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The Impact of Tariff Cuts on the Agriculture Economic Growth in China Based on China's Agricultural CGE Model

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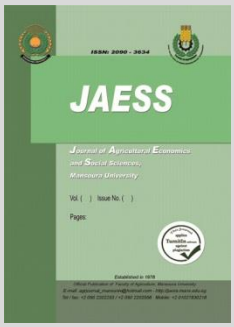

ABSTRACT

This paper explores the effects of tariff reduction on macroeconomic and sectoral indicators in China using a computable general equilibrium approach. As of December 2017, the Ministry of Finance of the People's Republic of China implemented tariff cuts to 187 consumer commodities, among which 29 agricultural or processed agricultural commodities. We then proposed a tariff policy shock, of the 51. 362%, to these agricultural and agricultural processing industries using the CACGE model. The simulation results indicate that the tariff reduction will have a positive effect on the Chinese economy, this conclusion was based on the decrease in consumer prices CPI, growth in the gross domestic product GDP, and increases in the real wages and exports. In addition to these macro level indicators, there will also be positive effects for the specific industries mainly the heavy industry and the service industry But when answering the main question, we find that the proposed policy will have a negative effect on the agricultural sector, with the total output dropping by almost 20%, employment with a loss of 20%, and investment shrinking by 22%. The losses to the sector are largely contributed to the losses in the soybean industry. But the results do imply that the increased agricultural imports and reduced output of the specific commodities will not stifle the growth in the agricultural exports, which will rise by 10% over the period 2018-2030.

Keywords: Chines Computable General Equilibrium Model; Agriculture; Tariff Reduction; Policy.

INTRODUCTION

As of December 2017, the Ministry of Finance of the People's Republic of China implemented tariff cuts to 187 consumer commodities . Among which 29 agricultural or processed agricultural commodities, these varied from Frozen Atlantic Salmon and Danube Fish to cooked fruit and homogenized food (

Appendix 1. List of AGRI-based tariff cuts). When analyzing the tariff, for these commodities, we see that there was a reduction of approximately 51.362%. To our knowledge, there had not been any research done on the effects these cuts would have on the Chinese economy as a whole, on macro-economic level, nor on the agricultural sector. It is imperative to examine how an economy will react to policy changes, in this case we will evaluate the effect of one these changes, the tariff. The effect that tariffs have are diverse and is made even more apparent by existing literature. Clemens and Williamson show that high tariffs were correlated with fast growth before the Second World War but with slow growth after that period (Clemens & Williamsom, 2001). In addition, uneven tariff rates will hampered growth, due to the connectivity of the markets. This is but one example of literature indicating that there is a positive effect of lowering tariff. The progress China has made in lowering its tariff and what the effects were of Chinese tariff drops, one of which tracked the accession of China to the World Trade Organization.

In the more recent research, Li and Xin further build on that point of view and state that when an industry is competitive internationally it is no longer necessary to maintain a higher tariff. This due to the fact the lower tariff rates improve trade and thus have a positive effect on the whole industry. Secondly, although China's industrialization has not yet been completed, the level of industrialization is already at a relatively high level and is a major trading power (Li & Xin, 2017). Where they found that "… that timing is indeed an important determinant of the profile of structural adjustment required in China and the rest of the world."

We thus proposed to run a policy simulation, using the China Agricultural (CACGE), in which we evaluated the effects of the same average drop, 51.362%, in tariff rate not merely to the consumer-based products but to the subsequent industries they belong to and the agricultural sector as a whole. These being the light industry as well as the agricultural sector as whole. Then analyzing the effects on the macro-economic level, analyzing the Real GDP from expenditure side, employment, consumer price index, real wages, real household consumption, investment on the expenditure, export and import volume index. We also assessed the impact on the light industry, fish production and other foods. In addition to the light industry, we gauged the policy effects on the agricultural sector, where we will focused on the output of the different commodities, the import, and the export. Using Computable General Equilibrium (CGE) models to assess the impact of policy changes, is wide spread and having more effect on policy as this method and the models increase in their accuracy. (Robinson & Devarajan, 2002); (Dwyer, 2015); (Shagdar & Nakajima, 2018)

Methodology and Data base

Theoretical framework and model construction

The model that we used for the simulation was the CACGE (China Agricultural) model from 2002. As such, the

