

The Development of U.S.-China Trade and the Result of Conflict

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The very success of globalization has flourished since World War II. The benefits of economic globalization are not evenly distributed among countries, especially among different groups within a country. Before the financial crisis in 2008, as the major promoters of globalization, developed countries intensified their internal contradictions. So populism, protectionism and isolationism are rising in many developed countries, which are the main features of anti-globalization.

Brexit happened against the polls in 2016, in large part, because of the migrant crisis tipping the British towards protection of its borders. In the beginning of his presidency, Donald Trump declared to withdraw from TPP, build Mexican border wall, renegotiate NAFTA and so on. Trump's protectionism policies may be gradually implemented in 2017. Going on like these, the tide of anti-globalization may be further strengthened in the future.

Chapter 1 High interdependence of U.S.-China economies

U.S.-China economy developed smoothly in the past decades, especially after China entering WTO. According to the existing data, China's exports to the U.S. began to fall in 2016 for the first time since the height of the global financial crisis. Chinese direct investment in U.S. increased to 8 billion dollars in 2015. In the future, U.S.-China trade and economy may be affected significantly by American trade policies.

I. Bilateral trade development between U.S. and China

China's exports to U.S. have formed unique comparative advantages for a long time. Now many influential factors are changing such as labour price, investment incentive, trade policy and so on. Chinese labour-intensive commodity exports to U.S., for example footwear, apparel and clothing, have been declining significantly in 2016. This will be a long-term structural shift, with heightened competition from Vietnam and other low-wage Asian economies which increasingly showing that Chinese goods are "crowded out".

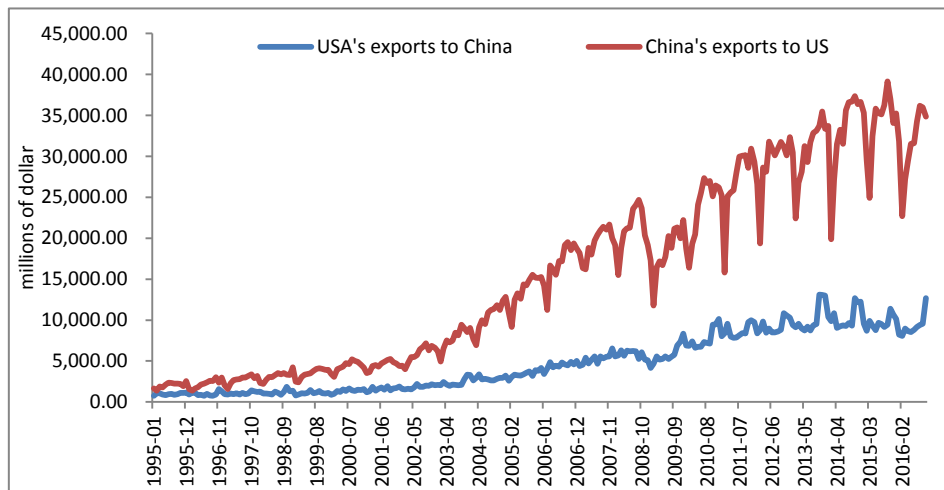


Figure1 U.S.-China bilateral exports value monthly by unseasonal adjustment

Sources: Wind database.

U.S.-China bilateral exports increased dramatically since China entered WTO in 2001, and particularly, the increase of China's exports to U.S. has been striking. From 2002 to 2008, China-U.S. exports grew at more than 30 percent each other before the financial crisis. During the financial crisis, U.S.-China bilateral export went slowdown to the bottom of negative growth mutually. After a short term recession, bilateral exports developed at a relative low growth rate in the past several years.

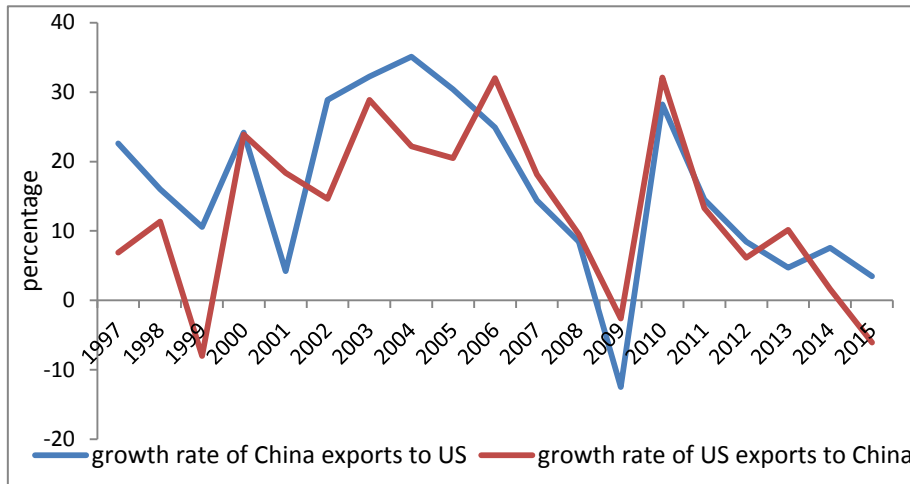


Figure2 U.S.-China bilateral export growth rate annually

Sources: WITS database.

