



A Study on the Influence of China-Korea FTA on the Major Industries

Shuai SU¹, Fan ZHANG², Li YU³

- ¹ First Author: Professor, Business School, Shandong University of Political Science and Law, China.
Email: sush@sdpl.edu.cn
- ² Second Author: Doctoral student, Business School, Jeonbuk National University, Korea.
Email: 706453454@qq.com
- ³ Corresponding Author: Professor, Business School, Shandong University of Political Science and Law, China.
Email: 741973115@qq.com

Received: August 30, 2020. Revised: September 28, 2020. Accepted: October 29, 2020.

Abstract

Purpose: This research, based on the tariff reduction table negotiated by South Korea and China free trade area, the specific tariffs of the two countries in the implementation of the Korea-China Free Trade Agreement are calculated, and the global equilibrium model, the global trade analysis project (GTAP) model, is used to simulate and analyze the impact of the Korea-China free trade area on the output and trade of the two countries. **Research design, data and methodology:** The study conducted a survey on 2018 year GTAP 9.0 data. After empirically analyzing the data, we believe that the Major industry in Korea and China will maintain its growth momentum. **Results:** This study shows that under the assumption that the average tariff of China and South Korea at the beginning of FTA was reduced to 20%, two scenarios were simulated. Two scenarios are simulated under the assumption that the average tariff of China and South Korea FTA will be reduced to 10%. **Conclusions:** This paper assumes that the average tariff of China-Korea FTA is set at 20%, 10% and zero tariff respectively in the early, middle and long term of the FTA construction. It considers the impact of China-Japan-Korea FTA on China- Korea FTA.

Keywords : China, Korea, Major industry, FTA, GTAP model

JEL Classification Code : I28, I31, J18

1. Introduction

China-South Korea FTA is relatively open, involving a wide range of products and tariff reduction efforts. Bilateral tariff reduction has brought different impacts on the corresponding industries of the two countries. Therefore, it is very necessary to study the impact of China-South Korea Free Trade Zone on the main industries of the two countries. Based on the latest version of GTAP data, this paper assumes that the average tariffs of China-

Korea FTA are set at 20%, 10% and zero tariffs respectively in the early, middle and long term of the FTA construction, and then obtains the changes of economic indicators under different tariff conditions. At the same time, the impact of China-Japan-Korea FTA on China-South Korea FTA is also considered. . It is concluded that the establishment of China-South Korea FTA will benefit China and South Korea, and the GDP, import and export, and welfare of both countries will increase. In fact, China-South Korea FTA is still a long way from a fully

liberalized regional trade agreement, and the two countries still have a certain degree of protection for their sensitive products. In view of the increasingly close economic and trade relations between China and South Korea and the impact of the China-Japan-South Korea FTA, it is suggested that the governments of China and South Korea should further strengthen cooperation to promote the further upgrading of the China-South Korea FTA.

South Korea and China, as the world's important economies and friendly neighbors, have developed rapidly in bilateral trade. In 2013, South Korea and China completed bilateral trade by 274 billion 200 million US dollars, 53 times more than the establishment of diplomatic relations in 1992, and an annual growth rate of 22.47%. Meanwhile, in the wave of globalization and regional economic integration, the two countries accelerated the pace of building bilateral free trade zones. In June 1, 2015, the leaders of South Korea and China formally signed the free trade agreement between the People's Republic of China government and the Republic of Korea government in Seoul, South Korea. It is worth mentioning that the Korea-China FTA is the most widely covered trade area in China and the largest trade area involving other countries.

The Korea-China FTA has a high degree of openness, involving many kinds of products and large tariff reductions. In the Korea-China FTA, the two countries have achieved an open level of over 90% of product tax and 85% of trade volume. Among them, the products of South Korea and China 79% and 71%, trade volume 77% and 66% have gradually abolished tariffs in 10 years, the products of 92% and 91% of the two countries, trade volume 91% and 85% gradually Abolished tariffs in 20 years.

2. Literature Review

There is a certain gap between South Korea and China in terms of economic development level, and the economic complementarity is strong, basically based on the traditional comparative advantage. China's agricultural products and labor-intensive industrial products have comparative advantages for Korea. Korean capital and technology intensive industrial products have comparative advantages for China. Bilateral tariff cuts will inevitably have different impacts on domestic industries. In general, industries with comparative advantages will benefit, output trade will increase, and those in relatively inferior industries will be damaged. But at the same time, the tariff reduction arrangements and economic structure of the two countries will also affect the benefit of the industry, such as

South Korea's more sensitive protection of its more sensitive animal and its products sector, and the high degree of tariff reduction in China's industry. The competition of internal resources will make the benefits of both industries more complicated. Therefore, it is necessary to study the impact of the establishment of the Korea-China Free Trade Zone on the related industries of the two countries, and to find out the benefits and damaged industries of the two countries. It is of reference significance for the government to take advantage of the benefit and avoid harm and formulate policy guidance industry adjustment.

