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The influence of american anti-dumping on chinese exports - Based on dynamic panel data analysis of the 2 SLS

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ABSTRACT

This paper, by using the United States anti-dumping case of annual data during 1988 to 2012, construct the dynamic panel data model, and the two-stage generalized least two countries method is used to analyze the American anti-dumping on China's influence on the total U.S. exports to China. The empirical results show that the anti-dumping investigation led to China's exports to the United States increased in the second year, anti-dumping measures to lower China's exports to the United States in the second year, but in general, the anti-dumping doesn't affect the China's total exports to the United States. © 2013 Trade Science Inc. - INDIA

KEYWORDS

Anti-dumping;
The united states;
2 SLS inspection;
Chilling effect.

INTRODUCTION

Since China's accession to the WTO, the bilateral trade between China and America get a big increase, and the United States become the country's second largest trading partner only after the European Union. But at the same time, the United States is also one of the earliest initiator and the main sponsors of the anti-dumping towards China. China suffered the first anti-dumping lawsuit is Haarmann&Reiner company in New Jersey for menthol imports from China filed anti-dumping litigation in June 11, 1980. Since then, American anti-dumping cases towards China increased rapidly, and the kinds of products involved is becoming more and more. According to the official statistics of WTO, since the establishment of WTO from 1995 to 2011, the anti-dumping investigations is 107 cases launched by the United States to China, accounting 12.72% of the total (841 cases) for the anti-dumping investigation that China

suffered; The implementation of anti-dumping measures to China's by the United States is of a total of 128 cases, accounting for 16.54% of the total anti-dumping measures (774 cases) that China suffered. China placed in number one in the anti-dumping cases that the United States launched to other countries, and the anti-dumping investigations to China is 23.88% of the total amount that the United States launched to other countries (448 cases).

Under the background of global economic integration and trade liberalization, along with the international market increasingly saturated, and given the abuses of free trade to national economy, the international struggle of contradiction between dumping and anti-dumping is more and more fierce. In the wave of anti-dumping to China launched by foreign countries, the United States played the role of "leader". Anti-dumping has become the most controversial issues in the economic and trade relations between China and the US, and one of its

political meaning has exceeded the economic meaning, I'm afraid. First, the current situation of American anti-dumping to China: China has become the country with the largest number of anti-dumping litigation. The decade of the 1980's, China has 18 kinds of commodity successively suffered anti-dumping complaints by American companies, and China ranked eighth in the anti-dumping investigation in the United States. Since the 1990's, especially since the establishment of the WTO, Major changes have taken place in national structure in the United States anti-dumping cases. With the continuous improvement of China's industrial competitiveness and the rapid growth of exports to the US, China overtook Japan to become the United States anti-dumping primary recipients in 1995 to 2005. the US launched the anti-dumping to China of 60 cases in a decade, more than Japan in the second place. Thus, China has become the country with the largest number of anti-dumping litigation ever suffered from the United States. To this, the article is based on dynamic panel data analysis of the 2 SLS, to explore its effects.

First, Econometric model and the data.

The econometric model. Gravity model develops after decades, and the practice shows that it not only can better explain the trade between countries on statistics, but also often be used to explain some system variables (such as the WTO and free trade agreements, etc.) on the influence of the trade, so this paper USES gravity model to analyze the influence of the anti-dumping measures on total export. Due to the gravity model of related research and introduction has been very much, so the gravity model in this paper is building on the basis of Vandebussche and Zanardi (2010), and the regression equation is proposed to adopt as follow Equation 1:

$$\begin{aligned} \ln X_{it} = & \alpha + \beta_1 \ln X_{it-1} + \beta_2 \ln GDP_{it} + \beta_3 \ln GDP_{it} + \\ & \beta_4 \ln popu_{it} + \beta_5 \ln popu_{it} + \beta_6 \ln distance_{it} + \beta_7 \ln re_{it} + \\ & \beta_8 \ln WTO_{it} + \beta_9 \ln openness_{it} + \beta_{10} \ln ADinitial_{it} + \\ & \beta_{11} \ln ADmeasure_{it} + \beta_{12} \ln ADmeasure_{it-1} + \beta_{13} \ln ADmeasure_{it-2} + \delta_{it} \end{aligned} \quad (\text{Equation 1})$$

method to calculate trade openness index, this paper uses the index of foreign trade dependence, that is the proportion of the total import and export in the country and the country's GDP.