II. Foreign direct investment between China and U.S.

Besides trade, bilateral FDI between China and U.S. developed smoothly in past decade. U.S. investment to China reduced 50 percent from the highest point to the bottom during the past decade. However, China invested to U.S. for more than 8 billion dollars flow increasingly in 2015. With China "go abroad" strategy, more and more companies invested abroad for the development. By comparison, bilateral FDI between China and U.S. are interdependent each other to a great extent.

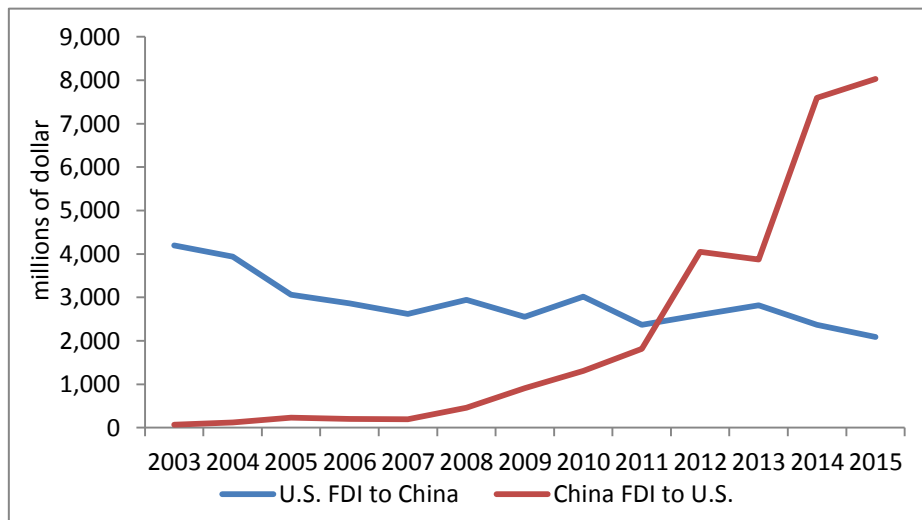


Figure3 Bilateral foreign direct investment flows between China and U.S.
Sources: Wind database.

III. Employment opportunities created between China and U.S.

Based on Asian International Input-Output Table, WTO and IDE-JETRO simulated the bilateral labors flows among ten countries and region in 2000 and 2005. The table gives the simulated number of jobs generated in each country or region by the final demand of its trade partners. The findings provide strong evidence for the benefits of international trade. Numerous job opportunities have been generated through countries' engagement in regional supply chains.

U.S.-China bilateral trade and investment developments also brought deep impact on labor market, as production tasks outsourced from U.S. headquarters to China resulted into cross-border outflow and inflow of employment opportunities. In 2000 and 2005, the employment opportunities transferred from U.S. to China are more than 28 and 51 million persons, but the opportunities outflowed from China to U.S. are only 0.25 and 0.4 million persons (see Table1).

As a developing country in East Asia, China became the net inflow nation of employment opportunities and has been called "world factory". U.S. has been the net outflow nation of employment along Asia-Pacific supply chains.

Table1 Cross-border transfer of employment opportunities, 2000 and 2005(thousands of persons)

flow		flow										Total
		China	Indonesia	Japan	Korea	Malaysia	Taiwan China	Philip pines	Singapor e	Thailand	U.S.	
China	2000		911	18,817	3,406	916	1,425	362	839	992	28,509	56,177
	2005		1,943	23,266	5,521	1,055	2,617	481	844	2,032	51,542	89,301
Indones ia	2000	1,138		3,733	702	612	591	244	525	399	5,406	13,350
	2005	1,795		3,032	746	610	417	166	686	508	4,422	12,382
Japan	2000	420	66		264	112	285	63	94	123	1,816	3,244
	2005	1,003	110		425	62	349	57	46	204	1,754	4,009
Korea	2000	340	32	373		30	88	31	25	29	736	1,685
	2005	727	44	330		20	71	18	12	45	599	1,866
Malaysi a	2000	201	47	569	109		111	50	260	84	1,051	2,484
	2005	1,030	170	776	211		156	62	185	300	2,044	4,944
Taiwan China	2000	373	22	318	59	42		25	21	38	722	1,620
	2005	818	31	308	83	32		33	13	55	593	1,966
Philippi nes	2000	314	30	1,506	228	127	213		52	98	2,780	5,348
	2005	1,565	107	1,249	282	101	204		34	238	1,606	5,385
Singapo re	2000	33	8	43	18	31	20	14		16	146	328
	2005	82	59	69	58	27	15	12		23	110	456
Thailan d	2000	473	149	1,539	182	278	243	123	247		2,516	5,751
	2005	1,203	422	1,658	246	249	213	94	122		2,418	6,536
U.S.	2000	250	38	822	237	69	214	45	65	61		1,801
	2005	406	56	661	245	40	147	48	69	82		1,753
Total	2000	3,543	1,303	27,720	5,206	2,221	3,190	956	2,128	1,839	43,682	91,787
	2005	8,629	2,942	31,258	7,827	2,195	4,189	973	2,010	3,486	65,089	128,598

Sources: Trade patterns and global value chains in East Asia: from trade in goods to trade in tasks, WTO, IDE-JETRO, 2011.

