

# The Effects of China-US Free Trade Agreement (CHUSFTA)

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## 1. Introduction

China and the US are the world's two largest economies, which account for about one third of the value of total world economy. They are not only the world's largest traders but also the destinations for most foreign direct investment. As the world's largest exporter, China has the largest trade surplus (or merely after Germany) in the globe. The US, as the world's largest importer, has the largest trade deficit. Sino-US trade volume grows rapidly, and the US has become China's largest trading partner and largest investor, while China has grown into the second largest trading partner and the largest source of imports for the US. China-US trade relation has evolved into the one of the world's fastest growing and the largest bilateral trade relation. China as the world's largest developing country and the US as a superpower play an extremely important role in building global bilateral and multilateral free trade zones.

Given the positions, the bilateral trade and economic relations and foreign trade and economic strategies of the two in the world economy, it will impose a huge economic impact on the two countries and even the world economy if a free trade agreement can be reached between the two countries. Therefore, the two countries propose the establishment of "CHUSFTA" strategic vision at the academic level. In this case, how to promote the construction of the CHUSFTA has become the most important issue. Past experience shows that the negotiation of a free trade zone is a process of reaching mutual understanding, mutual compromise and benefits sharing. This process requires considerable qualitative judgments on situations and trends, and it also, and more importantly, needs the quantitative analysis of the effectiveness of the policy. The quantitative analysis of gains and losses for both sides supports the progress of FTA

Based on the above logic, this study uses the dynamic GTAP model (GTAP-Dyn) to estimate the potential impact of CHUSFTA on macro economy, sector trade, output and employment of the US and China, summarizes and analyzes the "gains" and "losses" CHUSFTA brings to the two countries, thereby supporting the development of CHUSFTA with quantitative data.

## 2. Research Methods

Dynamic GTAP model (GTAP-Dyn) is a dynamic recursive applied general equilibrium model (AGE) of world economy. It extends the standard GTAP model (Hertel, 1997), including cross-country capital flow, capital accumulation and investment adaptability expectations theory.

## 3. Simulated research scheme

### 3.1 Quantification of Sino-US non-tariff barriers

Unlike traditional tariffs, non-tariff barriers (NTBs) mainly include price and quantity controls (import quotas, import licenses), technical standards, animal and plant quarantine and import monopoly. There are various types of NTBs and the influence is greater than that of tariff barriers. However, the quantification of NTBs remains a problem. This study uses the findings of the European consulting company Ecorys (2009). From the perspective of tariff equivalents of NTBs, the NTBs between the US and China are on high levels, as shown in Table 1. In terms of the simple arithmetic average, the tariff equivalent of NTBs on China's imports from the US is 33% on average, while that on the US' imports from China is 14%. As can be seen, the level of NTBs is much higher than the traditional tariff level, and therefore, it can be expected that the cut in NTBs will be the focus of CHUSFTA negotiations.

Specifically, the agricultural processing sector which has high levels of tariffs shows an even higher non-tariff rate, and the tariff equivalent of NTBs on agricultural products caused by the differences between Chinese and the US agricultural quality standards is more than 10%. For the food sector which has a traditional low tariff level, the NTBs are also on a high level. For example, the US traditional tariff on food is only around 5%, while the tariff equivalent of NTBs reaches 70%; the US traditional tariff on car manufacturing is below 1%, while the tariff equivalent of NTBs is over 20%. The service trade whose traditional tariff is 0 also faces relatively high level of tariff equivalent of NTBs. For example, the tariff equivalent of NTBs on financial services and insurance whose traditional tariff is 0 fluctuates between 30% and 80%.