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database was built from historical data from 2002 until 2017 and forecasted thereafter. This model is based on the ORANI-G Australian model, which was first developed in the late 1970s as part of the government-sponsored IMPACT project (Mai, Dixon, & Rimmer, 2010). The China Agricultural CGE model is an adjusted CHINAGEM model and is a complex system of equations capturing the behaviors of economic agents and linkages between sectors of the economy and between China and the rest of the world. The core part of CACGE contains widely accepted economic theories such as consumer and producer optimization behavior. A CACGE simulation moves each of the components of the input-output database, thereby taking us to another picture of the economy. Typically, the number of variables is larger than the number of equations in CACGE. "The equation system can be used to solve for changes in endogenous variables – the number of which equals to the number of equations – due to changes in exogenous variables."(Mai, Dixon, & Rimmer, 2010).

The key equations of the model that we focused on were:

(All,c,COM) V0CIF(c) = V0IMP(c) - V0TAR(c), 1

This equation is the total ex-duty imports of good c (V0CIF(c)), which is the sum of the total basic-value imports of good c (V0IMP(c)) and tariff revenue of good c (V0TAR(c)). The relevance of this equation is rooted in the fact that it makes it possible to calculate the tariff on every commodity denoted as COM.

Equation E_delV0TAR *# Tariff revenues #*

(All,c,COM) delV0TAR(c) = 0.01*V0TAR(c)*[x0imp(c) +pf0cif(c)-phi] + 0.01*V0IMP(c)*t0imp(c); 2,

Which calculates the ordinary change in tariff revenue for every good c delV0TAR(c). This equation three endogenous variables, V0IMP(c), x0imp(c) and V0TAR(c). Where x0imp(c) represents the total supply of imported goods.

This equation also has three exogenous variables that can change the endogenous variable (delV0TAR(c)). The three exogenous variables are:

- ✓ **pf0cif(c):** the Cost, Insurance, Freight (C.I.F) foreign currency import price,
- ✓ **phi:** the exchange rate (foreign/local), and
- ✓ **t0imp(c):** the power of tariff, which is the tariff rate on each good c plus one 1.

These equations made it possible for us to calculate the tariff for the different commodities and thereafter to change the tariff by adjusting the exogenous variable t0imp(c) (the power of tariff).

Data Base

The purpose of this paragraph is to give insight and into the database and on which part the model we focused and which macroeconomic indicators and sectors we analyzed to assess the effects of the policy shock. The structure of the CACGE input-output database in three parts: an absorption matrix; a joint-production matrix; and a vector of import duties. The first row in the absorption matrix, V1BAS… V6BAS shows flows in year t of commodities to producers, investors, households, exports, public consumption and inventory accumulation. Each of these matrices has C×S rows, one for each of C commodities from S sources. C is the number of commodities in the model and S is two (domestic and imported). The part that we focused on was the vector of import duties, with the data items relating to V0TAR. This is a C × 1 vector showing tariff revenue by imported commodity, which we used to calculate the tariff.

		Absorption Matrix					
		1 Prod-ucers	2 Invest-Ors	3 House-holds	4 Exports	5 Govern-ment	6 Invent-ories
	Size	← *I* →	← *I* →	← 1 →	← 1 →	← 1 →	← 1 →
Basic Flows	↑ *C×S* ↓	V1BAS	V2BAS	V3BAS	V4BAS	V5BAS	V6BAS
Margins	↑ *C×S×N* ↓	V1MAR	V2MAR	V3MAR	V4MAR	V5MAR	V6MAR
Sales Taxes	↑ *C×S* ↓	V1TAX	V2TAX	V3TAX	V4TAX	V5TAX	V6TAX
Labour	↑ *M* ↓	V1LAB_O					
Capital	↑ 1 ↓	V1CAP					
Land	↑ 1 ↓	V1LND					
Other Costs	↑ 1 ↓	V1OCT					
Production Taxes	↑ 1 ↓	V1PTX					

C = Number of commodities
I = Number of industries
S = 2; domestic and imported
M = Number of occupations
N = Number of commodities used as margins

	Joint Production Matrix
Size	← *I* →
↑ *C* ↓	MAKE

	Import Duty
Size	← 1 →
↑ *C* ↓	V0TAR

Figure 1. The CACGE Input-Output Database (ORONI-G Flows Database)

The macroeconomic indicators and sectors we analyzed are displayed in Table 1 .Commodities list and Table 2. The indicators. We differentiated between the agricultural sector and the agriculture based processing and manufacturing sector.

