

Quantitative Analysis on the Impact of China-New Zealand FTA on Both Sides' Economies

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In the global trend of regional economic integration, China officially signed the China-New Zealand Free Trade Agreement with New Zealand on April 7, 2008. Applying GTAP model, this paper makes a computable general equilibrium analysis on the impact of China-New Zealand FTA on both sides' economies from aspects of social welfare and sectoral trade balance. The result indicates that the implement of FTA will make national welfare of both countries to increase, while with the comprehensive effects of FTA and multilateral trade policy reforms of WTO Doha Round, both countries will experience a loss of economic welfare and the impacts on various sectors in China are different.

Field of Research: Free Trade Agreement, Multinational Trade System

1. Introduction

Regional trade agreements have become a very prominent feature of the Multilateral Trading System. The surge in regional trade agreements has continued unabated since the early 1990s. As of 31 July 2010, 474 regional trade agreements, counting goods and services notifications separately, have been notified to the GATT/WTO. The China-New Zealand free trade agreement was signed in Beijing on 7 April 2008. However, recent studies can not make a comprehensive measure of the overall quantitative economic effects of the free trade agreement by using the GTAP model. This paper employs GTAP model to study the impact of China-New Zealand free trade agreement on the development of both economies.

The article is structured as follows: After this introduction, section 2 introduces the history of negotiating and subscribing processes of the agreement. Section 3 makes a brief literature review in research of the field. Section 4 describes the GTAP model used, followed by simulation results in section 5. Lastly, section 6 concludes this paper.

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2. China-New Zealand Free Trade Agreement

Both New Zealand and China are members of the World Trade Organization (WTO) and the Asia Pacific Economic Cooperation Forum (APEC). The decision to begin negotiations on a bilateral free trade agreement came in November 2004 following a joint feasibility study which determined that there would be demonstrable benefit to both countries in entering an FTA. Fifteen rounds of negotiation were then held between late 2004 and late 2007. New Zealand and China signed a Trade and Economic Cooperation Framework in 2004 to provide a mechanism for managing this vital and dynamic part of the bilateral relationship. The Framework also provided the basis for the Free Trade Agreement negotiations. The FTA was signed on 7 April 2008 in Beijing. It was ratified through the New Zealand Parliamentary process in July 2008 and entered into force on 1 October 2008. The signing of a high quality, comprehensive and balanced Free Trade Agreement in April 2008 represents "the fourth first" in a series of milestone agreements between New Zealand and China in the trade and economic area. The other "firsts" in the relationship have been: New Zealand was the first western country to conclude a bilateral agreement with China on its accession to the World Trade Organization in August 1997. New Zealand was the first developed economy to recognize China's status as a market economy in April 2004. New Zealand was the first developed country to enter into FTA negotiations with China.

This FTA is also the first comprehensive FTA which China has concluded, covering goods, services and investment as a 'single undertaking' from the outset of the agreement. The FTA provides a platform for enhanced regulatory cooperation to facilitate trade and reduce associated transactions costs in both goods and services trade. The FTA also provides a framework for resolving trade issues that might arise between the two countries in the future. In addition to the FTA, China and New Zealand have also concluded legally binding agreements on labor and environment. The strong performance of two way trade at a time of global economic crisis in 2009, reflected in an overall 25% increase, was welcomed.

3. Literature Review

The part, is of literature review, summarizes the researches on China-New Zealand FTA and reviews the studies on bilateral trade between the two countries. All these provide a theoretical basis and a reference for analysis methodology.

New Zealand Ministry of Foreign Affairs and Trade (2004) studied that over the next 20 years the FTA is expected to lift New Zealand exports to China by between 20 and 39 percent. In cash, that represents between \$260 million and \$400 million a year. The estimates from a joint study report by China's Ministry

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of Commerce and New Zealand's Ministry of Foreign Affairs and Trade indicate China's gains over the same period are expected to be between \$40 million and \$70 million.

Drawing support from the theory of FTA and the covering APG model, FAN Ying (2005) found that the China-New Zealand FTA will bring about the remarkable static (mainly including trade creation, welfare increase and smuggling decrease) and dynamic (mainly including GDP increase, productivity promotion and FDI creation) effects. Such integration comprising countries of different location will be very helpful to stimulate the comparative and competitive advantages resulting from their natural endowments, and to give a impetus to the common prosperities for both countries.

ZHU Ying (2006) studied that building of the free trade area will bring positive effects on goods trade, services trade and investment. Especially for China, It is significant to build the free trade area between the two countries because the free trade area will help China to break the restriction of U.S, EU and other countries on Chinese imports.

