Effect of Korea’s Export Assistance System on Export Promotion*

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Abstract
This paper examines whether or not the export assistance system has contributed to export promotion in Korea. The current study starts from examining the stationarity of the concerned variables. The unit root tests show that all variables are not I(0) Time Series. Instead, they are I(1) Time Series. According to Johansen cointegration test, the concerned variables are not cointegrated. Thus, this study estimated OLS (Ordinary Least Square Method) based on the first differenced data. The empirical evidence shows that export insurance and trade exhibition did not have a significant effect on exports. That is, the export insurance system and trade exhibition system have not contributed to export promotion in Korea. The empirical evidence shows that duty drawback did have a significant effect on exports. That is, the efficiently managed duty drawback system may contribute to export promotion significantly in Korea.

Keywords: Duty Drawback, Export Assistance System, Export Insurance, Export Promotion

JEL Classifications: F13, F32, F40

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I. Introduction

Korea showed dramatic changes in domestic and international economic conditions after it introduced an export assistance system and enforced an export-led growth policy. Initially the system operated solely by depending on direct export subsidy. However, during this period, supporting policies that reduced taxation were implemented. They covered raw import finance of materials for exportation, banking incentives regarding the export industry’s operation fund, tariff exemption on import of capital material, and reduction of direct tax on export earnings. In this respect, Korea’s government specially supported the export industry in terms of tax privilege and financial aid in the name of economic development and rapid growth.

However, under the World Trade Organization (WTO) system, traditional tariff or non-tariff barrier and trade barriers were highlighted. Moreover, under the WTO system, direct financial and taxation benefits of export assistance systems is prohibited unlike in the past. Still, there are a few features of the export assistance system that are favorable to exporters. These are indirect assistance, such as export insurance, duty drawback, and trade exhibition. These systems are approved even under the WTO. Thus, the government can contribute to the export industry indirectly.

Recently, a prolonged recession created a tough atmosphere in global trade. The US and Japan’s industrial rearing, enforcement of technical barriers to trade (TBT), and intellectual property right enhancement along with the proliferation of new protectionism practices hinder Korea’s exportation. In addition, since 2013, the exchange rate of the yen has been falling, causing a slowdown in vehicle and steel exportation, the intensity of which was similar to that intensity of export with Japan. To make the situation worse, the profitability of small and medium-sized companies (SMCs) deteriorated, thus affecting negatively Korea’s export industry. Above all, what Korea needs is a resolution to overcome the crisis resulting from decreased profitability of SMCs along with decreased trade competitiveness.

Considering this situation, now is the time for Korea to examine and evaluate the export assistance program approved by the WTO system in order to reinforce export enterprises’ competitiveness. In other words a practical study has to be undertaken to determine whether these export assistance programs actually contribute to export facilitation. The objective of this study is to examine through empirical research the current export assistance system of Korea to reveal its actual contribution, or the need for establishing a government-wide efficient assistance system.

The structure of this paper is as follows. Section II introduces the advances in research. Section III shows the model and data for testing the effectiveness of the export assistance system in export promotion. Empirical results are given in Section IV. Section V provides the conclusion.

II. Review of Literature

1. Theoretical Background

Numerous countries facilitate diverse export assistance systems in order to promote exportation. Government assistance to export

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includes export insurance, tax and financial benefits, and administrative support. In Korea, export insurance, duty drawback, and trade exhibit system are the major government export assistance policies that were established to promote exports.

1.1. Export Insurance

The primary role of export insurance is to create an export atmosphere that is similar to the domestic market atmosphere, thus bestowing advantage to exporters in the name of minimizing exporters’ burden of risk. In other words, export insurance works as an insurance against incidents that might occur during the trade, for example catastrophe risks or credit risks prohibiting exportation or withdrawal of payment. Thus, exporters can participate in trade without anxiety.

Export insurance is facilitated by the government with a lower insurance price if possible, but with increased compensation that favors exporters. The aim is to promote trade and reinforce trade competitiveness. Eventually, the export insurance functions as an export promotion policy that contributes to the increase of export activities.

As export assistance competition has intensified among countries, direct export assistance, such as reduced taxation, is strictly restricted. For this reason, the role of internationally accepted indirect assistance policies, such as export insurance, is becoming critical.