Table 1 .Commodities list

(Sub)Sectors	code
Agriculture	
Soybeans	SOYBEANS
Corn	CORN
Wheat	WHEAT
Rice	RICE
Millet	Millet
Vegetables	VEGETABLES
Apples	APPLES
Citrus	Citrus
Grapes	Grapes
Other Crops	OtherCrops
Pigs	Pigs
Sheep & Goats	SheepGoats
Other Livestock	OthLivestock
Cotton	Cotton
Fishing	Fishing
Other Ag. Products	OtherAg
Agri. based Processing & Manufacturing	
Pork Industry	Pork
Other Meat Industry	OthMeat
Eggs Industry	Eggs
Dairy Industry	Milk
Grain Milling Industry	GrainMillOil
Feed Industry	AnimalFood
Vegetable Oil processing	VegetOils
Sugar Industry	SugarRef
Aquatic products	FishProc
Other Food manufacturing	OtherFood
Alcohol and Wine Industry	Wines
Other Beverages	OtherBev
Tobacco Industry	Tobacco
Cotton Textile Industry	CottonTextil
Wool Textile Industry	WoolTextiles
Silk Textile Industry	SilkTextiles
Other Textile Processing	TextProc
Leather Industry	Leather

Table 2. The indicators

Indicators	Description	code
GDP	Real GDP from expenditure side	x0gdpexp
EMPLOYMENT	Aggregate employment in persons	emp_person
CPI	Consumer price index	p3tot
REAL WAGE	Average real wage	realwage
CONSUMPTION	Real household consumption	x3tot
INVESTMENT	Aggregate real investment expenditure	x2tot_i
EXPORT	Export volume index	x4tot
IMPORT	Import volume index, duty-paid weights	x0imp_c
OUTPUT	per industry	x1tot
EXPORT	per industry	x4
IMPORT	per industry	x0imp
INVESTMENT	per industry	x2tot
EMPLOYMENT	per industry	employ
Dom. Price	Basic price of domestic goods per industry	p0dom

Baseline Scenario Simulation

The purpose of this chapter is to give insight into the macro-economic and the agricultural indicators prior to the proposed policy simulation. The base data was built on the historical economic data from China, starting in 2002 until 2017 and the data for the years thereafter, 2018 until 2030, was forecasted under the conditions of the model (Excluding policy shocks). The data shown is for the 20 agricultural sectors and the two sectors of the agricultural manufacturing sector.

Baseline simulation of macroeconomics variables

In this paragraph, we give an overview of the trends for the indicators and the commodities. This is done by adding the growth of every year until 2030; furthermore, we also differentiate between 2002 until 2017 and 2018 until 2030. Thus giving more perspective.

The first graph shows the development of these indicators. We see that the GDP would increase with approximately 250%, CPI with more than 78%, and the Export exceeds a growth of 372%.

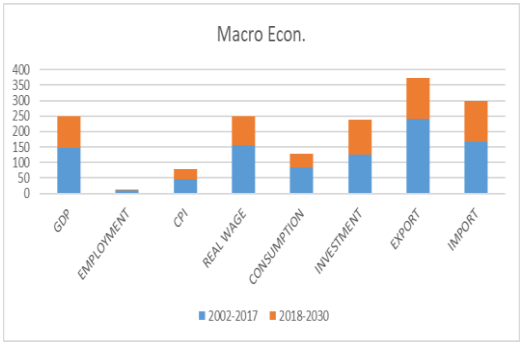

Figure 2. Baseline Macro Econ

Baseline simulation of Agriculture sector

The following two graphs show how the commodities have developed over the same period.