The data sources. Paper samples for 1988-2011. GDP and exchange rate data is from the United Na-

Target countries only has the United States, so $I = 1$, the model will be in China in the period of t , and the natural logarithm of X_t exports to the United States as the model was explained variables, the meaning of explanatory variables, coefficient of expected symbols and specific economic meanings are shown in TABLE 1. But the need of special note: (1) to consider the influence of historical factors, the model adopted the lag issue x_{t-1} as control variable, but the dynamic regression are likely to make other variable coefficient estimate is smaller. (2) as the dependent variable lag issue as explanatory variables, which can lead to explain variables related to the random perturbation terms (i.e., may have a endogenous variables), which can lead to deviation estimation results occur. So the instrumental variable method is adopted in this paper, take x_{t-2} instead of x_{t-1} to eliminate endogenous model. (3) the anti-dumping of the variables in the model is to describe the importer in the total number of anti-dumping cases in one period, total number of variables including anti-dumping investigations and the total number of cases of anti-dumping measures. Investigation is to test the total effect of anti-dumping investigation, because of the influence of the anti-dumping investigation on trade lag, this model uses the total number of the lag issue in the investigating cases as explanatory variables. The application of anti-dumping measures usually lasts for three to five years, in order to investigate the dynamics of anti-dumping measures effect, model measures the total current, the case to the lag issue, and lag phase ii as explained variable, and this is also the model with Vandebussche and Zanardi (2010) model of the main differences in this paper. (4) There are many kinds of

tions statistics web site, Among them, the exchange rate uses direct quotation between importing units of currency and the RMB, is calculated by the exchange rate divided by other countries against the exchange rate divided by RMB; export data that China to other countries is from China statistical yearbook, and in the trade

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openness index, the total import and export data is from the research of the world bank database.

TABLE 1: The regression model about the variables and their economic explanation

Variable	The description of variable	The coefficient of expected symbol
X_t	China's exports to the United States on t stage (ten thousand \$)	
X_{t-1}	China's exports to the United States on t-1 stage (ten thousand \$)	+
GDP_t	The United States' nominal GDP in terms of dollar in the t stage of t (ten thousand \$)	+
$CGDP_t$	The China's nominal GDP in terms of dollar in the t stage of t (ten thousand \$)	+
$popu_t$	America's population in t stage (a)	
$cpopu_t$	China's population in t stage (a)	
$dis\ tan\ ce$	The geographical distance of Beijing and the capital of United States (km)	-
re_t	nominal exchange rate between the unit Currency of the U.S. against RMB (direct quotation)	+
WTO_t	Virtual variables, whether China and the United States is of WTO members in the t stage	+
$openness_t$	America's trade openness index in t stage	+
$ADinitial_{t-1}$	America for China's total number of cases of anti-dumping investigation in t - 1 period	
$ADmeasure_t$	the total number of cases for anti-dumping measures taken by United States to China in the t stage	-
$ADmeasure_{t-1}$	the total number of cases for anti-dumping measures taken by United States to China in the t-1 stage	-
$InADmeasure_{t-2}$	the total number of cases for anti-dumping measures taken by United States to China in the t-2 stage	-

THE RESULTS OF THE MEASUREMENT AND ANALYSIS

This article uses the Eviews6.0 software to do econometric analysis, using panel data two-stage generalized least squares method (2 SLS). Although we can make reasonable judgment through Hausman inspection when deciding whether use fixed effects or use random effects, these two methods have their own drawbacks, thus, the results of both fixed effects and random effects are presented in this passage. At the same time, through weed out part of the control variables, we operate multiple regression.

It is shown in TABLE 2: the results of the 5 the value of the regression are high, F value and P are ideal, it is well illustrated that Overall model fitting is very good. We have inspect the effectiveness of the instru-

mental variable in this paper. This article uses the original 2 SLS regression equation residual as explained variable, use all the exogenous variable and instrumental variable as model of the Explanatory variables to conduct regression, take return 1 for example.

Considering the overall significance of regression equation F, if not significant, the tool is exogenous variable. We have inspected the the validity of the 4 Regression equations in table 2, and Residual equation F value, P value indicates no significant overall, so it is exogenous, and it is an effective tool for variable. this paper mainly inspect The anti-dumping variables, from 5 groups in the regression results, the two variable coefficient of the $InADinitial_{t-1}$ and $InADmeasure_{t-1}$ is relatively stable and is of high significance, however the coefficient of $InADmeasure_{t-1}$ and $InADmeasure_{t-2}$ is not significant, the results of the other variables in the model is slightly different, measurement results are as follows:

$$resid = \alpha + \beta_1 InX_{t-2} + \beta_2 InGDP_t + \beta_3 InCGDP_t + \beta_4 Inpopu_t + \beta_5 Incpopu_t + \beta_6 Indis\ tan\ ce + \beta_7 InWTO_t + \beta_8 Inre_t + \beta_9 Inopennes_t + \beta_{10} InADinitial_{t-1} + \beta_{11} InADmeasure_{t-1} + \beta_{12} InADmeasure_{t-1} + \beta_{13} InADmeasure_{t-2} + \delta_t$$