According to WTO’s Agreement on Subsidies and Countervailing Measures (SCM Agreement) illustrated list of export subsidy (j) and (k), export insurance is not prohibited. The provision to exporters of export insurance not exceeding certain threshold levels would not be regarded as export subsidies that are prohibited in the WTO system. That is, export insurance can be considered as export incentives that benefit exporters, and not as prohibited subsidies (Mah, 2010).

1.2. Duty Drawback

Duty drawback is a policy that allows exporters to retrieve what they have paid as tax for the import of raw materials after the processing and export of the finished product.

Duty drawback regarding raw materials is a policy chosen by many countries, including Korea, China, and Southeast Asian countries, because it does not violate the WTO SCM. Under the General Agreement on Tariffs and Trade (GATT) system, raw materials are defined as physically incorporated; thus, only a limited types of materials are accepted as raw materials for export. However, in the WTO SCM attachments I and II, the definition of raw material has been broadened.

According to WTO SCM attachment I, raw materials for export are defined as consumed. In WTO SCM attachment II, the term raw material is defined as materials used in the production process and should be any of one of the following: it should be physically incorporated, energy used in the process, and catalyst used in order to obtain export goods.

China postponed the taxation for raw materials for the processing trade, and the European Union (EU), also under the inward processing relief (IRP), delayed or returned the tax of raw materials. Mexico, after the NAFTA agreement, has maintained a modified form of duty drawback, referred to in NAFTA’s forbidden clause of duty drawback.

There are a few cases that prohibit duty drawback in recent FTA agreements. The
major reason is the possible occurrence of a price difference of the same product due to duty drawback. NAFTA (Articles of Agreement 303 Restriction on Drawback and Duty Deferral Programs) and US-Chile FTA (Articles of Agreement 3.8 Drawback and Duty Deferral Programs) forbid duty drawback, but not all FTA agreements have such a stipulation.

Duty drawback becomes a problem in the FTA agreement if the FTA contracting countries are geographically closely located and only one country has duty drawback policy. It is obvious that the tax levels of the countries will differ, and the country with drawback policy would have a relative advantage. Especially, if the contracting countries share borders, then they can import and export without customs due to FTA. Therefore, if one country tries to export what it has imported from the third country, then the former can gain refund of tax since the goods will be considered as raw material. Prices of imported goods from the third country solely for domestic sale will increase due to taxation while imported goods with duty drawback export can maintain relatively low prices. In case of such an incident, EU and FTA asserted that approval of both preferential tariff and duty drawback will give double benefits to the third country.

However, similar to export insurance, the duty drawback system does not mention export assistance in the agreement on subsidies and countervailing measures; thus the drawback system is still accepted by WTO as an assistance system for export promotion.

1.3. Trade Exhibition

Under the WTO system, government cannot intervene in the export enterprises whether indirectly or directly. Still its support to trade exhibition, such as export insurance and duty drawback, are rightfully approved. WTO’s subsidy regulation categorizes export exhibition cost such as foreign advertising fee, and foreign buyers and enterprises attraction activity cost as approved cost. To specify, expenses for inviting foreign exhibitors and foreign visitors are categorized as non-actionable subsidy. This shows that under the WTO, the export-oriented economic activities of Korea should actively utilize this system (Yoon Kë-Kwan and Lim So-Sun, 2010).

2. Previous Studies

Government’s export assistance systems have been studied in diverse areas. Abraham and Dewit (2000) analyzed the effect of export promotion via official export insurance. In most countries, export insurance is provided by the government and, consequently, is driven more by a broad range of policy objectives than purely insurance principles. The analysis shows that export promotion does not necessarily imply trade distortions and that most export destinations do not benefit from insurance premium subsidies. A significant policy implication of these findings is that the WTO and the EU are correct in not completely banishing official export insurance.

Chao, Chou and Yu (2001) examined the effect of duty drawback on export in China. They used the export demand equation because the real export of goods is determined by real foreign income, relative goods prices (defined as the ratio of China’s export price index to world export price index), real effective exchange rate volatility, and the amount of duty drawback. They used annual data for China over the period 1985 to 1998,
checked stationarity, and proceeded to the Johansen cointegration test and the error correction model to get the elasticities. The empirical evidence showed that duty drawback contributed significantly to China’s exports.