Table 1 Tariff equivalents of NTBs between the US and China

	China's imports of US products (%)	US imports of Chinese products (%)
Rice	33.4	11
Wheat	33.4	11
Other agricultural products	33.4	11
Mining sector	8.4	1.9
Food	16.7	73.3
Textile	16.7	3.7
Clothing and footwear	16.7	3.7
Other manufacturing sectors	16.7	3.7
Chemical products	16.7	19.1
Metal	16.7	17
Transport equipment	16.7	22.95
Electrical equipment	16.7	14.7
Machinery equipment	16.7	3.7
Trade, transportation and communication	76.5	3.9
Finance	76.5	25.4

Public service	76.5	8.9
Real estate	76.5	2.5
Average	33	14

Source: GTAP, [www.gtap.agecon.purdue.edu](http://www.gtap.agecon.purdue.edu), Ecorys (2009).

### **\*3.2 Simulated scenarios**

It is assumed in this study that the CHUSFTA starts from 2016 to gradually reduce tariffs and non-tariffs between China and the US. As for tariff reductions, the recent free trade agreement in Asia has eventually cancelled 90% of MFN tariffs, and the US's recent agreement has cancelled 96% of such tariffs (Petri, Plummer, & Zhai, 2012), and therefore, this study assumes that CHUSFTA tariff reduction is 93% (between the two). As for non-tariff reductions, we assume that China and the US have made substantial progress in terms of reduction of NTBs, 40% of which are cut (mainly by means of reducing import restrictions, unifying standards, cutting technical barriers and quarantine standards, streamlining approval processes and other trade-facilitating instruments).

## **IV. Simulation results**

### **4.1 Impact on macro economy**

Given that China and the US still face high level NTBs, the elimination of these barriers will bring enormous benefits to both countries. As shown in Figure 2, China and the US begin to benefit from it from 2016 (the year when the agreement is assumed to be implemented). By 2025, China's additional income (GDP) will reach \$ 327.1 billion per year (2.4% of GDP), while the income growth of US will be close to \$ 242.3 billion per year (1.2% of GDP).

It is not surprising that China will get more gains, because the existing higher barriers to China mean more potentials for distortion reduction. In addition, both countries will benefit from reducing barriers to the other's products. Finally, the preferential access to the US market will enable China to export more to the US instead of other countries, and meanwhile the US will also export more to China rather than other countries. As shown in Figure 1, the countries not joining CHUSTIA will suffer a loss of \$ 81.9 billion each year.