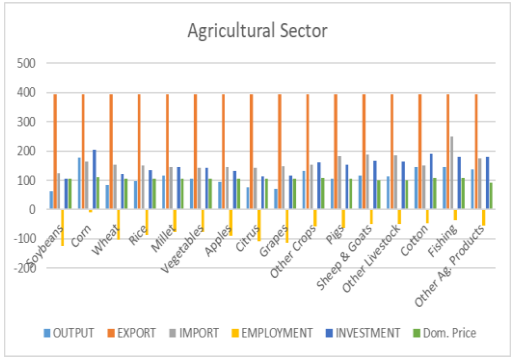

Figure 3. Agricultural sector base data

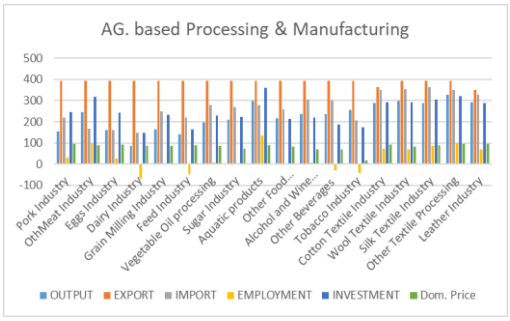

Figure 4. Agri. based Processing & Manufacturing

Policy scenario and Simulation

Policy simulations principles

As previously mentioned (The chapter 2 Methodology and Data base) , we will focus on the vectors relating to the import duties. Hence, in analyzing the Main Tablo file, we shocked the exogenous variable t0imp. The following equations and explanation will give a better understanding how the t0imp changes some key equations in the system:

1. V0CIF(c) = V0IMP(c) - V0TAR(c)
   - This made is possible to calculate the tariff for good c by doing the division of V0TAR(c)/V0CIF(c);
   - The exogenous variable that will affect the tariff is t0imp, representing the power of tariff, thus we have to add 1 to the tariff value;
2. After adjusting the power of tariff to the level we wanted, it would then have an effect on the following equation
   - delV0TAR(c) = 0.01*V0TAR(c)*[x0imp(c)+pf0cif(c)-phi] + 0.01*V0IMP(c)*t0imp(c);

Thereafter, the change in value of the tariff revenues of good c (delV0TAR(c)), tracked further to ultimately, change de nominal GDP from the income side (V0GDPINC). The following equations in the model prove the before mentioned:

3. V0TAR(c) = delV0TAR(c);
4. V0TAR_C = sum{c,COM, V0TAR(c)};
   - the summation of tariff revenue of good c (V0TAR(c));
   - V0TAR_C # Total tariff revenue #
5. V0TAX_CSI = V1TAX_CSI + V2TAX_CSI + V3TAX_CS + V4TAX_C + V5TAX_CS + V0TAR_C + V1OCT_I + V1PTX_I;
   - V0TAX_CSI # Total indirect tax revenue #;
6. V0GDPINC = V1PRIM_I + V0TAX_CSI
   - V0GDPINC # Nominal GDP from income side #;
   - V1PRIM_I # Total primary factor payments#

Policy simulation scenario

The previously mentioned policy adjustments, to bring the import tariff on the consumer-based products and agricultural commodities down by 51.362%, shall be explained in the chapter and in which way this was transferred to a shock in the model.

To be able to do these shocks the current tariff had to be found. This calculation was done by opening the TABLO file and analyzing which variable could be used. These were respectively "V0CIF(c) # Total ex-duty imports of good c #" and "V0TAR(c) # Tariff revenue #". To calculate the tariff the following equation was used in AnalyseGE "(All,c,COM) V0TAR(c)/V0CIF(c);" which displays the tariff for all of the commodities, which was approximately 4.6%. When reducing the tariff by 51.362%, the new tariff rate became approximately 2.2373%. The next step was finding an exogenous variable which could drop the tariff to the wanted rate. Therefore, we chose the exogenous variable that could be used to do the proposed policy shock, t0imp. This variable is not simply the tariff percentage but the power of tariff meaning

that if the base tariff equaled 0.046 (4.6%) then the power of tariff (t0imp) would be 1.046.

To achieve the first shock in 2018 we used the following equation:

$$\left(\frac{\textit{proposed power tariff by the beginning of 2018}}{\textit{the power of tariff at the end of 2017}}\right) - 1 = \left(\frac{1.0223}{1.046}\right) - 1 = -0.02258753$$

This value was then multiplied by 100 where after it was substituted in the shock formula, for each commodity ea. for Soybean: "*ashock t0imp("SOYBEANS")=-2.25875255488892;*".

