

Study for Improving the Duty Drawback System in Korea amid the Multiplication of FTAs

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I

Introduction

A duty drawback system has been applied to raw materials used to manufacture export goods in Korea since 1975. Taxes are not levied on the export of finished products manufactured with imported raw materials, for which duties have been paid, since the imported raw materials are regarded as consumed overseas. This is called the principle of taxation at the place of consumption. Based on this principle, Korea applies special laws providing for duty drawbacks on raw materials used to manufacture export products. This duty drawback scheme has helped to enhance the competitiveness of Korean exporting companies. The current duty drawback scheme, moreover, imposes administrative costs on manufacturers with respect to tariff refunds, and thereby encourages them to use domestically produced raw materials instead of imported ones where possible.

The drawback system of Korea can be divided into an individual duty drawbacks scheme and a fixed-amount duty drawback scheme. Under the former, Korean manufacturers pay duties and tariffs upon imported raw materials from abroad, and get refunds upon exporting finished products they have manufactured using the imported materials. Under the latter scheme, manufacturers that export finished products receive duty refunds according to the rates fixed by the government, irrespective of the amounts of raw materials they imported from overseas and used. Under the simplified fixed-rate duty drawback scheme, under-reported or over-reported duty drawbacks always occur. Yet the simplified scheme continues remains in place, despite difficulties in computing accurate duty amounts of drawbacks, in an effort to avoid the administrative costs arising

from computing the total and exact quantities of raw materials imported and used. Businesses may avoid applying for duty drawbacks due to such administrative costs, and thereby saw their competitiveness as exporters decline over time. In order to prevent this from occurring, the Korean government has been confining the scope of the simplified fixed-rate duty drawback scheme to small and medium enterprises (SMEs) only. Since exporting manufacturers can receive duty drawbacks if they use domestic raw materials under the simplified fixed-rate duty drawback scheme, it encourages them to use domestic raw materials where possible.

Having provided the individual and the simplified fixed-rate duty drawback schemes for over four decades, the Korean government began to enter Free Trade Agreements (FTAs) and realized it needed to transform the economic and trade environment and adjust the existing duty drawback schemes accordingly.

Korea has joined the global trend of signing FTAs with other countries. In 2004, the Korea-Chile FTA came into effect as the first of its kind, followed by the FTAs with Singapore, the European Free Trade Association (EFTA), the Association of Southeast Asian Nations (ASEAN), and India. Korea has been eager to sign FTAs with large economies including European Union and the United States. A total of nine FTAs had been signed by August 2014. If the Korea-China FTA comes into effect, more than half of Korea's trade is expected to be carried out through FTAs.

This study focuses on the mid- to long-term improvements to be made to Korea's duty drawback system in line with the changing economic environment at home and abroad, particularly amid the multiplication of FTAs. Unlike existing studies, this study analyzes today's drawback system based on statistics on the schemes used, industries involved, and the sizes of benefitting businesses. It also analyzes the impact that duty drawbacks have on exports. Although there have been other studies analyzing the impact of duty drawbacks, they merely estimate the impact based on the Input-Output Tables of the Bank of Korea or make macroscopic analyses using export functions based on year-on-year duty drawbacks data. This study, however, uses duty drawbacks data from 2001 to 2013 to analyze features, effects, and trends of Korea's duty drawback system over the past decade, and its effect on Korea's exports.

This study also discusses issues of substitution drawbacks on imported raw materials that arise under the individual drawback scheme. Substitution drawbacks between domestic and imported raw materials are prevalent in Korea, but few international discussions on substitution drawbacks have been held so far. Although it is difficult to present a clear guideline on substitution drawbacks, this study nonetheless makes mid- to long-term policy suggestions. In addition, as FTAs have led to excessive drawbacks under the simplified fixed drawback scheme, this study makes policy suggestions, based on empirical evidence, in that regard as well.

With the number of FTAs entered by the Korean government on rise, the issues surrounding duty drawbacks should decrease because tariff rates are becoming lower overall and will ultimately reach zero. However, since there are still cases where multiple tariff rates must apply to the same items under different FTAs, it is worth considering the introduction of an advance duty exemption system. This is especially relevant in the case of crude oil, as Korea depends entirely on oil imports and more than half of the imported oil is domestically processed to be used to make export goods. This study therefore discusses whether an advance duty exemption system would be more appropriate under the circumstances than the duty drawback system. This discussion is important because the advance duty exemption system, unlike the duty drawback system, would serve as a solution to excessive drawbacks and subsidy issues.

