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Political Economy Analysis on China's Regional Trade: State-owned Enterprises' (SOEs) Growth and Regional Trade Differences in China

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Abstract: This study broadens the explanation of regional unbalance in China's international trade growth. Unlike most studies in this field trying to explore the roots of the unbalanced status from traditional economic theory, this study adopts the interest group theory from political economy, explaining the relationship between regional unbalance of trade development and the State-Owned Enterprises' (SOEs) growth. The SOEs can be viewed as interest groups trying to influence the government policy making process and did achieve their goal since some SOEs' leaders are also government officials or formal governmental staffs. Given other economic conditions of one region in a certain period, the regional international trade is generally negatively influenced by the local SOEs' growth. The empirical tests are conducted with the Ordinary Least Square (OLS) regression and Generalized Method of Moments (GMM) regression in the framework of fixed effect model using annual data of 29 provinces in mainland China from 1995 to 2010. The results prove the hypotheses that given other conditions, regional SOEs' growth contributes negatively to both the corresponding regional foreign trade as a whole as well as import and export as independent components.

Key words: Enterprise ownership structure, international trade imbalance, correlation

INTRODUCTION

Ever since the implementation of reform and opening-up policy, China's Foreign Trade Dependence (FTD) has experienced a speedy growth with an increased FTD from 10% in 1978 to 70% today. However, such a trend is extremely unbalanced between different regions, especially when comparing the coastal areas with the middle-west of China. According to National Bureau of Statistics of China, compared with 1987, in 2007, the FTD in Middle areas of China increased from 1.46-12.6% and in Western China it grew from 1-13.25%, yet the FTD in Eastern coastal experienced a sharply growth from 9.57% in 1978 to 92.2% in 2007. Furthermore, one interesting phenomenon is that the number of SOEs in inland areas is far greater than that in the coastal areas.

There are two different approaches to explain this phenomenon: one is nature-oriented and the other is policy-oriented. Previous international trade theories tend to use the natural environment to analyze the problem of the unbalanced situation. However, the policy-oriented theory has gradually become popular, showing us some new perspectives (Chen Lin, 2011; Feiteng Zhong, 2010; Branstetter and Feenstra, 2002). The policy-oriented theory focuses on the direct democracy and interest group in shaping the regional disparity in trade. Chinese SOEs, for historical reasons, are mainly located in the inland areas. The SOEs can bring in large revenue for local government. Most importantly, many leaders in the SOEs

are selected from government officials. Motivated by interests and the relationship, local government tends to protect the main interests of these SOEs, thus adopting the policy of trade protection (Bin Sheng, 2002).

One of the classic models in explaining the interest group in trade is "Protection for Sale" Model presented by Grossman and Helpman (1994) which takes the trade policy as a trade-off between the supply side (Government) and the demand side (interest groups). That is to say, every interest group gives its donation commitment based on other interest groups' donation level and its own expected trade policy (Gawande, 2000; Goldberg and Maggi, 1999). However, this model may lose its efficiency in China because of the tangled and complex relationship between SOEs and the government.

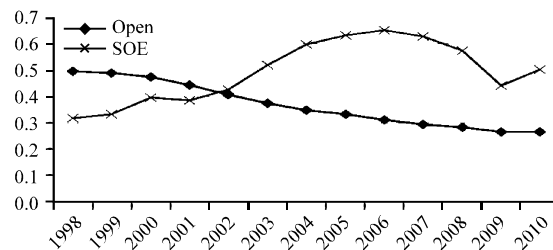


Fig. 1: Comparison between evolutionary curves of the national foreign trade dependence and the share of SOEs in aggregate industrial output value of China (1998-2010)

This study attempts to broaden the current theoretical literature on regional trade imbalance by introducing the political economy theory, especially the interest group theory. The empirical tests are conducted with the Ordinary Least Square (OLS) regression and Generalized Method of Moments (GMM) regression in the framework of fixed effect model. The author carefully observed the available annual data of 29 provinces in mainland China from 1995-2010. The results of the empirical studies support the hypotheses which indicate that there exist negative relations between the dependent variables that are indicators of regional international trade growth and the independent variables that include the ratio of regional SOEs' industrial output value against aggregate regional industrial output value.