1. Policy simulation Results

In this chapter we will discuss the results obtained from our policy simulation. To shows the growth the industries, for the years starting from 2018 until 2030, we have aggregated the data. This gives a clear overview of the changes.

The Impact on macroeconomic variables

The impact of the policy is made apparent by comparing the accumulated growth starting from 2018, the first year of the proposed policy change, until 2030 with the baseline scenario. In doing so, we have found the following results as shown in Figure 5. Change in Macro indicators and **Error! Reference source not found.**. When analyzing Figure 6, we find that the indicators that will increase are GDP with 0.11%, Consumption by 0.15%, real wages by 0.48%, consumption by 0.15%, investment with 0.17%, and furthermore exports and imports with respectively 0.27% and 0.67%. The decreases were limited to the CPI and Employment with respectively 0.43% and 0.11%.

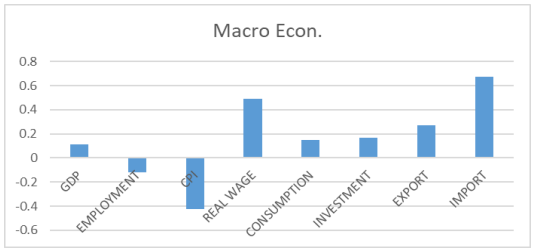

Figure 5. Change in Macro indicators

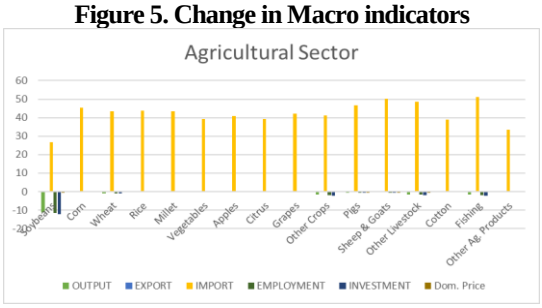

Figure 6.The Impact on agriculture sector

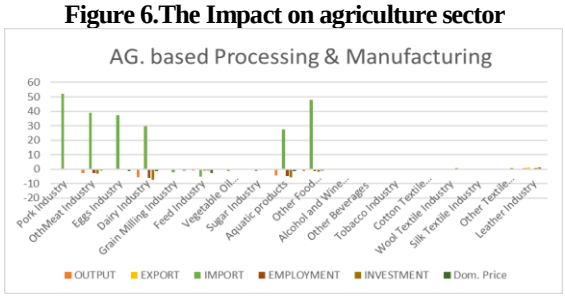

Figure 7. The Impact on agricultural processing and manufacturing sector.

The Impact on agriculture sector.

The changes in the performance of the commodities, in comparison with the baseline, show that the agricultural output will drop with a totaling almost 20% with an average of 1.23% (Figure 6.The Impact on agriculture sector.) Soybean output, with a decrease of more than 11%, accounts for the biggest share of the losses and as a result trickles further into the bigger drop in employment and investments with a share of more than 55%. The exports had a small increase for all the sectors, 7.6% in total. But the imports on the other hand, saw substantial increases averaging around the 42% per industry. In analyzing the domestic prices we have saw a small decrease for every industry, averaging 0.2%. We do have to put the emphases on the fact that soybean does show the biggest drop with more than three times the average (Appendix 2: List of AGRI-based tariff cuts). In addition, we found that the employment and investment will also drop with 21% and 22%.

The Impact on agricultural processing and manufacturing sector.

The effects of our policy shock on agricultural processing and manufacturing sector is displayed in Figure 7. The Impact on agricultural processing and manufacturing sector. When we analyzed the data, we found that the output will drop with almost 13%, averaging about 0.72%. The biggest losers were the Aquatic products, Other Meat, Dairy, and Other Food manufacturing industries with respectively 4.5%, 2.5%, 5.7%, and 1.4%. This was as expected meanly because our policy shock included these industries, but the Pork and Egg industry did not take such a bit hit to their output, the Egg industry even showed growth in output. The import of the agricultural processing and manufacturing sector has noticeably gone up totaling almost 225%, with the shocked industries, as per our simulation, accounting for almost hundred percent. This is the same for all the other indicators. The rest of the industries within this sector have only small changes (Appendix 3. Aggregated shock data (Processed & Manufactured). We did find that the feed industry, with a drop of 2.62%, has seen a bigger drop in domestic prices than the average 0.71%. This is also seen for the investment and the employment within the feed industry. Which is also evident for the leather industry.