The second section of our study begins with an overview of the current status of the duty drawback system in Korea. It explains the definition and purpose of the duty drawback system, and provides an overview of the history and issues surrounding both the individual and the simplified fixed-rate duty drawback schemes. Also, it touches upon the implementation and features of the duty drawback schemes. In the third section, an analysis on duty drawbacks by scheme type, industry and business category is provided and the possible impact that duty drawbacks have on exports is explained. The fourth section makes policy suggestions for improving Korea's duty drawback system based on analyses made in this study. Finally, the fifth section provides a summary of our discussions and a conclusion.

II

Current Status of the Duty Drawback System in Korea

1 Definition and Purpose

Duty drawback is a refund, in whole or in part, of import customs duties that have been paid according to predefined criteria and procedures. There are mainly three types of drawbacks.

First, custom duties are refunded when exporter companies have paid duties that were more than they were supposed to pay. Second, custom duties collected at the time of import are refunded when exporter companies export or destroy the imported goods due to the fact that the imported goods are different from those specified in the import contracts. Third, when exporter companies manufacture and process imported raw materials to create products for exports, customs duties paid at the time of importing the raw material are refunded. In general, duty drawbacks in Korea refer to the refunds of duties paid for imported raw materials that are to be used to manufacture export goods. This kind of duty drawbacks comprises the majority of the duty drawbacks in Korea.

The principle of taxation at place of consumption applies to drawbacks for raw materials destined for finished products to be exported in the future. This principle means that the duties are levied at the final destination where the finished products are to be consumed.

2 Types of Duty Drawback Schemes in Korea

The duty drawback system in Korea for raw materials for export, which covers most of the duty drawbacks in the country, is divided between the individual duty drawback scheme and the fixed-rate duty drawback scheme. The individual duty drawback scheme refunds any duties paid when raw materials were imported for use in the manufacturing of export goods. It is the more commonly used type of duty drawbacks. The fixed-rate duty drawback scheme refunds duties at fixed rates in proportion to the quantities of goods exported. Unlike the individual duty drawback scheme, the fixed-amount drawback does not reflect the exact amount of duties paid for imported raw materials. For this reason, underestimated or excessive drawbacks invariably arise under this scheme. The reason why the fixed-rate duty drawback scheme remains intact despite its inaccuracies is to help businesses avoid the administration costs arising under the individual drawback scheme.

A. Individual Duty Drawback scheme

Under the individual duty drawback scheme, the tax amount to be paid for raw materials used to manufacture export goods is accurately calculated for duty drawbacks according to the quantities of raw materials used. However, this involves the use of a complicated procedure, making it necessary to determine whether previously imported raw materials and those used to manufacture export goods are identical.

With the Korean government entering a growing number of FTAs, issues of excessive drawbacks are on rise. Tariff rates can vary for the same item under different FTAs. In addition, a company supplying goods for export and domestic consumption may seek a higher tax return by falsely reporting that it used raw materials for which a higher duty was paid only for manufacturing export goods and it used those for which FTA preferential tariff rates were applied only for manufacturing goods for domestic consumption. The increasing business practice of claiming substitution drawbacks on imported materials subject to different tariff rates, instead of on the same raw materials that can

be both domestically procured and imported, is another key issue.

B. Fixed-rate Duty Drawback Scheme

The fixed-rate duty drawback scheme was created to remedy the complexity and high administration costs of the individual scheme. Korea is operating what is called a “simplified” fixed-rate duty drawback system.

Under the simplified fixed-rate duty drawback scheme, a fixed-rate of duty is refunded when an exporter submits a proof of export for manufactured products. The refund amount for each export item is determined by the government in advance. It does not require any checking on how much duty was paid for each raw material used, which saves a great deal in administrative costs.

The simplified fixed-rate duty drawback is given only to SMEs struggling with the shortage of skilled staff. If small-scale exporters have to spend high administrative costs for duty drawbacks under the individual duty drawback scheme, they would likely give up on obtaining such drawbacks, which in turn could discourage them from exporting goods. In order to minimize these side effects, the Korean government puts the simplified fixed-rate duty drawback scheme in place to help struggling exporting businesses.