From the practical point of view, based on the tariff reduction table negotiated by South Korea and China free trade area, the specific tariffs of the two countries in the implementation of the Korea-China Free Trade Agreement are calculated, and the global equilibrium model, the global trade analysis project (GTAP) model, is used to simulate and analyze the impact of the Korea-China free trade area on the output and trade of the two countries.

Most of the existing literatures use the Global Trade Analysis Project (GTAP) model to evaluate the impact of free trade agreements. Most of them believe that trade liberalization will bring positive economic effects to the members of the region, while foreign countries (regions) will suffer adverse economic shocks.

Hertel and Keeney (2007) developed a poverty model for the GTAP Model documented in: *Why Isn't the Doha Development Agenda More Poverty Friendly?*

Hertel et al. (2011) *GTAP Working Paper of A Framework for Assessing the National Poverty Impacts of Global Economic and Environmental Policies.*

Zhou et al. (2016) Based on the tax reduction arrangements between China and South Korea, using the GTAP model to analyze the impact of the establishment of China-South Korea FTA on the economies of the two countries, think that China-South Korea FTA has a positive impact on the macro-economy of the two countries, so that the two countries' GDP, import and export, welfare levels are increased, the impact on Korean industries is greater than China.

Hou (2016) uses the GTAP model to analyze the impact of China South Korea FTA on Japan's economy. Through the analysis, it is found that after the entry into force of China South Korea FTA, the products of China and South Korea can enjoy more preferential tariff treatment in the other side's market, which will make Japan suffer more

serious trade transfer impact. From the macroeconomic perspective, Japan's GDP, imports, exports, terms of trade and welfare levels have declined.

3. Research Methods and Materials

The Global Trade Analysis Project (GTAP) was developed by Purdue University in the United States, mainly based on the CGE model. The model can be described in detail by Hertel (1997). Hertel founded the Global Trade Analysis Project (GTAP) in 1992 and he currently serves as the project's Executive Director. GTAP encompasses more than 18,000 individuals in 175+ countries undertaking economy-wide analysis of trade and environmental issues. GTAP maintains a global economic data base designed to facilitate quantitative economic modeling and it offers short courses and organizes the Annual Conference on Global Economic Analysis. The GTAP Model can be used to determine how changes in policy, technology, population and factor endowments can affect the path of economies over time. Users are able to alter various aspects of an experiment including the closures, shocks and base line scenario. In addition to obtaining the resulting percentage changes in bilateral trade, sectoral and regional output, and private household and government consumption that you are familiar with for the GTAP Model, it also includes changes in foreign and domestic wealth and growth rates in capital. A number of applications have been undertaken using the GTAP Model relating to the East Asian crisis, China's growth, China's accession to the WTO .

At present, scholars in the use of GTAP model to assess the economic effects of free trade zones, generally using hypothesis assessment and practical assessment of two methods. At present, although China and South Korea have formally signed a free trade agreement, but the tariffs of the two countries have not yet been completely reduced to zero tariffs, and there is no specific agreement on tariff relief for services. Therefore, this paper still uses the hypothesis assessment method, using the latest GTAP 9.0 database, will database 147 countries and regions. The region is divided into six groups, and 57 industries are divided into three major industries: agriculture and food processing industry, mining and manufacturing industry, and service industry.

4. Results and Discussions

In this paper, the GTAP model is set without considering technical barriers and other non-tariff barriers. Run GTAP 3.69 simulation software is used, with 'import tariff (TMS)

as the only variable to shock value, and the hypothetical reduction amplitude of the initial, medium and long-term between China and South Korea as shock value. The impact of macroeconomic and major industries is assessed.

First, assuming that the average tariff level of China and South Korea was reduced to 20% at the early stage of FTA establishment.

Second, the establishment of a medium-term assumption that China and South Korea FTA average tariff level dropped to 10%.

Third. After the establishment of China-South Korea FTA, the tariff of trade products between the two countries was reduced to 0 (China and South Korea realized complete trade liberalization).

At the same time, considering that China-Japan-South Korea FTA is under negotiation, China-South Korea FTA is facing the influence of trade transfer effect of China-Japan-South Korea FTA. We cannot ignore the impact of the implementation of China-Japan-South Korea FTA on China-South Korea FTA. Therefore, under the above assumptions, the following two scenarios are set.