The Impact on all the Industries.

In this paragraph we further elaborate on the effect of our policy on the Chinese economy and give an overview of the impact on the heavy and service industry Figure 8. The Impact on all the Industries and Figure 9. The Impact on all the Industries (excl. Imports).

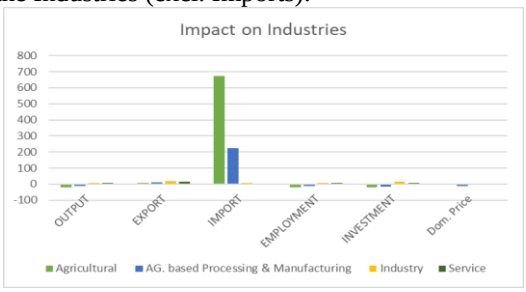

Figure 8. The Impact on all the Industries

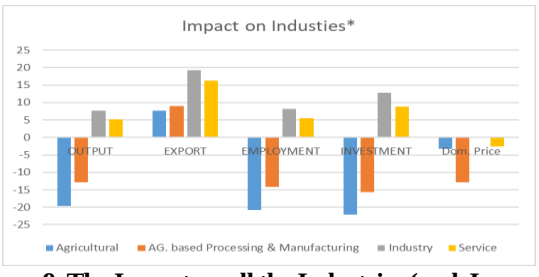

Figure 9. The Impact on all the Industries (excl. Imports)

In the paragraphs "The Impact on agriculture sector." and "The Impact on agricultural processing and manufacturing sector." we already went into all the indicators that we are focusing on as such shall exclude them.

Regarding the imports the heavy industry will gave a growth of approximately 5%, but the service sector will shrink with 1.65%. Apart from the import both sectors will experience positive effects from the policy shock ea. the output will increase by respectively 7.7% and 5.2% for the heavy and service industry and the exports with more than 15%. Domestic prices for the heavy industry is very small at 0.61% but that of the service industry is approximately 2.6%. Finally, we have seen that the investments reaches almost 13% for the heavy industry and 8.8% for the service industry (Appendix 4. Aggregated shock data (All)).

Summary and suggestion

The purpose of this paper was to analyze the effect of a 51.362% tariff reduction, to the consumer-based products and the subsequent industries they belong to and the agricultural sector as a whole using the CACGE CGE model (2002 Input-Output table). This was based on the Ministry of Finance of the People's Republic of China implemented tariff cuts to 187 consumer commodities on the as of December 2017.In analyzing the results we have concluded that the proposed policy adjustments will have a negative effect on the agricultural sector, with the total output dropping by almost 20%, employment with a loss of 20%, and investment shrinking by 22%. The losses to the sector are largely contributed to the losses in the soybean industry. But the results do imply that the increased agricultural imports and reduced output of the specific commodities will not stifle the growth in the agricultural exports, which will rise by 10% over the period 2018-2030.

On the Chinese economy as a whole the proposed tariff reduction will have a positive effect, this conclusion is based on the decrease of 0.49% in CPI, growth in GDP of 0.11%, real wages of 0.49%, a total rise in Exports of 0.27%, and of 0.67% in Imports. In addition, we have assessed that the effects on the heavy and service industry will be positive because of increases in investments, output, exports, employment and even a reduction in prices. Having seen the results we would like to emphasis the need for further research regarding the effects of the reductions in the agricultural output, increased agricultural imports, and eventual loss of income for the agricultural sector.