TABLE 2 : The results of regression

variable	Regression1		Regression2		Regression3		Regression4		Regression5	
	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect
	-56.83##	-276.02##	-521.15##	-216.02##	-551.57##	-257.59##	-451.35##	-249.27##	-516.48##	-276.15##
	-0.51	-4.21	-0.83	-4.27	-0.06	-4.57	-6.50	-4.18	-6.27	-4.19
InX(-1)	0.29	0.71##	0.15	0.78##	0.14	0.80##	0.38	0.68##	0.31	0.65##
	0.69	12.71	0.71	13.02	0.75	13.15	2.67	14.91	2.59	14.82
InGDP	1.55##	0.26##	1.59##	0.23##	1.52##	0.25##	1.26##	0.27##	1.29##	0.31##
	4.49	2.61	4.36	2.75	4.32	2.65	4.20	2.17	4.49	3.09
InCGDP	-1.08##	-1.03##	-1.06##	-0.98##	-1.08##	-1.03##	-1.19##	-1.01##	-1.16##	-0.87##
	-3.40	-3.89	-3.47	-3.76	-3.36	-3.97	-3.76	-4.00	-3.21	-3.-7
Inpopu	5.69#	-0.06	5.68#	-0.07	5.78#	0.01	4.74#	-0.03	4.71#	-0.01
	2.35	-0.75	2.03	-0.41	2.35	0.09	2.50	-0.31	2.47	-0.58
Incpopu	22.79##	14.75##	22.09##	14.53##	22.19##	14.94##	23.21##	15.26##	22.96##	15.03##
	5.04	4.17	5.45	4.02	5.42	4.34	5.06	4.51	5.79	4.35
Indistance	-48.36	0.67	6.21	0.49						
	(-0.51)	(1.39)	(0.56)	(1.27)						
Inre	0.02	-0.03								
	(0.12)	(1.00)								
WTO	0.10	0.27#	0.09	0.31#	0.09	0.32#	0.14	0.33#		
	(0.67)	(2.33)	(0.58)	(2.27)	(0.61)	(2.53)	(0.97)	(2.58)		
Inope - ness	0.57	0.05	0.66	0.06	0.71	0.08				
	(1.60)	(0.66)	(1.51)	(0.78)	(1.57)	(1.25)				
InADini - tial(-1)	0.23#	0.24##	0.20#	0.25##	0.20#	0.19##	0.21##	0.25##	0.23#	0.20#
	(2.18)	(2.81)	(2.05)	(-2.69)	(2.08)	(2.91)	(2.62)	(3.02)	(2.47)	(2.38)
InADm - easure	-0.05	-0.09	-0.07	-0.10	-0.06	-0.11	-0.05	-0.14	-0.02	-0.04
	(-0.66)	(-1.11)	(-0.65)	(-1.14)	(-0.56)	(-1.00)	(-0.54)	(-1.15)	(-0.25)	(-0.41)
InADmea - sure(-1)	-0.16#	-0.15#	-0.18#	-0.15#	-0.17#	-0.13#	-0.17#	-0.14#	-0.15#	-0.16#
	(-2.31)	(-2.21)	(-2.35)	(-2.28)	(-2.25)	(-2.07)	(-2.18)	(-2.05)	(-2.27)	(-2.21)
InADmea - sure(-2)	-0.08	-0.03	-0.08	-0.03	-0.08	-0.01	-0.08	-0.02	-0.09	-0.04
	-1.14	-0.38	-1.12	-0.45	-1.12	-0.31	-1.15	-0.23	-1.12	-0.56
Rsquared - Adjusted - Rsquared	0.89	0.88	0.89	0.89	0.91	0.88	0.91	0.91	0.89	0.89
	0.88	0.87	0.89	0.89	0.90	0.87	0.90	0.90	0.90	0.88
DW	1.12	1.18	1.11	1.18	1.17	1.16	1.14	1.15	1.17	1.15
F 值	72.13	130.01	76.17	160.17	85.41	176.97	101.72	225.15	105.85	250.01
P 值	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: # # mean significant at 1% level, # mean significant at 5% level, T value are shown in brackets