Table 2 shows disaggregated results for each industrial sector in 2005. The simulated number for the manufacturing sector in most country or region is remarkably large than other industries and then agriculture, forestry and fishery, trade and transport. For the 89 million person's employment creation in China, 34.3 percent of those opportunities are in agriculture, forestry and fishery, 29.1 percent of those are in manufacturing, 23.1 percent of those are in trade and transport. For the 1.75 million person's employment created in U.S., 38.5 percent of those opportunities are in

manufacturing, 29.6 percent of those are in other services, 22.5 percent of those are in trade and transport.

For China and U.S., manufacturing is sensitive and high elasticity industry which is susceptible with the change of trade tasks. So it will be affected by the tariff, other non-tariff barriers and import restriction and so on.

Table2 Cross-border transfer of employment opportunities by industrial sector, 2005(thousands of persons and percentage)

	Agriculture, forestry and fishery	Mining	Manufacturing	Electricity, gas and water supply	Construction	Trade and transport	Other services	Total
China	30,607 34.3%	2,017 2.3%	25,952 29.1%	976 1.1%	256 0.3%	20,644 23.1%	8,849 9.9%	89,301 100%
Indonesia	5,382 43.5%	369 3.0%	1,967 15.9%	18 0.1%	54 0.4%	3,441 27.8%	1,151 9.3%	12,382 100%
Japan	451 11.2%	3 0.1%	1,722 42.9%	18 0.5%	43 1.1%	1,119 27.9%	653 16.3%	4,009 100%
Korea	253 13.6%	6 0.3%	793 42.5%	7 0.4%	5 0.3%	521 27.9%	280 15.0%	1,866 100%
Malaysia	925 18.7%	28 0.6%	1,640 33.2%	15 0.3%	93 1.9%	1,748 35.4%	495 10.0%	4,944 100%
Taiwan China	126 6.4%	2 0.1%	1,173 59.7%	8 0.4%	16 0.8%	322 16.4%	318 16.2%	1,966 100%
Philippines	1,982 36.8%	39 0.7%	1,161 21.6%	28 0.5%	183 3.4%	1,626 30.2%	367 6.8%	5,385 100%
Singapore	7 1.5%	0 0.00%	267 58.6%	1 0.3%	2 0.5%	45 9.9%	133 29.2%	456 100%
Thailand	3,600 55.1%	14 0.2%	1,507 23.1%	11 0.2%	8 0.1%	808 12.4%	587 9.0%	6,536 100%
U.S.	110 6.3%	20 1.1%	675 38.5%	17 1.0%	16 0.9%	395 22.5%	519 29.6%	1,753 100%
Total	43,443 33.8%	2,499 1.9%	36,858 28.7%	1,099 0.9%	678 0.5%	30,669 23.8%	13,352 10.4%	128,598 100%

Sources: Trade patterns and global value chains in East Asia: from trade in goods to trade in tasks, WTO, IDE-JETRO, 2011.

Chapter 2 Either winner or loser of U.S.-China trade: industrial complementarity

China's exports have relative high dependence on U.S. market, especially for the labor-intensive goods, such as textile, clothing, footwear, small household appliances and so on. The large share of above goods exports to the United States led to higher price elasticity of these products. So if the import tariff of these products in U.S. changes, the imports from China will be affected substantially.

This section will analyse China-U.S. bilateral trade structure at industry level to find out the

features of industrial structure. It is well known that the price of Chinese labour is relative low in the past 30 years. China became a “world factory” for exporting the labour-intensive products and assembling some intermediate inputs to final goods.

- ◆ China exports a large quantity of labour-intensive products to U.S.. The largest export value and share comes from machinery and transport equipment and the second largest is the industry of mechanical and electrical merchandise.
- ◆ The U.S. largest import value of these two industries from China are 187 billion and 179 billion dollars on average respectively from 2006 to 2015; the shares of U.S. imports in corresponding industries are about 48 percent and 46 percent averagely during the period.
- ◆ The U.S. imports share of textiles and clothing industry from China is only about 9.5 percent averagely in the past ten years.