DATA AND METHODOLOGY

In the following empirical study, the data from 29 Provinces (or municipalities) in mainland China which include western area (Inner Mongolia, Guangxi, Sichuan, Guizhou, Yunnan, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang), middle area (Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei, Hunan) and eastern coastal area (Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong Liaoning, Hainan) is under research.

Based on the discussions and analysis made above, the specific original models corresponding to the hypotheses are presented as follows:

$$\begin{aligned} \text{Open}_{i,t} = & \alpha_1 \text{soe}_{i,t} + \alpha_2 \text{exchrte}_{i,t} + \alpha_3 \ln \text{pergdp}_{i,t} + \\ & \alpha_4 \text{empr}_{i,t} + \alpha_5 \text{transport}_{i,t} + \alpha_6 1997 \text{dummy}_{i,t} + \\ & \alpha_7 2003 \text{dummy}_{i,t} + \alpha_8 2008 \text{dummy}_{i,t} + \alpha_9 \text{middledummy}_{i,t} \\ & + \alpha_{10} \text{westdummy}_{i,t} + v_i + \mu_{i,t} \end{aligned} \tag{1}$$

$$\begin{aligned} \text{Import}_{i,t} = & \beta_1 \text{soe}_{i,t} + \beta_2 \text{exchrte}_{i,t} + \beta_3 \ln \text{pergdp}_{i,t} + \\ & \beta_4 \text{empr}_{i,t} + \beta_5 \text{transport}_{i,t} + \beta_6 1997 \text{dummy}_{i,t} + \\ & \beta_7 2003 \text{dummy}_{i,t} + \beta_8 2008 \text{dummy}_{i,t} + \beta_9 \text{middledummy}_{i,t} \\ & + \beta_{10} \text{westdummy}_{i,t} + v_i + \mu_{i,t} \end{aligned} \tag{2}$$

$$\begin{aligned} \text{Export}_{i,t} = & \lambda_1 \text{soe}_{i,t} + \lambda_2 \text{exchrte}_{i,t} + \lambda_3 \ln \text{pergdp}_{i,t} \\ & + \lambda_4 \text{empr}_{i,t} + \lambda_5 \text{transport}_{i,t} + \lambda_6 1997 \text{dummy}_{i,t} + \\ & \lambda_7 2003 \text{dummy}_{i,t} + \lambda_8 2008 \text{dummy}_{i,t} + \lambda_9 \text{middledummy}_{i,t} \\ & + \lambda_{10} \text{westdummy}_{i,t} + v_i + \mu_{i,t} \end{aligned} \tag{3}$$

Among those equations above, regional trade differences in terms of overall regional international trade is represented by $\text{open}_{i,t}$ that is the regional foreign trade dependence. Regional import is represented by $\text{import}_{i,t}$ that is the ratio of regional import against the

corresponding regional GDP. Regional export is represented by $\text{export}_{i,t}$ that is the ratio of regional export against the corresponding regional GDP. $\text{soe}_{i,t}$ is the ratio of the provincial SOEs' industrial output value against the corresponding aggregate provincial industrial output value. $\text{Exchrte}_{i,t}$ is intermediate RMB/USD foreign exchange rate, $\ln \text{pergdp}_{i,t}$ is the natural logarithm of provincial GDP per capita, $\text{empr}_{i,t}$ is the ratio of quantity of provincial employment against provincial scale of labor force, $\text{transport}_{i,t}$ is the provincial transport mileage by area while 1997 $\text{dummy}_{i,t}$, 2003 $\text{dummy}_{i,t}$ and 2008 $\text{dummy}_{i,t}$ are the dummy variables to grasp the structural changes at the critical points of time and middle $\text{dummy}_{i,t}$ as well as west $\text{dummy}_{i,t}$ to grasp the structural changes between larger areas. v_i is the fixed effect variable and $\mu_{i,t}$ is the error term. α_j ($j = 1, \dots, 10$) is the coefficient of the corresponding variable in Eq. 1, β_j ($j = 1, \dots, 10$) the coefficient of the corresponding variable in Eq. 2 and λ_j ($j = 1, \dots, 10$) the coefficient of the corresponding variable in Eq. 3.