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APPENDIX

Appendix 1. List of AGRI-based tariff cuts

No.	EX[1]	Tax Code No.	Product name	MFN tax rate for 2017(%)	New tax rate December 1(%)	Change (%)
1		3031300	Frozen Atlantic salmon and Danube fish	10	5	-50%
2	Ex	3035900	Frozen capelin, except edible chopped meat	10	5	-50%
3		3061490	Other frozen crabs	10	5	-50%
4		3061612	Frozen northern long-range shrimp	5	2	-60%
5		3061719	Frozen other shrimp	5	2	-60%
6		3063190	Fresh and cold other cay shrimps and other lobsters	15	5	-67%
7		3063399	Other live cold crabs	14	7	-50%
8		3078190	Live, fresh or cold other abalone	14	7	-50%
9		4062000	Various grated or powdered cheeses	12	8	-33%
10		4063000	Processed cheese (except for grated or powdered)	12	8	-33%
11		4064000	Blue cheese and other creamy cheeses produced by *Penicillium articulatum*	15	8	-47%
12		4069000	Other cheese	12	8	-33%
13		8011100	Dried coconut	12	7	-42%
14		8012100	Fresh or dried unhulled Brazil fruit	10	7	-30%
15		8012200	Fresh or dried shelled Brazilian fruit	10	7	-30%
16		8013100	Fresh or dried unshelled cashew nuts	20	7	-65%
17		8013200	Fresh or dried shelled cashew nuts	10	7	-30%
18		8026190	Unhulled Non-specialized Macadamia Nuts (Hawaiian Nuts)	24	12	-50%
19		8026200	Shelled Macadamia Nuts (Hawaiian Fruit)	24	12	-50%
20	Ex	8029090	Pecan	24	7	-71%
21		8044000	Fresh or dried avocado	25	7	-72%
22	Ex	8134090	Dried cranberries	25	15	-40%
23		16010010	Animal meat, chops and blood sausages made of natural sausage	15	8	-47%
24		16010020	Animal meat, chops, and other sausage sausages made of blood	15	8	-47%
25		19011090	Other retail packaged foods for infants and young children	15	2	-87%
26		19021900	Other unfilled or uncooked raw pasta	15	8	-47%
27		20071000	Cooked fruit homogenized food	30	15	-50%
28		21069050	Seal oil capsules	20	10	-50%
29	Ex	21069090	Milk protein partially hydrolyzed formula, deep protein hydrolyzed formula, amino acid formula, lactose-free formula special infant milk powder	20	0	-100%
			average			-51.362%

[1] **Indicates that the goods subject to the provisional tax rate shall be within the scope of the tax number, subject to the specific product description.**

Appendix 2. Aggregated shock data AGRI

Description	OUTPUT	EXPORT	IMPORT	EMPLOYMENT	INVESTMENT	Dom. Price
Soybeans	-11.1129	0.476739	26.58183	-11.6101	-12.2038	-0.62639
Corn	0.18517	0.476739	45.2443	0.198752	0.290465	0.025345
Wheat	-0.9743	0.476739	43.36035	-1.02244	-1.04415	-0.05713
Rice	-0.38542	0.476739	43.72775	-0.40569	-0.41031	-0.02211
Millet	-0.16043	0.476739	43.27207	-0.16981	-0.13328	-0.00733
Vegetables	-0.21528	0.476739	39.21537	-0.22723	-0.22001	-0.01217
Apples	-0.11275	0.476739	41.01041	-0.11897	-0.08644	-0.00381
Citrus	-0.38252	0.476739	39.2908	-0.40101	-0.37671	-0.0193
Grapes	-0.23016	0.476739	41.98979	-0.24129	-0.20079	-0.01034
Other Crops	-1.69571	0.476739	41.19979	-1.79774	-2.09733	-0.13596
Pigs	-0.64133	0.476739	46.77382	-0.65732	-0.66595	-0.53461
Sheep & Goats	-0.42888	0.476739	50.15718	-0.49258	-0.53551	-0.54305
Other Livestock	-1.50258	0.476739	48.41067	-1.71671	-1.92653	-0.73292
Cotton	-0.11094	0.476739	38.88655	-0.119	-0.06682	-0.00577
Fishing	-1.698	0.476739	50.9979	-1.82854	-2.1148	-0.3201
Other Ag. Products	-0.23334	0.476739	33.38273	-0.26115	-0.25992	-0.20905
Total	-19.6993	7.627824	673.5013	-20.8709	-22.0519	-3.21469
Average	-1.23121	0.476739	42.09383	-1.30443	-1.37824	-0.20092

Appendix 3. Aggregated shock data (Processed & Manufactured)