However, as the simplified fixed-rate duty drawback scheme determines the amounts of drawbacks on the basis of averages, there are always underestimated or excessive drawbacks calculations. Also, the simplified fixed-rate duty drawback scheme indirectly encourages exporters to use domestic raw materials in order to avoid the cumbersome checking process. For example, if an exporter uses domestic raw materials extensively, or uses small quantities of raw materials due to technological innovation in the manufacturing process, the exporter is likely to receive a large amount of duty drawback. Thus, the simplified fixed-rate duty drawback system encourages SMEs to use domestically produced raw materials and invest in technological innovation rather than relying on imported goods.

With the number of FTAs increasing, however, the issue of excessive duty drawbacks under the simplified fixed-rate scheme is increasingly of concern, overshadowing its other advantages. As exporters can receive the same amount

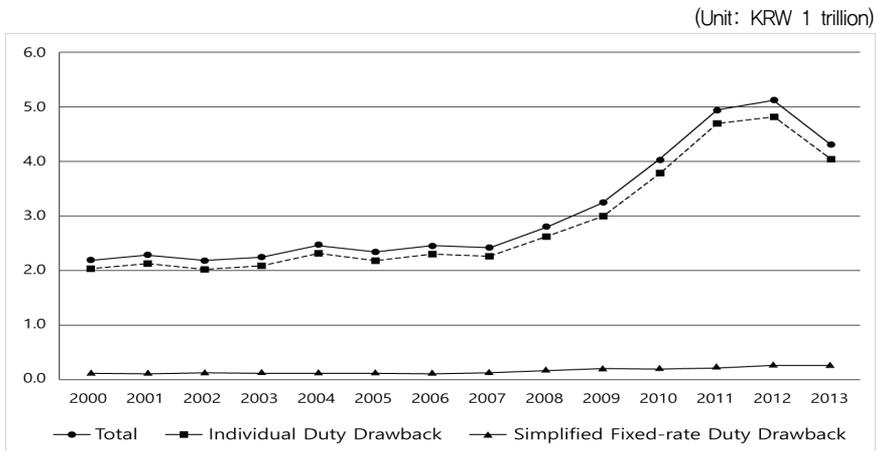
of duty drawbacks under the scheme, even for using the imported raw materials to which FTA preferential tariff rates apply (mostly duty-free), the simplified fixed-rate duty drawback scheme no longer incentivize Korean exporters to use and invest in domestic raw materials.

3 Current Status of the Duty Drawback System

A. Overview

The amount of duty drawbacks has been increasing since 2008 in Korea.¹⁾ From 2001 to 2007, the recorded amount of duty drawbacks was a little more than 2 trillion won, but since 2008 the amount has rapidly increased, surpassing 3 trillion won in 2009 and 4 trillion won in 2012.

[Figure II-1] Trend in the Amount of Duty Drawbacks

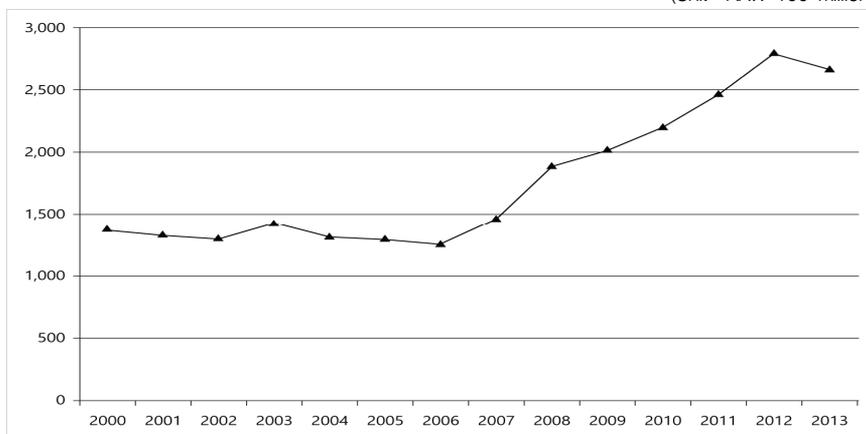


Source: Korea Customs Service, http://www.customs.go.kr/kcshome/cop/bbs/selectBoard.do?layoutMenuNo=172&bbsId=BBSMSTR_1032&bcode=003&nttlId=943 (as of December 2013)

1) Korea Customs Service, http://www.customs.go.kr/kcshome/cop/bbs/selectBoard.do?layoutMenuNo=172&bbsId=BBSMSTR_1032&bcode=003&nttlId=943 (as of December 2013)

[Figure II-2] Trend in the Amount of Simplified Fixed-rate Duty Drawbacks

(Unit: KRW 100 million)