RESULT AND DISCUSSION

Influence of SOEs' growth and the overall regional international trade: Firstly, the scatter plot of open variable and the corresponding soe variable, as illustrated in Fig. 2, presents a fitted values curve with a negative slope which reveals that there exists a negative correlation between both variables. Therefore, qualitatively speaking, regional international trade development is negatively related with the regional SOEs' growth.

Then, the Ordinary Least Square (OLS) regression is conducted in the framework of the fixed effect model of panel data.

According to Table 1, regional SOEs' growth contributes negatively to the regional international development. West dummy and 2008dummy's coefficients are also negative. It reveals that west area as a whole has negative influence on its regional trade in terms of its overall regional development condition and the influence

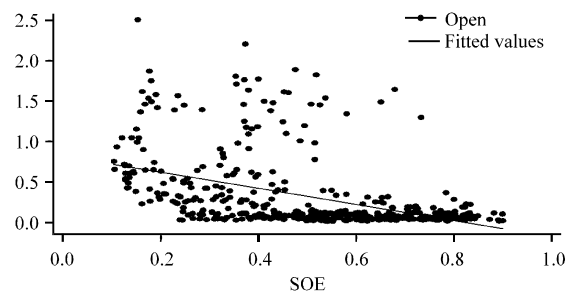


Fig. 2: The Scatter Plot of Open Variable and SOE Variable

Table 1: Fixed effect regression with open as the dependent variable using the OLS method

Independent variable	SOE	Exch rate	Lnper (GDP)	2008 dummy	West dummy	Trans port	EMPR	Constant
Coefficient	-0.135540	0.207783	0.059081	0.017290	-0.050 (884)	0.003183	0.323006	-2.14 (293)
Std. Err.	0.074497	0.050119	0.022670	0.024871	0.050179	0.000339	0.177301	0.550919
t	-1.820000	4.150000	2.610000	-0.700000	-1.01	9.390000	1.820000	-3.89
p-value	0.070000	0.000000	0.009000	0.087000	0.074	0.000000	0.069000	0.000
R-squared	0.49290							

All the coefficients of independent variables are significant at the 10% level of significance

Table 2: Fixed effect regression with open as the dependent variable using the GMM method

Independent variable	SOE	Exch rate	Lnper (GDP)	2008 dummy	West dummy	Transport	EMPR	Constant
Coefficient	-0.1419924	0.1653994	0.0608596	-0.02387	-0.061700	0.0032193	0.0032787	-1.5305500
Std. Err.	0.0723591	0.0216859	0.0207054	0.01214	0.030179	0.0003373	0.0003419	0.3418979
t	-1.960000	7.6300000	2.9400000	-0.09000	-2.040000	9.5500000	9.5900000	-4.4800000
p-value	0.050000	0.0000000	0.0030000	0.01200	0.061000	0.0000000	0.0000000	0.0000000
R-squared	0.741100							

All the coefficients of independent variables are significant at the 5% level of significance except for that of west dummy which is significant at the 10% level of significance

of global financial crisis occurred in 2008 on the regional trade is also negative. We can also conclude that the local SOEs' growth has most negative influence on the corresponding regional trade development among all the negative factors. The coefficients of exchrte, lnpergdp, transport and empr are positive which reveals that changes in foreign exchange rate, regional economic development, infrastructure development and utility rate of local labor endowment have positive influence on regional international trade, i.e., when these variables grow, the corresponding regional trade grows subsequently.

While the OLS regression of the fixed model of panel is tested stationary and consistent, the value of R-squared which represents the overall fitness of the regression equation, performs not well at 0.4929. So, it is rational to doubt that there exists the endogeneity problem and GMM should be used to remove the influence of endogeneity at the same time to improve the fitness and consistency of the fixed effect models hereof. Table 2 is the result of GMM regression with the one-period-lag differenced value of the variables involved as the instruments based on the OLS regression.

As shown in Table 2, the R-squared of GMM regression is 0.7411 which is improved comparing with the OLS regression. After removing the endogeneity problem in the fixed effect model by GMM method, the coefficient of soe still remains negative and its absolute magnitude, reaching 0.1419924, grows bigger than before in OLS regression. Therefore, it can be assured that the Chinese regional SOEs' growth has negative influence on the regional trade development and its differences from region to region are really a cause of the regional trade differences in China.