Lee Eun-Jae (2005) analyzed the effects of a short-term export loan system, and a medium- and long-term export loan system in Korea. For the empirical study, an export demand function model was introduced using quarterly data from 1985 to 2003. Lee’s study proved that the short-term export loan system did have a significant effect on increasing Korean exports. But medium- and long-term export loan systems had not led to the promotion of export in Korea.

Chen, Mai and Yu (2006) introduced a Cournot quantity competition model to examine the effect of the export tax rebate policy on export performance. The empirical analysis was carried out using the statistical data of China from 1985 to 2002. The test results of Spearman rank correlation coefficient show that China’s export tax rebate policy had a significant positive correlation with its exports, final domestic consumption, and foreign exchange reserve.

Mah (2006) examined whether or not export insurance subsidy provided by the Japanese government promoted export supply in Japan, considering export relative price, export insurance subsidy, and domestic demand pressure as the determinants of supply. The unit root tests showed that all concerned variables were integrated of order one. According to Johansen’s cointegration test and Engle-Granger’s cointegration test results, the variables under consideration were not cointegrated. The empirical evidence showed that the export insurance system did not contribute to promoting export supply in Japan.

Lee Seo-Young (2007) analyzed whether or not duty drawback promoted Korean export supply. For this analysis, an export supply function model was introduced and the yearly data from 1980 to 2005 were used. Prior to the empirical analysis, unit root test was conducted to understand the time series data. The unit root test showed that all concerned variables were non-stationary. Accordingly, the result of the cointegration test showed that the duty drawback and concerned variables were cointegrated. The empirical evidence using the vector error correction model (VECM) showed that the duty drawback did have a significant effect on increasing Korean exports.

Park Hyun-Hee (2009) analyzed whether or not the export insurance subsidy provided by the Korean government promoted Korea’s export supply. The study examined the stationarity of the concerned variables. The unit root tests showed that all concerned variables were non-stationary. The estimation was conducted with the OLS using annual data over the period 1990 to 2007. Park’s study proved that the export insurance system had not contributed to the promotion of the export supply in Korea.

Lee Eui-Young and Cin Beom-Cheol (2010) investigated export effects of government subsidy to Korean small and medium-sized enterprises (SMEs) based on the export model. The paper employs a unique data set on government export subsidy to SMEs over the period 2004 to 2008 for listed and non-listed companies. Empirical results show that estimated coefficients for export subsidy to
SMEs were positively significant regardless of sample size, across all firms or the DID (difference-in-difference) sample firms. This implies that government export subsidy should be positively associated with SMEs' export. Estimated coefficients for firm age and R&D investment per worker were found to be significantly different from zero. This implies that export subsidy effects could be expanded when government provides export subsidy to more R&D-investing and more experienced SMEs.

Kim Hee-Kuk (2012) studied how short-term export credit insurance affected exportation after a global financial crisis. For the empirical analysis, he composed an export demand equation based on worldwide gross domestic product (GDP), real effective exchange rate, individual countries' GDP, and short-term export credit insurance. The analysis showed that before and after a global financial crisis, short-term export credit insurance affected exportation positively, and effectiveness increased after the global financial crisis.

Lee Seo-Young (2014) analyzed whether or not export insurance had contributed to export promotion in Korea. In particular, this study analyzed the effects of short-term, medium-term, and long-term types of export insurance. The empirical evidence using the VECM showed that the short-term export insurance types did not have a significant effect on increasing Korean exports. The empirical evidence showed that the medium-term and long-term types of export insurance did not have a significant effect on Korean exports. Consequently, it appeared that all types of export insurance provided by the Korea Trade Insurance Corporation did not contribute to promoting export supply.

III. The Model and Data

This study conducted analysis using the export function model with regard to the effect of an export assistance system. The most important thing in the export function is to define factors that affect export demand and supply in a metric model based on theoretical and practical analysis.

According to the export function model, foreign demand of each country depends on the international economic situation (or real income). The export price of an industry and relative foreign price can be summarized in the following manner.

\[ Q_i = f(Y^*, P_i(\$)/P(\$^*)) \]  (1)

where \( Q_i \) = industry \( i \) = export volume and \( Y^* \) = foreign real income. \( P_i(\$) \) = industry \( i \)'s export price presented as \$, \( P(\$^*) \) = Foreign price level presented as \$. If foreign income level increases along with the increment of commodities, which include increased demand for Korea's export goods, and if the export price is relatively higher than the foreign price level then the demand will decrease.