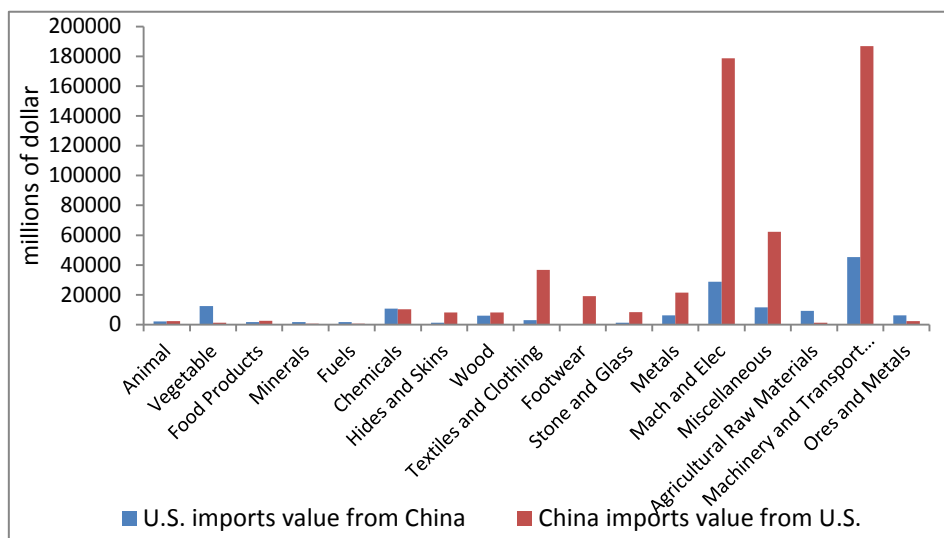


Figure4 U.S.-China bilateral imports value on average at industry level (2006-2015)

Sources: WITS database.

China import value and share from U.S. can also be calculated and ranked at industry level. From 2006 to 2015, China imported a large quantity of machinery and transport equipment from U.S., and the import value is about 45 billion U.S. dollars and the share is 41 percent of the total imported from the world. China’s second largest imports from U.S. is also mechanical and electrical products; the import value is about 29 billion U.S. dollars and the share is more than 27 percent of the total imported from the world(see Figure4). The two industries have similar import structure in U.S.-China bilateral trade. Either in terms of the import value or import share, the two indicators are the largest of all industries. By comparison, China’s exported products to U.S. were far more than that U.S. exported to China.

Besides these two industries, China imported a large number of vegetable, chemical, miscellaneous and so on from U.S. And almost in every industry, the exports from China to U.S. are far more than that U.S. export to China. This indicates that China’s exports have become highly dependent on U.S. market.

In summary, the relationship between U.S. and China is interdependent in terms of trade and investment. High levels of economic interdependence will result in a reduced likelihood of

conflict. The industrial complementarity of trade may bring gains or losses to U.S. and China in different industries, but two countries will benefit from the transaction and cooperation in the long run totally. Comparing the trade and economy creative effects to China and U.S., both of them benefited from each other but comparatively U.S. gained more than China.

Chapter 3 Understanding the nature of U.S.-China trade

I. U.S.-China bilateral trade imbalance from the perspective of supply chains

The bilateral trade balance is expressed as the difference between an economy's exports and its imports with another economy. Bilateral trade imbalance, especially bilateral deficits between U.S. and China, has become more prominent in recent years. In fact, U.S.-China trade had showed to be surplus before 1990s. However, the increasing deficits of U.S.-China trade resulted from the change of production specialization since 1990s.

Deeply participating in Asia-Pacific production supply chains, China has become the major manufacturing and processing base for multinational companies of United States, while the United States is the headquarter service provider and final products consumption market of Chinese exports. With the development of the upstream and downstream supply chains and trade relations, the net trade between China and U.S. reversed and China-U.S. trade surplus appeared in 1993.

Since 1993 China's exports to U.S. exceeded its imports from U.S., and the surplus increased significantly after 2001 when China entered WTO. Since then the surplus soared dramatically, the rise dropped only in the year of financial crisis of 2009. The growth trend appeared regular seasonal fluctuations in the whole period. The exports surplus between China and U.S. increased from no less than 9 billion dollars in 1995 to around 260 billion dollars in 2015, which expanded more than 28 times during the period of 20 years. To be noted, the large trade surplus between China and U.S. may be the statistical illusion due to multiple calculations across different borders. The real net trade contains large amount of intermediate tradable goods produced in other countries, but these intermediary exports volume is embodied in China's total exports to U.S.. Only by separating the imported intermediate inputs from the gross exports can we restore the real trade surplus between China and U.S..

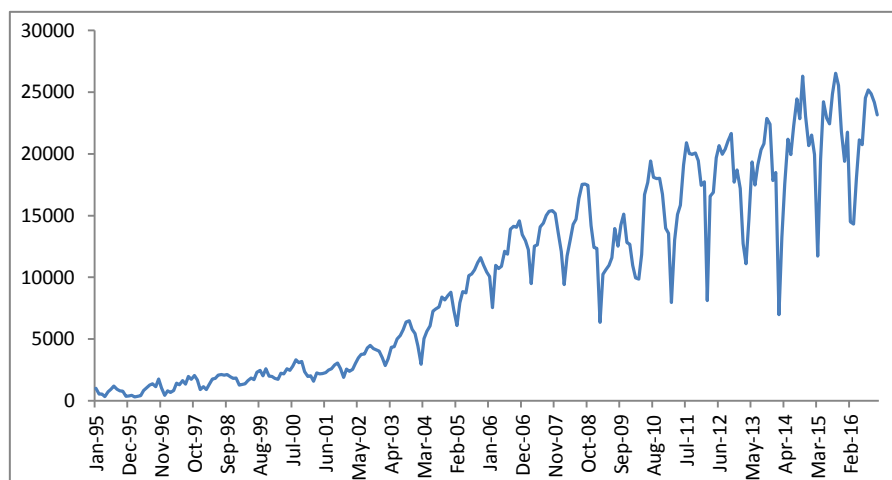


Figure5 China's exports surplus to U.S. monthly (millions of dollar)

Sources: Wind database.