Processing & Manufacturing	OUTPUT	EXPORT	IMPORT	EMPLOYMENT	INVESTMENT	Dom. Price
Pork Industry	-0.32902	0.476739	52.32498	-0.36457	-0.36122	-0.60742
OthMeat Industry	-2.53522	0.476739	38.95727	-2.72604	-3.26657	-0.92436
Eggs Industry	0.190453	0.476739	37.09702	0.202887	0.300939	-1.32696
Dairy Industry	-5.66137	0.476739	29.82558	-6.19007	-7.26359	-1.29543
Grain Milling Industry	-0.25792	0.476739	-2.24058	-0.29843	-0.29336	-1.02785
Feed Industry	-0.89833	0.476739	-5.38832	-0.99462	-1.11627	-2.62902
Vegetable Oil processing	-0.03017	0.476739	-1.31261	-0.04363	0.014016	-0.66261
Sugar Industry	-0.40963	0.476739	-1.40135	-0.47914	-0.51548	-0.53134
Aquatic products	-4.51572	0.476739	27.68927	-4.88322	-5.71899	-1.56564
Other Food manufacturing	-1.44225	0.476739	47.93216	-1.58053	-1.82431	-0.76041
Alcohol and Wine Industry	0.233319	0.476739	-0.17236	0.253602	0.367927	-0.26118
Other Beverages	0.231291	0.476739	-0.26266	0.261412	0.374108	-0.31558
Tobacco Industry	0.19032	0.476739	-0.00616	0.226511	0.333815	-0.11027
Cotton Textile Industry	0.347802	0.396437	0.134246	0.367687	0.504552	-0.10908
Wool Textile Industry	0.366059	0.476739	-0.07184	0.400234	0.540418	-0.22804
Silk Textile Industry	0.309334	0.476739	-0.0898	0.32667	0.448894	-0.20261
Other Textile Processing	0.412227	0.476739	0.198041	0.435127	0.575781	-0.04648
Leather Industry	0.882877	0.953471	0.35959	0.949901	1.219688	-0.2872
Total	-12.9159	8.977732	223.5725	-14.1362	-15.6797	-12.8915
Average	-0.71755	0.498763	12.42069	-0.78535	-0.87109	-0.71619

Appendix 4. Aggregated shock data (All)

	OUTPUT	EXPORT	IMPORT	EMPLOYMENT	INVESTMENT	Dom. Price
Agricultural	-19.6993	7.627824	673.5013	-20.8709	-22.0519	-3.21469
AG. based Processing & Manufacturing	-12.9159	8.977732	223.5725	-14.1362	-15.6797	-12.8915
Industry	7.747444	19.2176	5.069283	8.136727	12.88163	-0.16252
Service	5.244293	16.20888	-1.65855	5.585913	8.795774	-2.60463

تأثير تخفيض التعريفات الجمركية على النمو الاقتصادي الزراعي في الصين

بينيتو ريجربا ، هوانغ ديلين و يسري نصر احمد

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تتناول هذه الدراسة تحليل آثار تخفيض التعريفة الجمركية على الاقتصاد الكلي والمؤشرات القطاعية في الصين باستخدام نموذج التوازن العام. اعتبارًا من ديسمبر 2017 ، نفذت وزارة المالية في جمهورية الصين الشعبية تخفيضات في التعريفات الجمركية على 187 سلعة استهلاكية، من بينها 29 سلعة زراعية. ثم اقترحت الدراسة صدمة سياسة التعريفة الجمركية، بنسبة 51.362٪، على السلع الزراعية. وتشير نتائج المحاكاة إلى أن خفض التعريفة الجمركية سيكون له تأثير إيجابي على الاقتصاد الصيني (انخفاض الرقم القياسي لأسعار المستهلك، نمو الناتج المحلي الإجمالي، زيادة الأجور الحقيقية). بالإضافة إلى ذلك، يتضح وجود تأثيرات إيجابية على كل من الصناعات الثقيلة والخدمات. من ناحية اخري، نجد أن السياسة المقترحة سيكون لها تأثير سلبي على القطاع الزراعي ، حيث انخفاض الانتاج الزراعي بنحو 20٪ ، وانكماش الاستثمار بنسبة 22٪. واخيراً نؤكد الدراسة على الحاجة إلى مزيد من البحث فيما يتعلق بآثار التخفيضات.