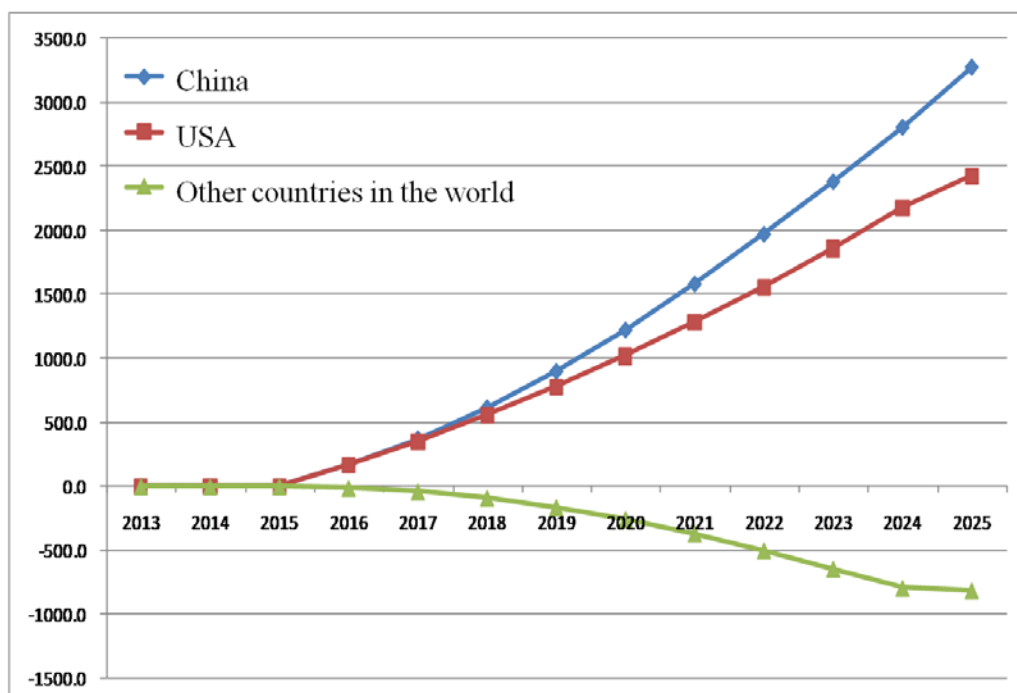


Figure 1 Impact of CHUSFTA on the global economy

Source: Simulation results of dynamic GTAP model

CHUSFTA enables the sector with comparative advantages to achieve trade expansion. According to Table 2, CHUSFTA will enable China and the US to increase their global exports by 3.8% and 1.4% respectively over the baseline, and their global imports will increase by 4.8% and 1.2% respectively over the baseline. Ultimately it reduces China's trade surplus and the US trade deficit. Table 5-6 also show that the bilateral trade will undergo a rapid growth: China's exports to the US will increase by 15.5% over the baseline, while the US exports to China will increase by 32.8% over the.

Table 2 Impacts of main macroeconomic variables in 2025 relative to the baseline scenario

	China	US
Welfare (\$ 100 million)	1873.5	1955.4
Real GDP (%)	2.5	1.2
Investment (%)	3.2	3.2
Private consumption (%)	2.4	1.3
Government consumption (%)	2.7	1.1
Total exports (%)	3.8	1.4
Total imports (%)	4.8	1.2
Changes in net exports (\$ 100 million)	-480.9	55.4
Bilateral exports (%)	15.5	32.8
Factor prices (%)		
Land	3.1	2.8
Labor force	1.7	1.8
Capital	0.6	1.1

Other major variables (%)

Return on capital	0.8	0.7
Capital stock	1.2	0.7
Consumer price index	-0.5	0.4

Source: Simulation results of dynamic GTAP model

Figure 2 further analyzes the third country effect. Some countries, for example, Chile and Peru, will benefit from CHUSFTA. These economies complement China's economy and/or the US economy, and most of them are raw material exporters. However, other economies will be adversely affected, especially China's export competitors (such as India, Vietnam and Cambodia) and the states having reached free trade agreements with the US (Mexico, South Korea, Canada and Singapore). But the losses of these third countries are relatively not too large.