Source: Korea Customs Service, http://www.customs.go.kr/kcshome/cop/bbs/selectBoard.do?layoutMenuNo=172&bbsId=BBSMSTR_1032&bcode=003&nttd=943 (as of December 2013)

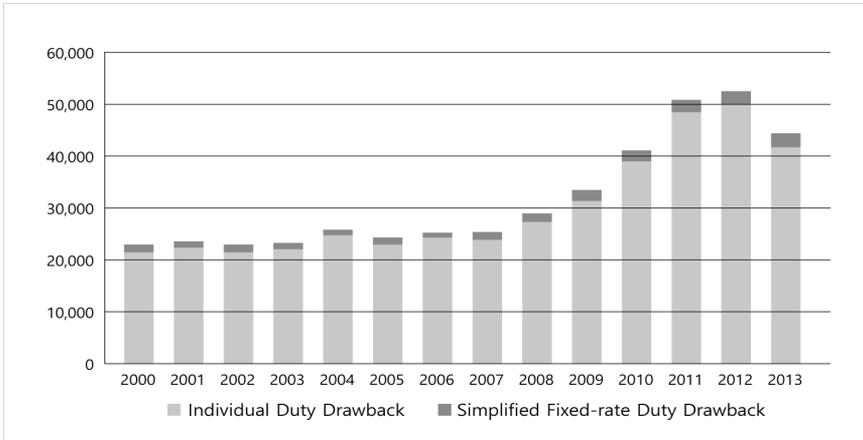
The increase in the amount of duty drawbacks since 2008 was due mainly to the increase in the amount of individual duty drawbacks, which comprised the majority of duty drawbacks. The amount of simplified fixed-rate duty drawbacks stood at around 140 billion won until 2007, sharply increased in 2008, and then reached almost 3 trillion won in 2012. The change in the amount of simplified fixed-rate duty drawbacks reflects the overall trend in the entire duty drawback amount.

B. Trends in Individual and Fixed-rate Duty Drawbacks

A closer look at the total amount of duty drawbacks in Korea shows that the drawbacks paid under the individual duty drawback scheme comprise the majority of the total. This trend has continued for the past decade. The amount refunded under the individual duty drawback scheme accounts for about 94% of the total (the amount refunded under the simplified fixed-rate duty drawback scheme only came to about 6%). This is natural given that the scope of companies subject to the simplified fixed-rate duty drawback scheme is limited to SMEs only.

[Figure II-3] Amounts of Drawbacks under the Two Drawback Schemes

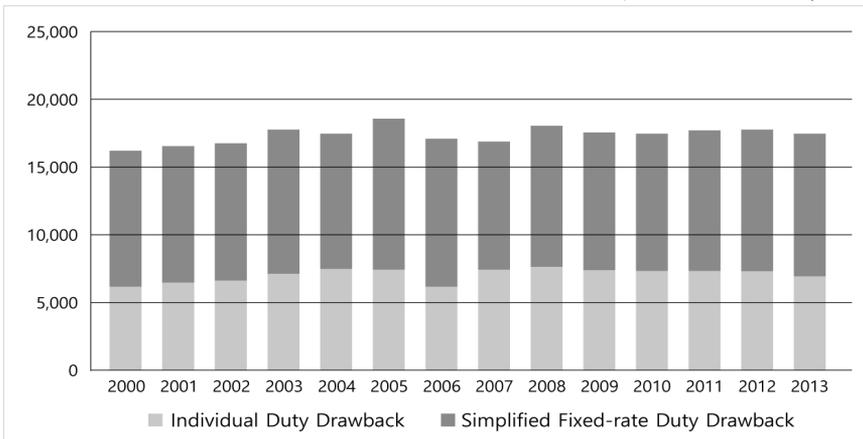
(Unit: KRW 100 million)



Source: Korea Customs Service, http://www.customs.go.kr/kcshome/cop/bbs/selectBoard.do?layoutMenuNo=172&bbsId=BBSMSTR_1032&bcode=003&nttlId=943 (as of December 2013)

[Figure II-4] Distribution of Companies under the Two Drawback Schemes

(Unit: number of companies)



Source: Korea Customs Service, http://www.customs.go.kr/kcshome/cop/bbs/selectBoard.do?layoutMenuNo=172&bbsId=BBSMSTR_1032&bcode=003&nttlId=943 (as of December 2013)

Of the companies benefitting from drawbacks, about 60 percent use the simplified fixed-rate duty drawback scheme and 40% use the individual duty drawback scheme. Some of them use both schemes—those allowed to use the simplified fixed-rate duty drawback scheme may also use the individual duty drawback scheme.