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- 1 The coefficient is positive, which indicates that the anti-dumping investigation doesn't have negative effect on China's exports to the United States production, on the contrary, it promoted the China's exports in the second year, this conclusion is consistent with the conclusion of the Vandebussche and Zanardi (2007). The Reason may be that, after the enterprise suffering from the anti-dumping investigation, the possibility of being subject to dump is anticipated to be high or there are factors such as The anti-dumping litigation-responding free-rider behavior among export firms, related businesses may take advantage of this period of time to expand its exports to the United States. Statistics show that the sample national annually launch 8 anti-dumping investigations to China on average. according to the results of regression 1, the coefficient of the fixed effects is 0.20, showing that the anti-dumping investigation makes Chinese exports to the United States increased by 41.23% in the second year.
- 2 The coefficient of the three variables, anti-dumping measures 00 is negative, but only the coefficient of is significant, the other is not significant. This suggests that the influence of American anti-dumping measures on Chinese exports is shown in the second year, as a result, the U.S. anti-dumping measures has certain inhibitory effect on Chinese exports According to the author's calculation of the anti-dumping cases, sample nations has launched 7.32 Anti-dumping measures during the sample period. According to regression 1, the coefficient of is -0.180, U.S. anti-dumping measures made China's exports to the United States fell by 30.07% in the second year.
- 3 The coefficient of the virtual variable WTO is positive and it has a certain significance in random effects regression, but didn't pass the significance test in the fixed effects regression. According to the results of random effects regression, china's accession to the WTO makes china has significant expansion effect on China's exports to the United States which has increased more than 40%.
- 4 The exchange rate of variable coefficient is small, the change of different symbolic regression result is big and the significance is very low. Thus, volatility of the exchange rate may has little effect on China's exports to the United States.
- 5 The coefficient of Open trade index is positive, consistent with expectations, but the coefficient of the results of the regression is not significant. It May be because that there are Trade creation effect and trade diversion effect within us.
- 6 Among the five traditional variables of the gravity model, the four variable coefficients: America's GDP, China's GDP, America's population, the population of China have high significance. But coefficient of China's GDP variable is negative, not consistent with the traditional conclusion, it shows that the increase of China's economy has a negative impact on America 's Export. the coefficient of Distance variable is not significant, the distance between the capital cannot reflect the transportation cost of us-china trade.

THE CONCLUSION

United States is Not only China's important export markets, but also the main country anti-dumping, as a result, it is necessary to adopt a comprehensive assessment of the impact of the United States' anti-dumping to Chinese exports. To this, the main conclusions of this paper are: first, the anti-dumping investigation has no negative impact on Chinese exports, on the contrary, China's exports increased by 41.23% in the second year. The conclusion is consistent with Vandebussche and Zanardi (2010). Second, the implementation of anti-dumping measures has negative influences on Chinese exports in the second year, according to the statistical results, anti-dumping measures in China's exports fell by 30.07% in two-year period, and the us anti-dumping measures have obvious inhibitory effect on Chinese exports. Third, the anti-dumping investigation increases China's exports increased by 11.16% on average. There are two reasons: first, the unit of Export variables adopted in this passage is the amount of money. although the empirical study such as Prusa (2001) indicates that anti-dumping has high impact on the amount of the export's product quantity, but it can also drive the price of imports high, thus it has a minimal or positive impact on the total export amount. Second, anti-dumping renders Chinese companies learned the rules of export

markets, learn to open up new markets, and upgrade products, leading to have a positive effect.

The conclusion above is significant for Chinese government departments as well as the export sector in how to assess the impact of American anti-dumping on china. First, the overall development of China's exports to the United States is good, the United States anti-dumping did not affect the prospects of China's export to United States. The frequent United States' anti-dumping to China is the product of not only us's trade protectionism, but also the surged China's exports in the international market. Anti-dumping is a sensitive nerve in the prospects of increasing trade between china and Europe, and it has drawn great attention but did not have a negative impact on overall exports. Second, the export industry should actively respond to anti-dumping, strive for the benefited arbitrament. Although the United States anti-dumping investigation has no negative impact on Chinese exports, but the measures after the anti-dumping final decision make the export production China to US declined dramatically, more importantly, the proportion of the anti-dumping cases determines the impact of anti-dumping on China's total exports. Therefore, related departments should encourage export enterprises which was encountered by anti-dumping authorities to response to the litigation actively, to try to get a favorable verdict, and to reduce the loss.

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