In contrast, domestic supply regarding each industry's export volume based on individual industry's productivity (or marginal production limit). Each industry's export price and relative domestic price level can be summarized in the following manner.

\[ Q_i = f(Z_i, P_i(\text{\textcurrency})/P(\text{\textcurrency})) \]  (2)

\( Z_i \) = productivity of industry \( i \), \( P_i(\text{\textcurrency}) \) = export price of industry \( i \) in terms of Korean won, \( P(\text{\textcurrency}) \) = Korea's domestic price level in terms of Korean won. Export supply
increases when productivity and export price increase. Equation (2) includes export price in terms of dollar. Thus, it can be modified in the following manner.

\[ Q_i = f(Z_i, \ P_i(\$)e/P(W)) \]  

(3)

Here \( e \) = The U.S dollar rate.

Considering the fact that the export assistance system has the characteristic of export subsidy facilitated by the government, this study used the export supply function.

Export supply is solely dependent on whether advantageous factors lead to export profitability. In terms of manufacturing, business export supply will increase if the plant possesses good facility and good production capacity. However, increase of production element costs such as labor expense, interest rate, and price of raw material will decrease the export supply. But if the government assists through a subsidy, then the export supply will increase. Winters (1974) asserted that if the individual country's domestic economic activity is prioritized, the country's export supply will decline, and vice versa.

In addition, Holpman and Krugman (1985) illustrated that the new trade theory included the horizontal vertical differentiation value of products and the innovative effect of export supply products as explanatory variables. Studies that put emphasis on product differentiation proved that the growth of enterprise will lead to diversification of products; thus, it should be included in the export function during analysis. Later, many follow-up studies investigated factors that can cause product differentiation to estimate the export supply function.

Muscatelli, Stevenson and Montagna (1995) tried to examine the effect of horizontal vertical differentiation and innovation of products on export in terms of Asia's newly industrialized countries, and incorporated the fund stock into the accounting data. Beside export relative price, export subsidy has often been studied as another determinant of export supply. Using time series data, Jung and Lee (1986) showed that relative export price and export subsidies were significant in influencing export supply in Korea (Mah, 2007).

The argument on the impact of export assistance and export relative price on export supply, assuming an infinitely elastic export supply equation, can be summarized in the following manner:

\[ EXS(t) = a_0 + a_1 EXIN(t) + a_2 RP(t) + e(t) \]  

(4)

\[ EXS(t) = a_0 + a_1 TARF(t) + a_2 RP(t) + e(t) \]  

(5)

\[ EXS(t) = a_0 + a_1 EXHB(t) + a_2 RP(t) + e(t) \]  

(6)

where \( EXS = \) export values divided by GDP; \( RP = \) export price index divided by wholesale price index, both expressed in terms of Korean won; \( EXIN = \) values of export insurance underwriting; \( TARF = \) values of duty drawback; \( EXHB = \) number of Trade Exhibition. In equations (4), (5) and (6), \( e \) denotes the conventionally assumed error term. The annually observed data set in the current study covers the period from 1992 to 2013. The estimation model is shown as equations (4), (5), and (6).

Equation (4) examines whether or not export insurance provided by the Korean
government has promoted export supply in Korea, considering export relative price and export insurance underwriting values as the determinants of export supply.

Equation (5) examines whether or not duty drawback provided by the Korean government has promoted export supply in Korea, considering export relative price and duty drawback values as the determinants of export supply.

Equation (6) examines whether or not trade exhibition provided by the Korean government has promoted export supply in Korea, considering export relative price and number of trade exhibitions as the determinants of export supply.

All variables are in natural logarithm. In equation (4), the estimated coefficient \( \alpha_1 \) means export insurance underwriting values elasticity; the sign is expected to be positive. Provision by government of export insurance not prohibited by the WTO regulations may be considered as a plausible means of export promotion by reducing the actual and perceived risks faced by exporters. In conclusion, the larger the number of exports covered by export insurance, the lower the risk the exports will face and overall export supply will increase. And the estimated coefficient of \( \alpha_2 \) can be interpreted as the export relative price elasticity. Its sign is expected to be positive, since the higher export price compared with domestic price would divert resource allocation from non-traded or importable goods to export products (Mah, 2006).