ZHANG Han, NIE Ying (2008) researched the trade value and commodities structure between China and New Zealand and systematically analyzed their trade intensity and complementary relationship. It got the following conclusions: The agricultural products from New Zealand are vital to China as well as China's Manufactures play an important role in New Zealand's import. They also found the trade among different industries between China and New Zealand is very complementarily related in the near future.

Roger Bowden and Hui Huang (2009) studied the terms of the agreement and showed clear signs of China development strategies shift towards the export of services, such as those relating to infrastructure construction and tourism. The mechanism of this type of trade is explored in terms of a model of endogenous growth that internalizes social spending on infrastructure and becomes a source of financial income for China, which in turn leads to the accumulation of exportable human capital services.

Based on the Factor Endowments Theory, ZOU Chao and YIN Xiuyan (2009) made an empirical analysis on the characteristics of China-New Zealand cargo trade by using trade intensity index, symmetric revealed comparative advantage index, Comparative Advantage Index, etc.

However, these recent studies above can not make a comprehensive measure of the overall the quantitative economic effects by using the GTAP model. This paper employs GTAP model to study the impact of China-New Zealand free

trade agreement on the development of both economies.

4. Methodology and Research Design:

4.1 Methodology: GTAP Model

This study employs the Global Trade Analysis Project (GTAP) model. The GTAP model has been widely used to assess the impact of trade liberalization. The standard GTAP model is a multi-region, multi-sector, computable general equilibrium model with assumptions of perfect competition market and constant returns to scale. Bilateral trade is handled via the Armington assumption (Hertel, 1997). The GTAP model is used together with the GTAP database. The database, like the model, captures different individual and composites of countries.

4.2 Geographical and sectoral aggregations

In this exposition, Version 6 of the database is utilized. This base year for this version for GTAP model is 2001 and recognizes 87 regions as well as 57 sectors and 5 factors of production. Thus, for each of the individual or composite region, there are 57 sectors whose data is captured in the overall GTAP database. Based on the GTAP database the paper aggregates it into 12 region and 8 commodities for this study, viz. a 12-region and 8-sector GTAP model used here. (See Table 1 and Table 2)

Table 1 Geographical aggregation for simulation

No.	Aggregated regions	Comprising
1	China (mainland)	China (mainland)
2	New Zealand	New Zealand
3	Hong Kong, China	Hong Kong, China
4	Taiwan, China	Taiwan, China
5	Japan	Japan
6	South Korea	South Korea
7	South Asia	India, Thailand, Singapore and other South Asian countries
8	North America	U.S., Canada and Mexico
9	EU	27 EU countries, Swiss and other countries in European Free Trade Area
10	Russia	Russia
11	Latin America	All Latin American countries
12	ROW	Other countries expect for the countries above

Source: form author's data

Table 2 Sectoral aggregation for simulation

No.	Aggregated sectors	Specific sectors involved
1	Dairy products	Dairy products
2	Grains and sugar	Grains and sugar
3	Meat and meat products	Meat: cattle, sheep, goats and meat products
4	Beverages and tobacco	Beverages and tobacco products
5	Other agricultural products	Other foods and agricultural products
6	Fuels and mining products	Oil industry and mining products
7	Manufacturing	Manufacturing except for Oil industry and mining products
8	Services	All services

Source: form author's data

4.3 Simulation design

To analyze the impacts of this policy shock and assess the effects of FTA on the China and New Zealand economies in 2015, two scenarios are designed. In the simulation of scenario 1, China-New Zealand FTA Effects are studied, which can provide effects of the policy shock according to the FTA; while simulating scenario 2, combined effects of China-New Zealand FTA and multilateral trade policy reforms of Doha Round are analyzed, which are compatible with the main objectives of the WTO Doha Agenda. Two scenarios are listed as follows:

Scenario 1, China-New Zealand FTA. The FTA provides for elimination of tariffs on 96 percent of New Zealand's current exports to China. Remaining tariffs will be phased out by 1 January 2019. The FTA also includes a reciprocal Most Favored Nation (MFN) clause that applies in specified sectors: environmental services, construction industry, agriculture and forestry, engineering industry, computer and related services, and tourism.

Scenario 2, Implements of China-New Zealand FTA and multilateral trade policy reforms of WTO Doha Round. With the enforcement of China-New Zealand FTA, three quantifiable measures of trade policy reforms are taken into consideration: the tariff reduction according to Swiss Formula; removal of export subsidies from all countries; reduction of domestic support measures for agricultural products from all developed countries.

5. Discussion of Findings

Using the GTAP simulation model, we propose a quantitative assessment of the potential impacts of the implementations of free trade described above on welfare of the two countries and on sectoral trade balance of China in 2015.