Situation1: China and Korea free trade area has been reached, and China-Japan-South Korea FTA has not been reached.

Situation2: China-South Korea FTA has Reached and the China-Japan-South Korea FTA has been reached.

5. Conclusions

This study shows that under the assumption that the average tariff of China and South Korea at the beginning of FTA was reduced to 20%, two scenarios were simulated. Two scenarios are simulated under the assumption that the average tariff of China and South Korea FTA will be reduced to 10%. Complete trade liberalization between China and South Korea.

Based on the latest version of GTAP data, this paper assumes that the average tariff of China-South Korea FTA is set at 20%, 10% and zero tariff respectively in the early, middle and long term of the FTA construction. It also considers the impact of China-Japan-Korea FTA on China-South Korea FTA. It is concluded that the establishment of China-South Korea FTA will benefit China and South Korea, and the GDP, import and export, and welfare of both countries will increase. In fact, China-S

South Korea FTA is still far from a fully liberalized regional trade agreement, and the two countries still have a certain degree of protection for their sensitive products. In view of the increasingly close economic and trade relations between China and South Korea and the impact of the China-Japan-South Korea FTA, it is suggested that the governments of China and South Korea should further strengthen cooperation to promote the further upgrading of the China-South Korea FTA.

For Conclusions, the main conclusions of the study may be presented in a short Conclusions section, which may stand alone.

References

- Ahmed, S. A., Hertel, T. W., & Walmsley, T. L. (2011). "Outsourcing and the US Labour Market", *World Economy*, 34(2), 173-329.
- Agresti, A. (2002). *Categorical data analysis (2nd ed.)*. Hoboken, New Jersey: John Wiley & Sons Inc.
- China National Petroleum Corporation. (2019). 2019 Annual Reports. Beijing, China: CNPC. Retrieved September 30, from <http://www.cnpc.com.cn/resource/english/images1/2019.pdf>.
- Hertel, T. W. (2011). "Alan Deardorff's Contributions to Computational Analysis of International Trade", in *Comparative Advantage, Economic Growth, and the Gains from Trade and Globalization: A Festschrift in Honor of Alan V. Deardorff*, Michigan, USA, University of Michigan Press.
- Hertel, T. W., Zhai, F., & Zhi, W. (2004). "Implications of WTO Accession for Poverty in China," Chapter 15 in Bhattasali, D., Li, Shantong and Martin, W. eds, *China and the WTO: Accession, Policy Reform, and Poverty Reduction Strategies*, Oxford University Press.
- Hertel, T. W., & Leister, A. (2010) "Potential Implications of the Special Safeguard Mechanism (SSM): The Case of Wheat", *World Bank Economic Review*, 56(2), 154-243. <http://doi:10.1093/wber/lhq010>.
- Hussein, Z., Hertel, T., & Golub, A. (2013). Climate Change Mitigation Policies and Global Poverty. *Environmental Research Letters*, 8(3), 1-10.
- Itakura, K., Hertel, T. W., & Reimer, J. (2012). "The Contribution of Productivity Linkages to the General Equilibrium Analysis of Free Trade Agreements", Chapter 12 in *Dynamic Modeling and Applications for Global Economic Analysis*, New York, USA, Cambridge University Press.
- Kim, M., Jung, H. J., & Choi, A. R. (2017). Ecommerce activation measures following the completion of Korea-China FTA. *Asia Trade Risk Management*, 1(2), 43-66.
- Lee, J. W., & Zhao, T. F. (2014). Dynamic Relationship between Stock Prices and Exchange Rates: Evidence from Chinese Stock Markets. *Journal of Asian Finance, Economics and Business*, 1(1), 5-14. <https://doi.org/10.13106/KODISA Journals.2014.vol1.no1.5>.
- Peters, J. C., & Hertel, T. W. (2016). "Matrix Balancing with Unknown Total Costs: Preserving Economic Relationships in the Electric Power Sector". *Economic Systems Research*, 2, 4-34.
- Shantayanan, D., & Rodrik, D. (1989). Pro-Competitive Effects of Trade Reform: Results from a CGE Model of Cameroon. *National Bureau of Economic Research*, 2(1), 1-46.
- Valenzuela, E., Anderson, K., & Hertel, T. W. (2007). "Impacts of Trade Reform: Sensitivity of Model Results to Key Assumptions." *International Economics and Economic Policy*, 4, 395-420.
- Yang, B. H. (2013). *Understanding multivariate analysis*. Seoul: Communication books
- Youn, M. K., & Kim, Y. O. (2017). *Principles of Distribution (2nd ed.)*. Seoul, Korea: Doonam Publishing.