In equation (5), the estimated coefficient \( \alpha_1 \) means duty drawback values elasticity; the sign is expected to be positive. Since provision of duty drawback leads to higher profit levels of the producer at the same export price, export is likely to increase with duty drawback (Arslan and Wijnbergen, 1993). In equation (6), the estimated coefficient \( \alpha_1 \) means numbers of trade exhibition elasticity; the sign is expected to be positive.

**IV. Empirical Evidences**

1. **Unit Root Test**

This study starts by testing stationarity applied to these variables. Since regression analyses using non-stationary variables may lead to spurious regression, it is necessary to examine the stationarity of the concerned variables. Dickey and Fuller’s augmented Dickey-Fuller (ADF) test and test of Phillips and Perron (1988) were performed with respect to these variables. Also for parallax selection Akaike Information Criterion (AIC) was applied.

<Table 1> shows that the levels of most concerned variables are not stationary at any reasonable level of significance; meanwhile, first-differenced variables forms of the variables are stationary at 1% level of significance. That is, all variables are not I(0) time series. Instead, they are I(1) time series. Overall, it would not be unrealistic to assume that all of the concerned variables are integrated of order one.

Nelson and Kang (1981/1984) focused on what will be the result of analyzing difference-stationary process as trend-stationary process in terms of data producing process. They figured out the catastrophic result of misinterpretation. According to the research by Plosser and Schwert (1977/1978), there is no significant possibility of error in this case.
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Table 1. Unit Root Test Results

| Variables | Level form | First-differenced form |
|-----------|------------|------------------------|
|           | ADF        | Phillips-Perron         | ADF        | Phillips-Perron         |
| EXS       | -1.485     | -2.228                 | -4.975     | -5.007                 |
| EINS      | -2.204     | -2.058                 | -4.204**   | -3.072**               |
| TARF      | -1.004     | -0.948                 | -5.537**   | -5.556**               |
| EXHB      | -0.570     | -0.541                 | -4.871***  | -4.865***              |
| RP        | 0.086      | 0.914                  | -4.573***  | -6.701***              |

Notes: 1. A linear trend term is included in the data.
2. ***, *** means significance level at 5% and 1% respectively.

Therefore, in terms of positive analysis, if one does not know whether the relationship is trend-stationary or difference-stationary, then they should assume the latter to reduce possible danger.

2. Cointegration Test

The cointegration is defined as a linear combination that produces stable residuals within individually unstable time series. This statistical definition implies that each individual is unstable, but in the long run, existence of the cointegration relation will stabilize these factors, forming a balanced relationship. In other words, cointegration relation of I(1) variables with only one existing unit root represents the relationship with I(0) variable with no unit root. Linear combination of these two variables creates a new variable that possesses the long term relationship of both variables. If the newly composed variable does not possess unit root, then one can assume the relationship will be stabilized in the long run.

Johansen (1988/1992) and Johansen and Juselius (1990) suggested a method to examine the number of cointegration relationship and parameters using maximum likelihood estimator (MLE). They called it the Johansen Procedure, and is an expansion of Dickey-Fuller’s unit root examination in multivariate level.

<Table 2>, <Table 3>, and <Table 4> present the results of analysis using Johansen’s method. <Table 2> shows Johansen’s cointegration test results among EXS, EINS, and RP. According to Johansen’s trace test statistics and maximum eigenvalue test statistics, the null hypothesis that there

Table 2. Johansen’s Cointegration Test Results among EXS, EINS, and RP

| Hypothesis | Eigenvalue | Trace test statistics | 5% Critical value | Maximum eigenvalue test statistics | 5% Critical value |
|------------|------------|-----------------------|-------------------|-----------------------------------|-------------------|
| None       | 0.648      | 32.966                | 29.797            | 20.899                            | 21.131            |
| At most 1  | 0.419      | 12.067                | 15.494            | 10.867                            | 14.264            |
| At most 2  | 0.058      | 1.1994                | 3.8412            | 1.1994                            | 3.8414            |

Note: The calculated statistics are based on one lag in each variable and no trend term in the data.
is no cointegrating vector EXS, EINS, and RP is not rejected at any reasonable level of significance. Thus the results show that there was no cointegration between the variables of the time series.

<Table 3> and <Table 4> show Johansen’s cointegration test results among the concerned variables. According to Johansen’s trace test statistics and maximum eigenvalue test statistics, the results show that there was no cointegration between the variables of the time series.

