightenment of Japan's agricultural support policy transformation to China's future choices", *China Soft Science*, 9, pp. 18-30. Available at: https://kns.cnki.net/kcms/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2019&filename=ZGRK201909002&v (Accessed 15 February 2021), (in Chinese).

Houshuang, W. and Jinyu, H. (2017), "Research on Japanese Agricultural Protection Policies in the Process of Trade Liberalization", *World Agriculture*, 10, pp. 10-14, (in Chinese).

Hummels D, Klenow, P. J. (2005), "The variety and quality of a nation's exports", *American Economic Review*, 95 (3), pp. 704-723. Available at: https://doi.org/10.1257/0002828054201396.

Lina, Zh. (2017), "The impact of non-tariff barriers on the dual margin of Chinese agricultural exports", *World Agriculture*, 10, pp. 140-147, (in Chinese).

Ling, W. and Mei, Zh. (2020), "The Dual Marginal Measurement of Sino-Russian Agricultural Products Trade and Its Influencing Factors", *Journal of Changzhou University (Social Science Edition)*, 21 (6), pp. 61-68, (in Chinese).

Lingxiao, Hu and Yingheng, Zh. (2018), "Improving the competitiveness of smallholder farmers: the orientation and enlightenment of Japan's new agricultural policy", *Chinese Rural Economy*, 2, pp. 126-138, (in Chinese).

Mengqian, S. and Ling, W. (2020), "Research on the Influencing Factors of China's Export Growth to Emerging Market Countries Based on the Binary Marginal Analysis Framework", *Journal of Jianghan University*, 37(3), pp. 87-97, (in Chinese).

Na, Li (2018), "Measurement and Empirical Research on the Dual Marginal Effect of China's Export Trade", *Statistics and Decision*, 34(6), pp. 118-121, (in Chinese).

Sheng, W. and Xiaochang, R. (2019), "Analysis on the Dual Marginal Mechanism of China's Aquatic Products Export", *China Fishery Economy*, 37(5), pp. 87-99, (in Chinese).

Shiguang, P. and Yue, Zh. (2020), "Differences in factor endowments and the dual margin of Chinese product exports", *Journal of Nanjing University of Finance and Economics*, 2, pp. 87-97, (in Chinese).

Songlin, X. (2019), "The impact of the "Belt and Road" on the growth of trade between China and countries along the route", *Contemporary Economic Science*, 41(4), pp. 1-13, (in Chinese).

United Nations Commodity Trade Statistics Database (UN Comtrade). Available at: https://comtrade.un.org/ (Accessed 15 February 2021).

Wei, Wu, Jianlei, Ma and Dongsheng, S. (2020), "The evolution and enlightenment of Japanese agricultural product export promotion policies", *World Agriculture*, 10, pp. 47-53, (in Chinese).

Xiaohai, S. Jiyu, J. and Changyong, Lu (2021), "Research on the Competitiveness and Complementarity of Agricultural Products Trade between China and Japan", *Journal of Changchun University of Science and Technology (Social Science Edition)*, 34(1), pp. 66-72. Available at: https://kns.cnki.net/kcms/detail/detail.aspx?dbcode=CJFD&dbname=CJFDLAST2021&filename=CCLG202101014&v (Accessed 15 February 2021), (in Chinese).

Xingchen, Li and Hongman, L. (2020), "Binary Marginal Analysis of China's Agricultural Export Growth in "One Belt One Road" Countries", *Journal of South China Agricultural University (Social Science Edition),* 19(2), pp. 13-23, (in Chinese).

Xingqing, Ye, Zhenjun, Wu and Qunli, Zh. (2017), "Japan's methods of improving agricultural competitiveness and its enlightenment", *World Agriculture*, 9, pp. 4-10, (in Chinese).

Yamashita, K. (2015), "Japanese Agricultural Trade Policy and Sustainable Development", *Agriculture*, (56), pp. 1-42. Available at: https://xueshu.baidu.com/usercenter/paper/show?paperid=4575b4d6e5acc7b577cf330f27800fd0&site=xueshu_se&hitarticle=1 (Accessed 15 February 2021), (in Chinese).