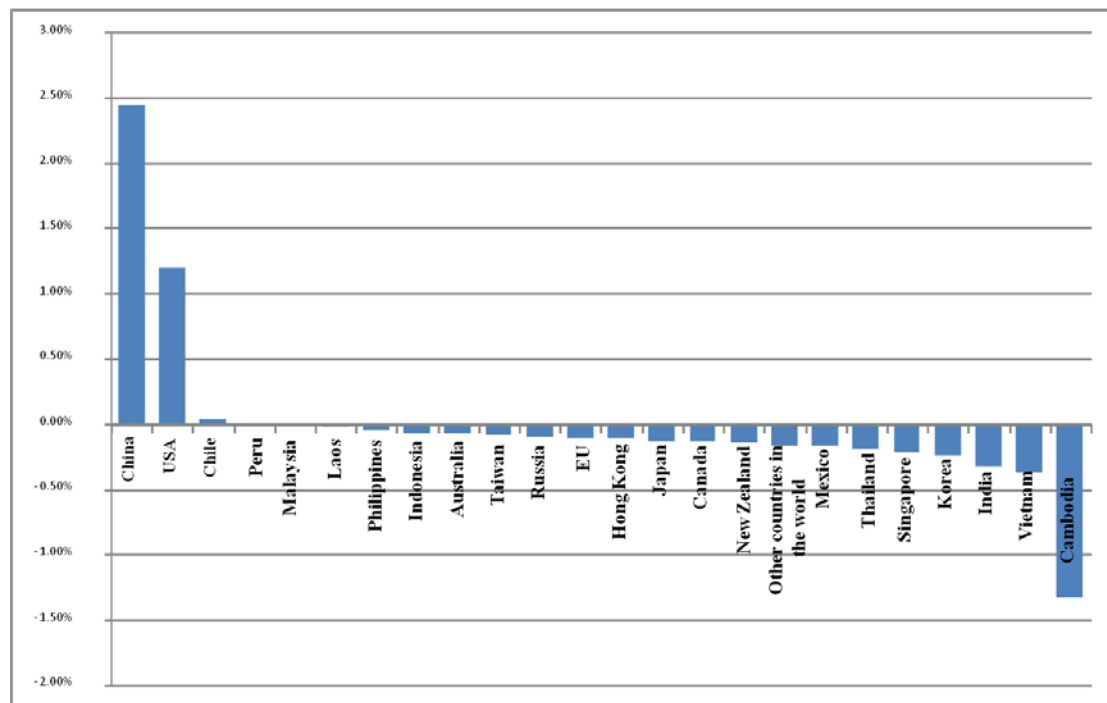


Figure 2 CHUSFTA's impact on incomes of other countries (2025, the proportion to GDP)

Source: Simulation results of dynamic GTAP model

#### 4.2 Impact on sector trade

Table 3 shows the changes in sector trade, which is caused by comparative advantage, leading to the increase in China's exports of manufacturing products and the increase in US exports of various types of materials and services. This brings more two-way trades to all sectors, in particular the manufacturing sector. Two-way trade flows reflect a number of important factors, including fragmented production and cross-border supply chain, etc. GTAP model tracks the global supply chain based on the international input and output of a sector.

Table 3 shows that China's machinery, metal and other manufacturing exports will witness a strong expansion. China's apparel and footwear exports are also expected to grow, because the reduction in the relatively higher US tariff will give China an advantageous position in competing with other countries. There will be small changes in China's exports of the service sector, but according to the baseline assumption, these sectors will undergo a rapid growth anyway because of domestic demand.

According to Table 3, the US export sees a growth in other agricultural sectors (mainly soybeans and corn), food, alcohol and tobacco sectors, textile sector and some sub-sectors participating in the global supply chain. There will also be an increase in the exports of the US more advanced manufacturing sectors including fabricated metal products, transportation equipment manufacturing sector and other mechanical equipment manufacturing sector. There will be a rapid growth in the exports of US service sector, including trade, transport and communications sectors, financial sectors, public services and Real estate sectors.

Table 3 Sino-US sector trades

Sector	Total exports		Total imports		Chinese exports to US	US exports to China
	China	US	China	US		
Rice	-3.6	-0.8	8.5	3.9	27.3	153.3
Wheat	1.3	-0.1	307.5	1.5	3.9	21.6
Other agricultural sectors	0.9	7.5	11.6	3.5	9.3	40.6
Mining sector	-1.5	1.4	3.8	2.5	4.1	9.7
Food and tobacco sector	3.7	2.2	6.9	3.3	22.5	53.5
Textile sector	8.2	3.9	6.4	10.6	58.9	76.5
Clothing and footwear sector	14.5	9.9	5.6	19.4	60.3	89.5
Other industrial sectors	2.4	-0.6	3.6	3.3	7.5	18.0
Chemical sector	3.8	-1.8	7.0	3.2	19.8	0.3
Metal manufacturing sector	2.4	2.9	4.7	3.5	16.5	31.0
Transportation equipment manufacturing sector	3.7	0.6	7.7	3.2	15.5	40.2
Electronic equipment manufacturing	2.4	-2.4	2.2	3.5	5.9	3.5

sector						
Other machinery and equipment manufacturing sector	4.4	1.5	4.7	5.6	16.7	42.2
Trade, transport, communications sector	2.0	5.3	5.2	2.5	4.5	173.1
Finance sector	2.3	3.0	8.4	2.8	4.7	153.2
Public service	1.7	2.4	26.8	2.3	3.0	83.6
Real estate sector	3.5	1.5	3.5	1.5	2.2	198.6

