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The Export Insurance System and Export Supply of Britain

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Abstract

This paper examines whether or not the export insurance subsidy provided by the British government has promoted Britain's export supply. Unlike previous studies on the effectiveness of export subsidy in export supply, the current study examines the stationarity nature of the concerned variables. The unit root tests show that all concerned variables are integrated of order one. According to Johansen cointegration test, the concerned variables are not cointegrated. The empirical evidences using the first differenced data show that the export subsidy in terms of provision of export insurances by the government is not statistically significant in increasing export supply.

Journal of Economic Literature Classification: F13

Keywords: export insurance, export supply, U.K.

I. Introduction

Although governmental assistance to private enterprises in terms of export insurances may be regarded as subsidies to promote export, the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) system has not prohibited the provision of certain types of export insurances (Abraham, Couwenberg and Dewit (1992); Mah and Song (2001)). If export insurances have been successful in promoting export, the WTO Members may promote their exports by establishing or improving the export insurance systems. Therefore, it is necessary to examine whether provision of export insurance contributes to the promotion of export.

Britain has been among the world's active users of the export insurance system. Since 1919, the British government has provided export insurances. Facing higher political risks due, for instance, to the debt crisis, exporters were able to cover risks by export insurances especially since the early 1980s. However, few rigorous attempts have been made to reveal empirically whether or not provision of export insurances by the government has actually helped to promote export in Britain. This paper examines the effectiveness of the British export insurance system in the promotion of export. The structure of this paper is as follows. Section II explains the British export insurance system. Section III explains the model and data. Empirical evidences are shown in Section IV. Section V provides conclusions.

II. The Export Insurance System in Britain

In Britain, export insurance services have been conducted by the Export Credits Guarantee Department (ECGD) to promote export. This body aims to benefit the U.K. economy by helping exporters of U.K. goods and services win business and U.K. firms to

invest overseas, by providing guarantees, insurance and reinsurance against loss, taking into account the government's international policies. It has served U.K. exporters since 1919 and U.K. investors overseas since 1972. Since privatising its short term business in December 1991, ECGD has primarily focused on underwriting overseas investments and capital goods and project exports to non-OECD markets. In most cases, the export contracts involved require medium- and long-term finance. ECGD support is not required for the bulk of U.K. exports, such as consumer items and other goods sold on short terms of credit; nor is it generally required for sales to rich markets, where competitive insurance and finance services are readily available in private market. Overall, ECGD issues guarantees and policies worth around 3 billion pounds a year and, during 1995-1999, has underwritten 17 billion pounds of guarantees (Estrin, *et al* (2000), pp. 11-16; Export Credits Guarantee Department (ECGD) (2000), pp. 45-85).

In 2000, for instance, the amount of underwritten business shared 13 percent of total British export, which is one of the highest in the world, compared with the other active users such as Australia (9 percent), France (17 percent), Japan (21 percent), Netherlands (12 percent) during 1993-1999 or Korea (17 percent) during 1998 - 2001 (NEXI (2002))). The amount of claims paid during 1980-2000 reached 12 billion pounds. During the same period, the number of claims divided by premium incomes amounted to 484 percent; that is, the former was 4.8 times higher than the latter. Even if such a loss ratio is defined as (claims payment+administrative cost) divided by (premium incomes+recoveries), it amounted to 114 percent. The difference between expenditure and income was compensated by the government. The Portfolio Management System was introduced in 1991; the intention was to apply more disciplined risk management in the wake of the 1980s debt crisis. Consequently, since 1992 premium income and recoveries have been higher than operating costs including claims payment and administrative cost.

Considering that Annex I(j) of the WTO Agreement on Subsidies and Countervailing Measures regards export insurance inadequate for covering the long-term operating cost as prohibited export subsidies, the British export insurance system with premium revenue dominating operating cost since 1992 would not be regarded as prohibited subsidies under the WTO system.

III. The Model and Data

International economists have devoted considerable attention to the estimation of export supply function because of its importance in economic development. Assuming an infinitely elastic export demand curve, the amount of export supply determines the equilibrium export level. Besides export relative prices, export subsidy has sometimes been studied as another determinant of export supply. Jung and Lee (1986) showed that export relative price and export subsidies were significant in influencing export supply in Korea. Arslan and Wijnbergen (1993) assumed that export divided by income is determined by current and lagged values of relative price of export and, based on the Turkish data, showed that export subsidies had a significant, positive effect on export in Turkey. However, their simulation analysis suggested that export subsidies were mostly shifted backwards into higher producer profits rather than forward into lower (foreign) consumer prices, resulting in the moderate contributions of the export subsidies to the export boom.