II. Clarifying U.S.-China bilateral trade imbalance by trade in value added

According to the statistics of Deutsche Bank, the share of China's merchandise exports to U.S. total trade deficits in goods is only 16.4 percent in 2015 calculated in value added terms.

Several years ago, WTO and OECD carried out trade in value added methods to measure the bilateral exports along the global value chains more precisely to clarify the nation gains from the process of globalization. Figure 5 gives information regarding domestic value added(DVA) content embodied in U.S. gross exports and gross exports to China, we can see that U.S. real exports to China shrank about 10~15 percent in value added terms during 1995 to 2011.

Meanwhile, the domestic value added content of Chinese gross exports to U.S. also narrowed about 34~41 percent significantly during 1995 to 2011.

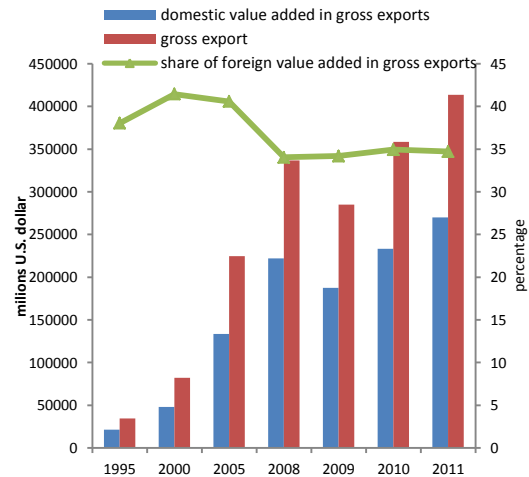
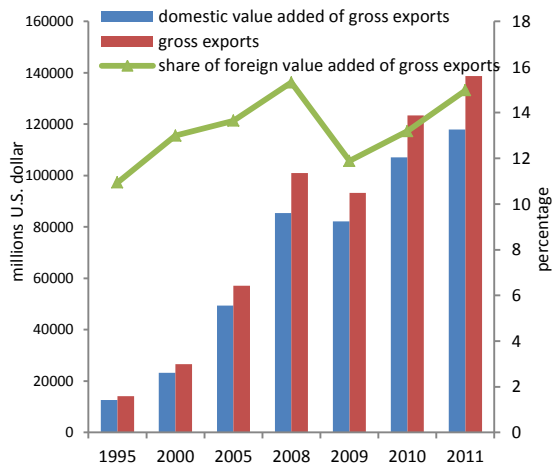


Figure6 U.S. exports to China: Total and DVA in exports

Figure7 China exports to U.S.: Total and DVA in exports

Sources: OECD/WTO TiVA Database.

Sources: OECD/WTO TiVA Database.

With the traditional statistical methods, there is a large trade surplus between China and U.S.. However, due to the global supply chains, many types of merchandise were made by means of production outsourcing and foreign direct investment from United States or other countries. Therefore, the product value added embodied in Chinese export is low, china did not benefit that much from trade. The gross trade statistics exaggerated the value of China's exports, and most of the benefits have been gained by the parent corporations in some developed countries.

Estimated by WTO and IDE-JETRO of Japan, based on the calculation of export value added, China-U.S. trade surplus will be reduced by 20% than the conventional trade values in 2000; by the same way, China-U.S. trade surplus will be reduced by 27% in 2005, and if we consider Chinses export processing trade, the actual surplus will be reduced by 53%; China-U.S. trade surplus will be reduced by 21% in 2008, and considering the processing trade factors, the actual surplus will be reduced by 42%.



Figure 8 U.S.-China trade imbalance: Traditional statistics versus value added terms (in billions of dollar)
Sources: UN Comtrade Database and WTO estimate. China's processing trade data in 2000 not available.

The above results show the nature of China-U.S. trade, China does not get as large profits as the trade volume suggested. Along the products supply chains, not only China undertakes some task trade, but also many other developing countries participate in the complicated production tasks outsourced by some developed countries. **So trade in value added can help U.S. to identify the gains and loses between U.S. and China. Chinese final product exports to U.S. embodied certain percentage contents of other countries along the supply chains, so it is inaccurate to measure U.S.-China trade imbalance by bilateral final product trade.**

Chapter 4 U.S.-China trade conflicts lead to closed economy

The new president Donald Trump has threatened to impose tariffs of up to 45 percent on imports from China and considered China as a “currency manipulator”. In this context China's exports to U.S. could decline still further in the coming years. China's large quantity of labour-intensive exports to U.S. makes it called “world factory”. Table1 shows the shares of U.S. imported products from China. Some high-tech products have the highest market import share, such as Machinery and Transport Equipment, Mach and Elec industries. While textiles and clothing, footwear, the two labor-intensive products imports shares only account for no less than 10 percent

respectively.