Source: Simulation results of dynamic GTAP model

### 4.3 Impact on sector output

What is consistent with the trade is that China sees a major growth in manufacturing sectors (including garments, electronic equipment manufacturing and chemical sectors). The growth in the US is mainly in primary products and services, including other agricultural sectors (mainly soybeans and corn), mining sectors (mainly natural gas) and manufacturing sectors (including metal manufacturing sector, transportation equipment manufacturing sector, other machinery equipment manufacturing sector and other high-end manufacturing sectors). Table 4 shows the changes relative to the baseline. Even if a negative result in CHUS FTA does not necessarily mean an absolute decline in the long term. In fact, the baseline shows that the output of the two countries sees growth in each sector.

Table 4 Changes in sector outputs in China and US

Sector	Output		Price	
	China	US	China	US
Rice	2.4	0.2	0.7	0.3
Wheat	1.7	0.2	-0.1	0.3
Other agricultural sectors	2.0	2.1	0.2	1.8
Mining sector	2.2	0.7	0.7	0.9
Food and tobacco sector	2.0	0.9	-0.1	0.9
Textile sector	5.3	-3.5	-0.4	0.2
Clothing and footwear sector	6.3	-8.9	-0.4	-0.1
Other industrial sectors	2.9	1.7	-0.1	0.6
Chemical sector	4.1	-0.4	-0.1	0.4
Metal manufacturing sector	2.5	1.3	0.0	0.5
Transportation equipment manufacturing sector	2.3	1.3	-0.4	0.4
Electronic equipment manufacturing sector	2.9	-0.6	-0.3	0.3

Other machinery and equipment manufacturing sector	2.8	1.1	-0.3	0.5
Trade, transport, communications sector	1.3	2.4	-0.7	0.5
Finance sector	1.3	2.2	-0.7	0.6
Public service	1.2	2.1	-0.4	0.6
Real estate sector	1.8	2.5	-1.1	0.2

Source: Simulation results of dynamic GTAP model

#### 4.4 Impact on sector employment

Table 5 shows the employment. The overall employment is determined independent of the model and based on the trend of employment-age population and labor force participation rate. Sectoral employment change is caused by the endogeneity of the model, and by 2025, relative to the baseline scenario, the wheat and other agricultural sectors, food and tobacco sector, metal manufacturing, transportation equipment manufacturing, trade, transportation, communications, financial sector, public services and Real estate sector in China will experience a decline in employment. While, the textile sector, clothing and footwear sector, chemical sector, electronic equipment manufacturing and other mechanical equipment manufacturing sectors will undergo an opposite trend. The increase in US employment will be mainly in the service sector, and manufacturing employment baseline will fall. In the US, the shift of employment from the manufacturing sector to the service sector will be enhanced because of CHUSFTA, for the US exports of services to China will grow as a result of China's service sector liberalization.

Table 5 Changes in sectoral employment in China and US

Sector	Employment	
	China	US
Rice	0.64	-0.91
Wheat	-0.28	-0.90
Other agricultural sectors	-0.15	1.49
Mining sector	0.39	-0.26
Food and tobacco sector	-0.61	-0.37
Textile sector	2.44	-4.61
Clothing and footwear sector	3.66	-3.92
Other industrial sectors	-0.01	0.49
Chemical sector	1.17	-1.74
Metal manufacturing sector	-0.36	0.11
Transportation equipment manufacturing sector	-0.32	0.12
Electronic equipment manufacturing sector	0.03	-1.80
Other machinery and equipment manufacturing sector	0.04	-0.12
Trade, transport, communications sector	-1.05	0.50
Finance sector	-0.62	0.10



Public service	-0.10	0.20
Real estate sector	-0.45	0.37

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Source: Simulation results of dynamic GTAP model