Yan, X. and Xuedang, Zh. (2016), "Research on the Growth Characteristics and Causes of Agricultural Products Trade between China and Japan", *Journal of Hunan University (Social Science Edition)*, 30(4), pp. 79-85, (in Chinese).

Yuan, W. (2020), "Research on the Status Quo and Development Strategies of China's Agricultural Products Export to Japan", *China Forestry Economy*, 5, pp. 61-63. Available at: https://doi.org/10.13691/j.cnki.cn23-1539/f.2020.05.017, (in Chinese).

ПОДВІЙНА МАРЖА ЕКСПОРТУ КИТАЙСЬКОЇ СІЛЬСЬКОГОСПОДАРСЬКОЇ ПРОДУКЦІЇ ДО ЯПОНІЇ

Wu Lingling
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

Chen Fuli
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

Zhang Fenghe*
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

У цій статті використовуються дані квантільного коду HS4 для сільськогосподарського експорту Китаю до Японії з 2010 по 2019 рік з бази даних UN Comtrade, а також застосовується метод двійкового граничного розкладання для аналізу експорту сільськогосподарської продукції Китаю до Японії. Результати показують, що в зростанні сільськогосподарського експорту Японії граничний внесок розширення слабкий, в той час як граничний внесок інтенсивного виробництва більше. Після подальшого розкладання інтенсивної маржі на кількісну маржу і цінову маржу було виявлено, що зростання сільськогосподарського експорту Китаю до Японії в основному пов'язане з швидким зростанням кількісної маржі, в той час як цінова маржа не вносить великого вкладу до зростання експорту. У майбутньому, якщо Китай хоче розширити свій експорт сільськогосподарської продукції до Японії, він повинен якомога швидше ознайомитися зі стандартами доступу на японський ринок і адаптуватися до них, підвищити додану вартість сільськогосподарської продукції та підвищити всебічну конкурентоспроможність експорту сільськогосподарської продукції до Японії.

Ключові слова: сільськогосподарська продукція, експортна торгівля, запас розширення, інтенсивна маржа.

Lingling, Wu, Fuli, Ch. and Fenghe, Zh. (2021), "The dual margin of Chinese agricultural products export to Japan", *Management and entrepreneurship: trends of development*, 2(16), pp. 42-53. Available at: https://doi.org/10.26661/2522-1566/2021-1/16-04.

ДВОЙНАЯ МАРЖА ЭКСПОРТА КИТАЙСКОЙ СЕЛЬСКОХОЗЯЙСТВЕННОЙ ПРОДУКЦИИ В ЯПОНИЮ

Wu Lingling
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

Chen Fuli
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

Zhang Fenghe*
Henan Institute of Science and Technology, Henan, China; Sumy National Agrarian University, Sumy, Ukraine

В этой статье используются данные квантильного кода HS4 для сельскохозяйственного экспорта Китая в Японию с 2010 по 2019 год из базы данных UN Comtrade, а также применяется метод двоичного предельного разложения для анализа экспорта сельскохозяйственной продукции Китая в Японию. Результаты показывают, что в росте сельскохозяйственного экспорта Японии предельный вклад расширения слаб, в то время как предельный вклад интенсивного производства больше. После дальнейшего разложения интенсивной маржи на количественную маржу и ценовую маржу было обнаружено, что рост сельскохозяйственного экспорта Китая в Японию в основном связан с быстрым ростом количественной маржи, в то время как ценовая маржа не вносит большого вклада в рост экспорта. В будущем, если Китай хочет расширить свой экспорт сельскохозяйственной продукции в Японию, он должен как можно скорее ознакомиться со стандартами доступа на японский рынок и адаптироваться к ним, повысить добавленную стоимость сельскохозяйственной продукции и повысить всестороннюю конкурентоспособность экспорта сельскохозяйственной продукции в Японию.

Ключевые слова: сельскохозяйственная продукция, экспортная торговля, запас расширения, интенсивная маржа.