We know that in the context of economic globalization most complicated tech final goods are made by a series of countries along the cross-national production linkages. So if U.S. plans to remove the abroad manufacture industries back to U.S., the products value chains will be severed due to the fact that not all intermediate inputs are available from American manufacturers. There are several reasons to believe why U.S. cannot remove all the manufacture products back to U.S. successfully. First, it is difficult to call on majority multinational enterprises back to U.S. due to high labor price, resource endowments and preferential policies. Second, closed economy is a dead end for any countries in the context of globalization, especially for the development of U.S.

I. The simulation on Chinese exports reduction due to U.S. tariff protection

The highest MFN average tariff imposed on China's exports by U.S. concentrated on vegetable, food products agricultural raw materials and some other labor-intensive products, and the highest tariff reached more than 40 percent. But the imports share and value from China are very small compared to some manufacture products. Some manufacture products import value and shares are very high while the corresponding tariff is relative low compared to agricultural products, such as mechanical and electrical products, machinery and transportation equipment and so on (see Table 3 and 4). So we can see:

Table3 The value and tariff of U.S. imported products from China (millions of dollar)

Industry Import & tariff	U.S.MFN average tariff share to China in 2009	import 2009	U.S.-China Imbalance in 2009	U.S.MFN average tariff share to China in 2014	import 2014	U.S.-China Imbalance in 2014
Animal	7.69	1996	-309	4.62	2749	170
Vegetable	44.12	1017	8939	44.82	1620	18072
Food Products	31.17	2198	-1425	29.94	2987	181
Minerals	1.23	329	822	4.21	539	1726
Fuels	9.09	319	392	4.08	454	1984
Chemicals	0.89	8022	-48	0.71	14341	-817
Hides and Skins	0.49	6410	-5580	0.48	9106	-7282
Wood	1.05	6815	-3012	1.03	9614	-1386
Textiles and Clothing	4.99	32313	-30600	4.29	43037	-40512
Footwear	11.49	16350	-16273	10.26	21244	-21152
Stone and Glass	1.84	6353	-5568	1.66	10451	-8560
Metals	1.63	16372	-10862	1.26	25798	-18729
Mach and Elec	0.08	138916	-116578	0.06	237776	-200952
Miscellaneous	7.44	54460	-48530	6.51	71714	-52266
Agricultural Raw Materials	18.78	914	4655	14.88	1529	9527
Machinery and Transport Equipment	0.07	144923	-113825	0.06	249334	-180241
Ores and Metals	1.12	1777	3088	1.35	2867	4105

Note: Imbalance value of U.S. to China in 2014, the positive value is surplus for U.S., the negative is deficit for U.S..

- ◆ Chinese exports to U.S. that are imposed on higher tariff mainly include some agricultural products and labor-intensive products with relative small export value, while U.S. levied a relative low tariff on the larger export value products.

What measures will U.S. carry out to boycott exports from China? According to American Trade Legislation in 1974, U.S. president may only raise imports tariff highest up to 15 percent temporarily for all imports to retaliate China for less than 150 days.

Given firm cost profit rate is between 6 percent and 7 percent equal to the economic growth of China, and U.S. may raise temporary imports tariff rates for China's exports to 6 percent, 10 percent and 15 percent respectively. Based on the MFN average tariff of 17 sectors U.S. imposed on China in 2014, the simple average tariff of 17 sectors is about 7.6 percent.

According to U.S.-China imbalance in 2014, we collected information of the deficit sectors for U.S. to simulate the imports reduction due to raising the tariff of goods imported from China.

- ◆ Scenario 1—low risk to China

We suppose firm cost profit rate is 6 percent and U.S. will impose imports tariff rate to 7 percent averagely on China's export products. In this scenario, about 10 Chinese sectors with significant surplus to U.S. will be influenced by the rising of tariff to different extent and reduce exports to U.S.. According to the trade value in 2014, 8 of these 10 sectors will reduce their exports to U.S. valued about 33086 million dollars for one year, accounting for about 5.52 percent of these 8 sectors' exports in 2014.

- ◆ Scenario 2—medium risk to China

If the tariff is raised to 10 percent for each Chinese surplus sector to U.S., the risks for china will get worse. Because the tariff on footwear is higher than 10 percent, it will not be influenced by the rising of tariff. The other 9 sectors will reduce about 59567 million dollars for one year due to the rising tariff, accounting to about 8.88 percent of these 9 sectors' exports in 2014.

- ◆ Scenario 3—high risk to China

If the tariff is further raised to 15 percent for each Chinese surplus sector to U.S., all sectors will be influenced by the highest tariff. The 10 sectors will reduce about 94132 million dollars for one year due to the 15 percent tariff, accounting to about 13.6 percent of these 10 sectors' exports in 2014.