Influences of SOEs' growth on differences in regional import and export: In this section, regional import and

export, as components of overall regional foreign trade, will be investigated following the same methodology. These components help to find how regional SOEs' growth influence the developments of regional import and export from a more detailed perspective. Table 3 presents the ultimate results of GMM regressions with import and export as dependent variables and the other rational and available variables as independent variables, following the preliminary OLS regressions in the framework of fixed effect model of data panel. It is specifically presented as below.

As shown in Table 3, when taking import as the dependent variable, the value of R-squared of the regression, reaching 0.6954, can be relatively acceptable in regular empirical studies. The coefficient of soe is -0.12257 which is negative and indicating that soe grows up with import sliding down. Furthermore, the absolute magnitude of soe's coefficient is the biggest among the coefficients in the table which means that the SOEs' growth is the most powerful in terms of influence on the regional import against the other factors involved in the equation. Besides, the coefficients of exchrte, transport and lnpergdp are all positive, reflecting a positive relationship with the dependent variable. The negative coefficient of 2008dummy in the upper part of Table 3 reveals the global financial crisis occurred in 2008 made a harmful aftermath on the growth of regional import while western provinces enjoying an advantage in import compared with the other areas of China. It is interesting to find that transport is absent in the equation which means that direct infrastructure construction contributes little to the import growth.

When it comes to the lower part of Table 3, it is easy to find out that the coefficient of soe is still negative which reveals a negative influence on the regional development export by regional SOEs' growth. However, the absolute value of the coefficient is relatively small

Table 3. Fixed effect regression with import and export as the dependent variable, respectively using the GMM method

Import as dependent variable						
Independent variable	Coefficient	Std. Err.	t	p-value	R-squared	
SOE	-0.122570	0.050361	-1.24	0.095	0.6954	
Exchrates	0.087822	0.015093	5.82	0.000		
Transport	0.001475	0.000235	6.28	0.000		
Lnpergdp	0.042708	0.014411	2.96	0.003		
2008 dummy	-0.027290	0.024871	-0.7	0.486		
Westdummy	0.060884	0.052472	2.59	0.009		
Constant	-0.973350	0.226494	-4.3	0.000		
Export as dependent variable						
SOE	-0.067680	0.039918	-1.7	0.091		0.7081
Exchrates	0.022666	0.008184	2.77	0.006		
Transport	0.002418	0.000258	9.36	0.000		
Lnpergdp	0.154546	0.020043	7.71	0.000		
Wtodummy	0.050357	0.007507	6.71	0.000		
2008 dummy	-0.139670	0.079549	-1.76	0.080		
West dummy	-0.007390	0.060834	-0.12	0.903		
EMPR	0.277286	0.123274	2.47	0.014		
Constant	-0.007390	0.060834	-0.12	0.903		

All the coefficients of independent variables are significant at the 5% level of significance except for that of westdummy which is significant at the 10% level of significance

among the coefficients in the table and even far smaller than that of the corresponding coefficient in the upper part of Table 3 with import as the dependent variable. This reveals that regional SOEs' influence on regional import is stronger than on the export. The coefficients of exchrates, transport and lnpergdp show a positive relation between changes in the corresponding variables and the dependent export variable. Especially, wtodummy variable is firstly introduced into the regression equation this time, showing that entering into WTO promotes the growth of regional exports in China. 2008dummy enjoys a negative coefficient as it does in import equation and overall trade equation which again confirms the negative shock of the global financial crisis in 2008 on the Chinese international trade. The coefficient of westdummy variable is negative, confirming that western provinces have less advantage than their counterparts in other areas of China. Empr has a positive coefficient with a relatively big absolute value which perhaps can be explained that most of the Chinese export-oriented industries are labor-intensive.

CONCLUSION

Based on the interest group theory, the political economy provides a strong instrument to analyze the unbalance of trade development in the process of trade policy formation. This study focuses on the theoretical and empirical description of the influence of Chinese regional SOEs' development on the corresponding regional international trade performance. By taking the SOEs as an interest group, constructing the fixed effect models of panel data and conducting the relevant empirical studies, the hypotheses are eventually proved that given other conditions, regional SOEs' growth

contribute negatively to both the corresponding regional foreign trade as a whole and import and export as independent components. Considering the negative influence of regional SOEs' growth on the regional international trade, it is necessary and exigent for the Chinese central and local governments to further promote the reform of SOEs and relevant institutional arrangement.

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