Time series is unstable individually, but with the linear combination granting stability this relationship is called cointegration relation. Tests using VECM will examine if time series with unit root possesses cointegration relation. On the other hand, if the test result showed the existence of unit root but without cointegration relation, then regression analysis using Vector Autoregressive (VAR) model will be performed.

Since the cointegration tests reveal that there does not exist any long-run equilibrium relationship, it is necessary to report results of the regression analyses based on the first differenced data.

3. Estimation Results

This study used annual data from 1992 to 2013 to examine whether or not the export assistance system provided by the Korean government has promoted export supply in Korea. <Table 5> shows the OLS estimation results in case of using the first differenced data of equation (4), equation (5), and equation (6).

The empirical evidence of equation (4) shows that the coefficient of export relative price is revealed as 1.21 and statistically significant at the 1% level, while the coefficient of export insurance is not significant in explaining export supply at any level of significance. That is, government provision of export insurance is not significant
in promoting export supply of Korea.

The empirical evidence of equation (5) shows that coefficient of export relative price is 0.96 and statistically significant at the 1% level. The coefficient of duty drawback is revealed as 0.29 and statistically significant at the 5% level. The estimation results show strong evidence of the positive effect of export assistance in the form of duty drawback on promotion of export supply.

The empirical evidence of equation (6) shows that the coefficient of export relative price is 1.22 and statistically significant at the 1% level, while the coefficient of trade exhibition is not significant in explaining export supply at any level of significance. That is, government provision of trade exhibition is not significant in the promotion of export supply in Korea.

To encapsulate the previous analysis, Korea's duty drawback system implemented as an export assistance measure is significant in promoting export but export insurance and export exhibition have no significant contribution in terms of export promotion.

Table 5. OLS Estimation Results Based on the First-differenced Variables

| equation | Constant | RP | EINS | TARF | EXHB | R2 | D.W. |
|----------|----------|----|------|------|------|----|------|
| (4)      | 0.13     | 1.21 | 0.07 | -    | -    | 0.41 | 2.25 |
| (5)      | 0.12     | 0.96 | -    | 0.29 | -    | 0.55 | 2.43 |
| (6)      | 0.16     | 1.22 | -    | -    | -0.14 | 0.43 | 2.14 |

Notes: 1. Values within the parentheses below the estimated coefficients denote the calculated t-statistics.
2. **, *** means significance level at 5% and 1% respectively.

V. Conclusion

According to current ASCM agreement, reinforced rules are applied compared with the past subsidy regulations. Specifically, unlike in the past, direct export assistance measures, such as financial benefits or tax reduction, are prohibited. Therefore, under the WTO system, individual governments cannot support their respective exports directly. However, there are indirect export assistance systems that favor exporters, namely, export insurance, duty drawback, and trade exhibition. These policies are outside WTO's subsidy prohibition; thus, a government can indirectly support its export industry.

This research involved analysis of Korea's current export assistance system through empirical studies. To be specific, this study carried out objective research on the effect of export assistance measures, such as export insurance, duty drawback, and trade exhibition on promotion of export.

The analysis period was from 1992 to 2013, and export supply function was used as a model for the analysis. The results can be summed up as follows. For an accurate empirical analysis, stability of data is the most important criterion. If unstable time series are used, the whole analysis can be considered unreliable. However, the result of unit root test shows that the time series had variables of I(1). Moreover, to examine the existence of
cointegration relation, a long-term balanced relation of variables with unit root, cointegration test was performed. The result proved that the cointegration vector did not exist. Thus empirical evidence analyzed the first differenced data.

The result of empirical analysis showed that the coefficient of export insurance was 0.07, but statistically not significant. Export insurance is a system that secures exporters from risk that can happen, so when values of export insurance underwriting increase, exportation itself gets affected. In conclusion, the higher the number of exporters covered by export insurance, the lower the risk the exporters will face and overall export supply will increase. However, different results were derived.

Next, the coefficient of trade exhibition was not significant in explaining export supply at any level of significance. That is, empirical evidence shows that the export insurance system and trade exhibition system had not contributed to export promotion in Korea. Lastly, the coefficient of duty drawback was 0.29 and statistically significant at the 5% level. That is, the empirical evidence shows that the duty drawback system has contributed to promoting export supply in Korea.

References

Abraham, F. and G. Dewit (2000), "Export Promotion via Official Export Insurance", Open Economies Review, 11, 5-26.