Faini (1994) regressed export supply on wage, real interest rate, domestic prices, export prices, price of investment goods and time trend capturing technical progress. His results for Turkey and Morocco showed that capacity and export subsidy have significant effects on export supply. Barlow and Senses (1995) assumed export supply to be determined by real domestic price, real wage, tariff rate, foreign capital inflow and

accumulated real investment. Their results for Turkey showed that export subsidy had a positive and significant effect on Turkey's export. Overall, the above-mentioned papers based on the time series data argued that export subsidy promoted export supply; however, since they did not consider the stationarity issue, the results from those may be those of spurious regression.

The argument on the impact of export subsidy on export supply explained thus far can be summarized in the following manner:

$$\log \text{EXP}(\text{GDP})(t) = a + b \log \text{RP}(t) + c \log \text{ESUB}(t) + e(t) \quad (1)$$

where $\text{EXP}(\text{GDP})$ = export value divided by GDP; RP = export price index divided by wholesale price index, both expressed in terms of British pound; $\text{ESUB} = 1 + \text{export insurance subsidy ratio}$ (which is defined in the current paper as $(\text{export insurance claims} - \text{export insurance premium} - \text{recovery})/\text{export value}$) or $(\text{export insurance claims} + \text{administrative cost} - \text{export insurance premium} - \text{recovery})/\text{export value}$). The definition of export insurance subsidy is controversial. For instance, NEXI in Japan defines it as the claims paid/premium revenue. However, Bagci, *et al* (2003) introduces other factors such as the administrative costs and defines the export insurance subsidy as the difference between the ideal price and the actual price charged. Despite the effort to estimate the equilibrium export model considering export demand equation, the author could not get the empirical evidences due to the insufficient number of observations in the data set.

The estimated coefficient b can be interpreted as the export relative price elasticity. The sign of the coefficient b is expected to be positive, since the higher export price compared with domestic price would increase export supply. Since provision of export subsidies increases profits of exporters, it would increase export supply, resulting in $c > 0$. Data for $\text{EXP}(\text{GDP})$ and RP are taken from IMF, *International Financial*

Statistics Yearbook 2001. Data relating to export insurances are taken from Estrin, *et al* (2000).

Since regression analyses using non-stationary variables may lead to spurious regression, it is necessary to check the stationarity of the concerned variables. The annually observed data set in the current study covers the period 1980-2000, considering the consistency of the data. Phillips-Perron as well as augmented Dickey-Fuller tests are performed with respect to the variables under consideration to test the stationarity. If the concerned variables are integrated of the same order, it is necessary to check whether there exist long run equilibrium relationship(s) between the concerned variables, using cointegration tests. If there exist(s) at least a cointegrating vector among the concerned variables, we can conclude that there are long run equilibrium relationship(s) between these variables even if they are non-stationary. This paper uses Johansen's (1988, 1991) method to test the cointegration relationship. If the cointegration test reveals that there does not exist such a relationship, then it would be necessary to use the first differenced data and rely on the regression analysis.

IV. Empirical Evidences

The Phillips-Perron unit root test results show that the levels of the concerned variables are not stationary at any reasonable level of significance. Therefore, it is necessary to examine whether or not the first differenced forms of the concerned variables are stationary. Optimal lags in the unit root tests are chosen by Newey-West method. Table 1 shows that the first differenced forms of all concerned variables are stationary at 1 to 10 percent level of significance, although their level forms are revealed to be non-stationary at any reasonable level of significance. The results are the same regardless of inclusion of a trend term in the unit root test. They do not change

qualitatively when using the augmented Dickey-Fuller tests, either, which are not reported here to save the space. Therefore, it is assumed that all concerned variables are integrated of order one.

[Insert Table 1]

The existence of long run equilibrium relationships among the concerned variables is examined by the Johansen cointegration procedure. According to Johansen's trace test and maximum eigen value test statistics, the null hypothesis that there does not exist any cointegrating vector among $\log \text{EXP GDP}$, $\log \text{RP}$ and $\log \text{ESUB}$ is not rejected at 5 percent level of significance regardless of including the administrative cost in the measure of ESUB , as are shown in Tables 2 and 3. Although Tables 2 and 3 report the cases without a trend term, the inclusion of a linear trend term does not change the result qualitatively. Therefore, we can conclude that the concerned variables are not cointegrated.