Table 4 Three scenarios of Chinese export reduction under different tariff rates imposed by U.S. (millions of dollar, simulated from data in 2014)

	Scenario 1 6% tariff for one year Exports reduction	Scenario 2 10% tariff for one year Exports reduction	Scenario 3 15% tariff for one year Exports reduction
Chemicals	-759	-1332	-2049
Hides and Skins	-503	-867	-1322
Wood	-478	-862	-1343
Textiles and Clothing	-736	-2457	-4609
Footwear			-1007
Stone and Glass	-454	-872	-1394
Metals	-1223	-2255	-3545

Mach and Elec	-14124	-23635	-35524
Miscellaneous		-2503	-6089
Machinery and Transport Equipment	-14810	-24784	-37250
Total reduction	-33086	-59567	-94132
Share of all reduced sectors	5.52%	8.88%	13.60%
Share of all 17 sectors exports	4.70%	8.45%	13.35%

II. The simulation on Chinese employment reduction due to U.S. tariff protection

From economics theory, if U.S. levy a high tariff on Chinese imports to protect its domestic manufacturing products, American consumers will be forced to buy expensive goods made in U.S.. These consumers will cut the expenditure on service goods, which will cause much more unemployment in service sector. Then these labors squeezed from service will tend to find jobs in manufacturing sector with higher wage, and that will result into wage dropping gradually in this sector like that of service. So manufacturing sector will lose the advantage of higher wage, and in fact, the overall consumption expenditure and social welfare in U.S. will drop significantly.

This part will use input-output model to simulate Chinese employment reduction due to the bilateral imports limitation by U.S.. The model construction can be seen in the footnote¹. Here we use the export simulation results in 2009 due to the limitation of input-output data.

Table5 Three scenarios of Chinese export reduction under different tariff rates imposed by U.S. (millions of dollar, simulated from data in 2009)

	Scenario 1 6% tariff for one year Exports reduction	Scenario 2 10% tariff for one year Exports reduction	Scenario 3 15% tariff for one year Exports reduction
Animal		-46	-146
Food Products			
Chemicals	-410	-731	-1132
Hides and Skins	-353	-610	-930
Wood	-337	-610	-951
Textiles and Clothing	-326	-1619	-3235
Footwear			-574
Stone and Glass	-264	-518	-836

According to Leontief equation, $X=AX+Y$, then $X=(I-A)^{-1}Y$, we construct variable K, the elements in matrix K are value added share of creating output x with production factor f, here $K=F(I-A)^{-1}$. And we extend the model as below $Q = F(I - A)^{-1}E_{US-China}$

Where vector E is export value by sector, $(I-A)^{-1}$ is Leontief inverse matrix, A is intermediate input consumption coefficient matrix between China and U.S.. F is a job vector of low, medium and high skilled workers.

$[F(I - A)^{-1}]^T$ is a transport matrix of $F(I - A)^{-1}$, # means corresponding elements multiple of two matrices, then $\Delta Q = [F(I - A)^{-1}]^T \# \Delta E_{US-China}$

Metals	-715	-1370	-2189
Mach and Elec	-8224	-13780	-20726
Miscellaneous		-1394	-4117
Machinery and Transport Equipment	-8594	-14391	-21637
Total reduction	-19224	-35070	-56472
Share of all reduced sectors	5.34%	8.42%	13.04%
Share of all 17 sectors exports	4.37%	7.98%	12.85%

Based on the simulation results of 2009, we use World Input Output Database social economic account to simulate Chinese employment reduction under U.S. trade protection policy. We suppose that U.S. will levy 6 percent, 10 percent and 15 percent tariffs on Chinese exports. From Table 4, Chinese exports to U.S. would reduce by 4.37 percent, 7.98 percent and 12.85 percent respectively under the three levels of tariffs. The labors can be classified into low skilled workers, medium skilled workers and high skilled workers by skill types according to ISCED (International Standard Classification of Education), and the unit is not the numbers of employment or unemployment, is the working hours or the change of that.

◆ Scenario 1—low risk to China

We suppose the export reduction by industry averagely is 4.37 percent in 2009, so this can cause significant reduction of working hours for high, medium and low skilled workers, about 5.49 million, 40.15 million and 99.22 million working hours respectively.

◆ Scenario 2—medium risk to China

If the export reduction by industry averagely rises to 7.98 percent, high, medium and low skilled workers will be cut about 10.02 million, 73.31 million and 181.18 million working hours. This will bring a negative impact on Chinese labor market.

◆ Scenario 3—high risk to China

If U.S. levy high tariff on Chinese exports, this will result into about 12.85 percent export reduction by industry averagely in 2009, so high, medium and low skilled workers will lose about 16.13 million, 118.05 million and 291.75 million working hours. This will have a dramatic impact on China's labor market.

Table6 Three scenarios of Chinese employment reduction under different tariff rates imposed by U.S.

	Scenario 1 6% tariff for one year employment reduction (million working hours)	Scenario 2 10% tariff for one year employment reduction (million working hours)	Scenario 3 15% tariff for one year employment reduction (million working hours)
High skilled workers reduction	5.49	10.02	16.13

for working hours			
Medium skilled workers reduction for working hours	40.15	73.31	118.05
Low skilled workers reduction for working hours	99.22	181.18	291.75
Total reduction of all working hours	144.85	264.50	425.93

III. China retaliate to U.S. in term of trade

If U.S. provokes the trade war, China can take measures to retaliate to U.S. trade protectionism. Now China is the third largest merchandise export market of U.S., and can also set trade barriers by means of tariff, non-tariff barrier and other retaliation measures, such as reducing the purchase of U.S. treasury bonds and so on.