The likely net benefits of an FTA have been confirmed by the economic modeling work undertaken in this paper. This suggests that bilateral trade between China and New Zealand will grow significantly, that welfare gains will flow to both the China and New Zealand economies, and that there will be positive effects for many sectors in both China and New Zealand.

5.1 Impacts on welfare

As shown in table 3, the implement of China-New Zealand FTA will make the New Zealand national welfare to increase (a net welfare gain equal to \$299.67 millions in the scenario 1), followed by mainland China (a net welfare gain equal to \$53.22 millions in the scenario 1). Other countries will basically have welfare losses; the largest region is the North America, followed by the European Union and Japan.

The main beneficiaries of the comprehensive reform program (scenario 2) are ROW, Japan, Latin America, Russia and Hong Kong. North America, EU, South Asia, South Korea, China, Taiwan and New Zealand will have net losses of national welfare. That's the reason just to explain rapid progress of signing free trade agreements of China with other countries and the slow progress of multilateral trade reform of WTO.

Table 3 Impacts of two scenarios on welfare (in millions of US dollars)

Regions	Scenario 1	Scenario 2
China (mainland)	53.22	-13665.7
New Zealand	299.67	-852.32
Hong Kong, China	-7.83	1843.62
Taiwan, China	-5.99	-8466.54
Japan	-50.12	65322.13
South Korea	-12.03	-38744.6
South Asia	-25.34	-42680.51
North America	-122.74	-2055962.1
EU	-55.85	-1191033.4
Russia	1.61	13480.98
Latin America	-18.02	26537.22
ROW	-8.97	275578.67

Source: form author's data

5.2 Impacts on sectoral trade balance of China

In Scenario 1, with abolition of tariff barriers between China and New Zealand in 2015, China has some influences with the trade balance of sectors from FTA, especial for other agricultural product (with deficits equal to \$86.72 millions), dairy products (with deficits equal to \$78.20 millions) and services (with deficits equal to \$31.13 millions).

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In Scenario 2, with elimination of export subsidies and domestic support measures and import tariffs cut, the influences of various sectors in China are different. Especially, Manufacturing, fuels and mining products and services will increase trade deficits dramatically. This shows that a comprehensive impact of implements of China-New Zealand FTA and multilateral trade policy reforms of Doha Round is larger than the simulation result of China-New Zealand FTA.

Table 4 Changes in trade balance of various sectors of China (in millions of US dollars)

Sectors	Scenario 1	Scenario 2
Dairy products	-78.20	-118.41
Grains and sugar	-0.03	-79.69
Meat and meat products	-28.35	-61.89
Beverages and tobacco	-0.83	-185.94
Other agricultural products	-86.72	-5781.72
Fuels and mining products	-14.04	-19906.79
Manufacturing	27.92	-30363.41
Services	-31.13	-9231.98

Source: form author's data

6. Conclusions and Limitation

Our analysis justifies the idea that a free trade agreement between two countries with different development stages can come along with a progressive process of tariff cut for different sectors so as to improve free trade between both countries.

With the implement of the FTA, China would experience a gain of economic welfare in 2015 (a net welfare gain equal to \$53.22 millions in the scenario 1), and have some influences with the trade balance of sectors from FTA, especial for other agricultural product, dairy products and services. While with comprehensive effects of China-New Zealand FTA and multilateral trade policy reforms of Doha Round, China will experience a loss of economic welfare (a net welfare loss equal to \$13665.7 millions in the scenario 2), and the influences of various sectors in China are different. Manufacturing, fuels and mining products of China in 2015 will increase trade deficits.

Simultaneously, for New Zealand, the implement of China-New Zealand FTA will make the New Zealand national welfare to increase (a net welfare gain equal to \$299.67 millions in the scenario 1), While with comprehensive effects of China-New Zealand FTA and multilateral trade policy reforms of Doha Round, New Zealand will have net losses of national welfare (a net welfare loss equal to \$852.32 millions in the scenario 2).

However, these figures must be considered cautiously. A more precise evaluation would require a dynamic simulation and a comparison of full liberalization with a scenario closer to the actual agreement.

Of course, the complexity of the actual China-New Zealand FTA cannot be captured by a simple scenario formula. However, inasmuch as the real agreement is a (complex) combination of these scenarios we can expect to draw some interesting conclusions by comparing these scenarios.

China has been supporting the strengthening of the multilateral trading system represented by the WTO. China will take some effective measures to further tackle the existing conflict and overcome the difficulties on the road ahead. China's socialist market economy system and its fundamental policies of reform match with the basic principles of the multilateral trading system and China's endeavor in taking part in regional economic integration will contribute to the stability and prosperity of the region as well as the whole world.

End notes

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