[Insert Table 2]

[Insert Table 3]

Since the cointegration tests reveal that a cointegration relationship does not exist, it is necessary to try the regression analysis based on the first differenced data. Table 4 shows the OLS estimation results when using the first differenced data. The coefficient of export relative price is revealed to be significant at 1 percent level of significance and slightly less than one. The export subsidy in terms of provision of export insurance in the current study is revealed not to be significant at any reasonable

level of significance regardless of the measure of export insurance subsidy, which is not in conformity with the conclusion of most previous literature which argued in favour of the effectiveness of export subsidy in export promotion. The difference appears to be due to the ignorance of the non-stationarity issue in the previous literature. Even if a dummy variable expressing the effect of change in the risk management system in December 1991, i.e. $\text{dummy} = 1$ if $t > 1991$ and $= 0$ elsewhere, is included in the right hand side of the export supply equation, the results do not change qualitatively.

[Insert Table 4]

V. Conclusion

The British share of export insured by export insurance system in the last two decades has been one of the highest in the world. The current paper examines whether export insurance subsidy provided by the British government has promoted export supply in Britain, considering export relative price and export insurance subsidy as the possible determinants of export supply. Unlike the previous studies revealing the effectiveness of export subsidy in export supply, the current study examines the non-stationarity nature of the concerned variables. The unit root tests show that all concerned variables are integrated of order one. Johansen cointegration test results show that all concerned variables are not cointegrated irrespective of the measure of export insurance subsidy.

The empirical evidences in the current study using the first differenced data show that the coefficient of export relative price is significant at any reasonable level of significance and its elasticity is slightly less than one. The export subsidy in terms of provision of export insurances by the government is revealed to be not significant in increasing the export supply of Britain at any reasonable level of significance, which is

different from the conclusion of most previous literature which ignored the non-stationarity nature of the concerned variables.

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Table 1. Phillips-Perron Unit Root Test Results

variables	level form (no trend)	first-differenced form (no trend)	level form (trend)	first-differenced form (trend)
log EXPGDP	-2.216	-3.527**	-2.148	-3.416*
log RP	-0.627	-3.397**	-2.220	-3.295*
log ESUB(a)	-1.124	-4.753***	-2.322	-4.919***
log ESUB(b)	-1.036	-4.679***	-2.266	-4.843***

Note: ESUB(a) is defined as $1 + (\text{claim} - \text{premium} - \text{recovery}) / \text{export value}$. ESUB(b) is defined as $1 + (\text{claim} + \text{administrative cost} - \text{premium} - \text{recovery}) / \text{export value}$.

- * statistically significant at 10 percent level of significance
- ** statistically significant at 5 percent level of significance
- *** statistically significant at 1 percent level of significance

Table 2. Johansen's Cointegration Test Results on the Relationship among
log EXPGDP, log RP and log ESUB

H ₀ : number of cointegrat- ion equations	eigen value	trace test statistics	5% critical value	maximum eigen value test statistics	5% critical value
0	0.545	20.112	29.68	16.537	20.97
1	0.224	5.143	15.41	5.326	14.07
2	0.017	0.331	3.76	0.360	3.76

Notes: The calculated statistics are those based on one lag and no trend term in the data. ESUB is defined as $1 + (\text{claim-premium-recovery}) / \text{export value}$.

Table 3. Johansen's Cointegration Test Results on the Relationship among
log EXPGDP, log RP and log ESUB in case of considering administrative cost

H ₀ : number of cointegrat- ion equations	eigen value	trace test statistics	5% critical value	maximum eigen value test statistics	5% critical value
0	0.541	19.854	29.68	16.353	20.97
1	0.221	5.055	15.41	5.245	14.07
2	0.016	0.016	3.76	0.339	3.76

Notes: The calculated statistics are those based on one lag and no trend term in the data. ESUB is defined as $1 + (\text{claim} + \text{administrative cost} - \text{premium} - \text{recovery}) / \text{export value}$.

Table 4. OLS Estimation Results Based on the First-differenced Variables

constant	log RP	log ESUB(a)	log ESUB(b)	dummy	adj. R ²	D.W.
0.019 [*] (1.815)	0.920 ^{***} (4.718)				0.528	1.771
0.018 [*] (1.749)	0.923 ^{***} (4.622)	-2.334 (-0.422)			0.505	1.848
0.015 (1.031)	0.892 ^{***} (4.210)	-2.103 (-0.360)		0.001 (0.054)	0.457	1.777
0.018 (1.738)	0.922 ^{***} (4.620)		-2.508 (-0.455)		0.506	1.854
0.015 (1.032)	0.891 ^{***} (4.213)		-2.332 (-0.400)	0.001 (0.045)	0.458	1.788

Note: ESUB(a) is defined as 1+(claim-premium-recovery)/export value.
ESUB(b) is defined as 1+(claim+administrative cost-premium-recovery)/export value. Values within the parentheses below the estimated coefficients denote the estimated t statistics.

* statistically significant at 10 percent level of significance

*** statistically significant at 1 percent level of significance