Arslan, I. and S. Wijnbergen (1993), "Export Incentives, Exchange Rate Policy and Export Growth in Turkey", Review of Economics and Statistics 75(1), 128-133.

Chen, C. H., C. C. Mai and H. C. Yu (2006), "The Effect of Export Tax Rebates on Export Performance: Theory and Evidence from China", Journal of International Economics, 17(1), 226-235.

Chao, C. C., W. L. Chou and E. S. H. Yu (2001), "Export Duty Rebates and Export Performance: Theory and China's Experience", Journal of Comparative Economics, 29(2), 314-326.

Holpman, E. and P. R. Krugman (1985), Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy, Cambridge, MA: The MIT Press, 1-271.

Johansen, S. (1988), "Statistical Analysis of Cointegration Vectors", Journal of Economic Dynamics and Control, 12(2), 231-254.

____ (1992), "Cointegration in Partial Systems and the Efficiency of Single-Quotation Analysis", Journal of Econometrics, 52(3), 389-402.

Johansen, S. and K. Juselius (1990), "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money", Oxford Bulletin of Economic and Statistics, 52, 169-209.

Jung, W. S. and G. Lee (1986), "The Effectiveness of Export Promotion Policies: The Case of Korea", Weltwirtschaftliches Archiv, 122(2), 340-357.

Kim, Hee-Kuk (2012), "A Comparative Study on the Effects of Short-term Export Credit Insurance on Exports before
and after the Global Financial Crisis", *Journal of International Trade and Insurance*, 13(2), 29-46.

Lee, Eui-Young and Beom-Cheol Cin (2010), "Export Effects of Government Export Subsidy to SMEs", *Management Review*, 17(4), 197-213.

Lee, Eun-Jae (2005), "An Empirical Study on the Influence of the Korean Short-term Export Loan System & Medium and Long-term Export Loan System upon Korean Export in WTO/OECD", *International Commerce and Information Review*, 7(3), 247-268.

Lee, Seo-Young (2007), "Duty Drawback and Export Promotion in Korea", *The Journal of Korea Research Society for Customs*, 8(3), 69-84.

(2014), "Effect of Export Insurance on Export Promotion in Korea: Comparing the Short-term Types and the Medium and Long-term Types", *Journal of International Trade & Commerce*, 10(4), 1-15.

Mah, J. S. (2006), "The Effect of Export Insurance Subsidy on Export Supply: The Experience of Japan," *Journal of Asian Economics*, 17(4), 646-652.

(2007), "The Effect of Duty Drawback on Export Promotion: The Case of Korea", *Journal of Asian Economics*, 18(6), 967-973.

(2010), "Export Insurance and Export Supply: The Experience of Britain", *Journal of International Trade and Insurance*, 11(1), 3-20.

Muscetti, V. A., A. A. Stevenson and C. Montagna (1995), "Modeling Aggregate Manufactured Exports for Some Asian Newly Industrialized Economies", *The Review of Economics and Statistics*, 77(1), 147-155.

Nelson, C. R. and H. Kang (1981), "Spurious Periodicity in Inappropriately Detrended Time Series", *Econometrica*, 49(3), 741-751.

(1984), "Pitfalls in the Use of Time as an Explanatory Variable in Regression", *Journal of Business & Economic Statistics*, 2(1), 73-82.

Park, Hyun-Hee (2009), "The Effect of Export Insurance Subsidy on Export Supply: The Experience of Korea", *Journal of International Trade & Commerce Korea*, 5(1), 1-15.

Phillips, P. C. B. and P. Perron (1988), "Testing for a Unit Root in Time Series Regression", *Biometrika*, 75, 335-346.

Plosser, C. I. and G. W. Schwert (1977), "Estimation of a Non-invertible Moving Average Process: The Case of over Differencing", *Journal of Econometrics*, 6(2), 199-224.

(1978), "Money, Income, and Sunspots: Measuring Economic Relationships and the Effects of Differencing", *Journal of Monetary Economics*, 4(4), 637-660.

Yoon, Ki-Kwan and So-Sun Lim (2010), "A Comparative Research on National Trade Exhibition Support Policy between Korea, Germany and America", *Journal of International Trade & Commerce*, 6(4), 431-460.

Winters, L. A. (1974), "United Kingdom Exports and the Pressure of Demand: A Note", *The Economic Journal*, 84, 623-628.