First of all, if China imposes higher tariff on imports from U.S., the results will be the same as Chinese exports drop to U.S.. Anyway, U.S. GDP growth rate is no more than 2 percent for many years. If a higher tariff was levied on American imports by China, U.S. exports would face great risks. the same as simulations above, we suppose American firm cost profit rate is around 2 percent equal to the economic growth of U.S. and China may raise temporary imports tariff rates for American merchandise exports to 3 percent, 15 percent and 25 percent respectively. Based on the AHS duty free tariff of 16 sectors China imposed on U.S. in 2015, the simple average tariff of 16 sectors is about 15 percent.

Table7 The value of China imported products from U.S. (millions of dollar)

Industry Import&tariff	China AHS duty free tariff lines share imports from U.S. in 2014	import 2014	U.S.-China Imbalance in 2014
Animal	18.31	2920	-170
Vegetable	8.54	19692	-18072
Food Products	0.34	3167	-181
Minerals	35.11	2264	-1726
Fuels	19.40	2438	-1984
Chemicals	4.96	13524	817
Plastic or Rubber	0.30	8107	13072
Wood	32.73	8228	1386
Textiles and Clothing	0.03	2525	40512
Stone and Glass	10.26	1892	8560
Metals	3.27	7069	18729
Mach and Elec	20.15	36824	200952
Miscellaneous	18.92	19448	52266
Agricultural Raw Materials	33.74	11056	-9527
Machinery and Transport Equipment	11.23	69093	180241

Ores and Metals	24.93	6972	4105
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Sources: WITS Database. Note: Imbalance value of U.S. to China in 2014, the positive value is surplus for China, the negative is deficit for China.

According to U.S.-China imbalance data in 2014, we collect information of 6 deficit sectors for China to simulate the imports reduction due to tariff raise on goods imported from U.S.. We conclude that all of the deficit sectors for China are agricultural and mineral resources sectors. Then we simulate the result if China raise the tariff of all American sectors to retaliate U.S.. Here are the four scenarios for simulation results:

◆ Scenario 1—slight risk to U.S.

We suppose that American firm average cost profit rate is around 2 percent, and China would impose imports tariff rate up to 3 percent averagely on America’s export products. In this scenario, about 6 American sectors with significant surplus to China will be influenced by the rising of tariff slightly and reduce exports to China. According to the trade value and tariff level in 2014, only one sector (Food Products) will reduce its exports to China about 84.24 million dollars for one year, accounting for about 0.04 percent of all 16 sectors’ exports in 2014.

◆ Scenario 2—medium and moderate risk to U.S.

If the tariff is raised up to 15 percent for each American surplus sector exported to China, only vegetable and food products will be influenced, since the tariffs on the two sectors are less than 15 percent. The two sectors will reduce about 1736 million dollars for one year due to the rising tariff, accounting to only about 0.81 percent of all sectors’ exports in 2014.

◆ Scenario 3— little higher risk to U.S.

If the tariff is further raised to 25 percent for each American surplus sector to China, all 6 deficit sectors will be levied by the highest tariff level. Only 4 sectors will reduce about 4354 million dollars for one year due to the 25 percent tariff, accounting to about 2.02 percent of these 16 sectors’ exports in 2014. That maybe a higher risk to American exports to China.

◆ Scenario 4—significant risk to U.S. if all sectors retaliated

If all 16 sectors are levied a tariff up to 25 percent, several of these sectors having a higher tariff more than 25 percent, including minerals, wood, agricultural raw material sectors will not be affected. All the other sectors will see a drop of the exports value amount to about 24000 million dollars for one year, accounting to 11.15 percent of all 16 sectors’ exports in 2014, which is obviously a significant reduction.

Table 8 Four scenarios of American export reduction under different tariff rates imposed on by China (millions of dollar, simulated from data in 2014)

	Scenario 1 3% tariff for one year on exports reduction of deficit sectors	Scenario 2 15% tariff for one year on exports reduction of deficit sectors	Scenario 3 25% tariff for one year on exports reduction of deficit sectors	Scenario 4 25 % tariff for one year on exports reduction of all sectors
Animal			195.35	195.35
Vegetable		1272.1	3241.3	3241.30
Food Products	84.24	464.28	780.98	780.98
Minerals				

Fuels			136.53	136.53
Chemicals				2710.21
Plastic or Rubber				2002.43
Wood				
Textiles and Clothing				630.49
Stone and Glass				278.88
Metals				1536.09
Mach and Elec				1785.96
Miscellaneous				1182.44
Agricultural Raw Materials				
Machinery and Transport Equipment				9514.11
Ores and Metals				4.88
Total reduction	84.24	1736.39	4354.16	23999.66
Share of all 16 sectors exports	0.04%	0.81%	2.02%	11.15%