Analysis of the Duty Drawback System and Its Effects

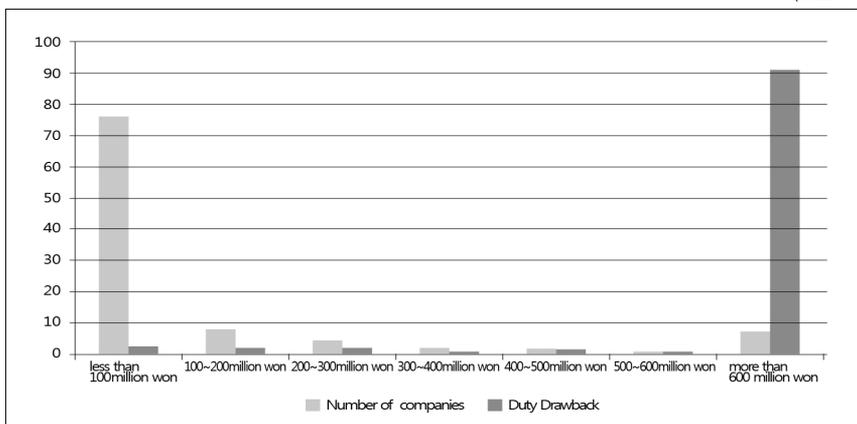
1 Statistical Analysis of Duty Drawbacks Data

A. Statistical Analysis by Business Size

As of 2013, companies that claimed less than 100 million won in drawbacks each accounted for 76% of all businesses that benefited from the individual duty drawback scheme, forming a majority of the beneficiaries. These companies constitute an absolute majority of the number of beneficiaries, but their share in the total amount of drawbacks provided is a meager 2.3 percent.

[Figure III-1] Amounts of Individual Drawbacks Claimed by Businesses

(Unit: %)



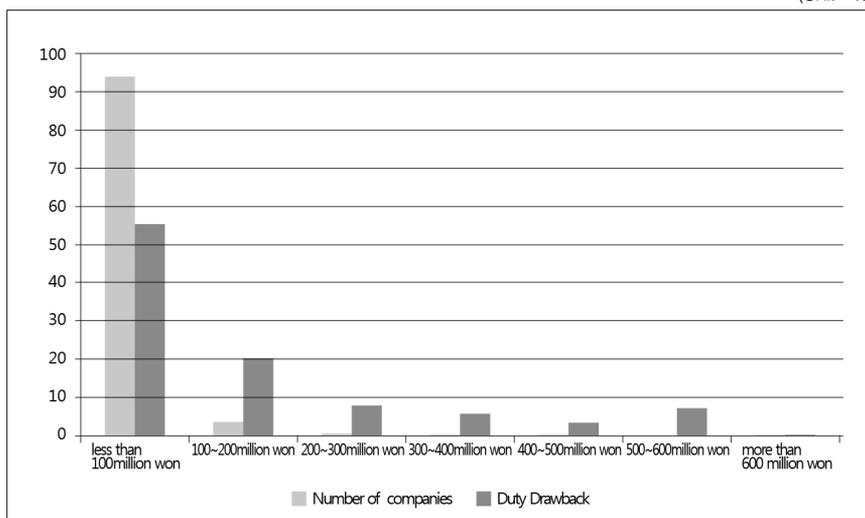
Most (91 percent) of the total amount of individual drawbacks went to those claiming more than 600 million won each.

As the vast majority of the exporters who benefited from the individual duty drawbacks scheme account for less than 100 million of the total amount of drawbacks provided, approximately 95% of the beneficiaries of the simplified fixed-rate duty drawback scheme received less than 100 million won each for their claims. Even though those paid less than 100 million of drawbacks form the majority of the total number of benefitting businesses, their share in the total amount of drawbacks accounts for only 56 percent. This is because the relatively small number of exporters who received more than 100 million won each has claimed relatively large amounts of drawbacks.

The majority of companies benefiting from both individual and fixed-rate duty drawbacks claimed less than 100 million won each. As of 2013, about 95% of the fixed-rate duty drawbacks beneficiaries and 76% of the individual duty drawbacks beneficiaries claimed less than 100 million won of duty drawbacks each.

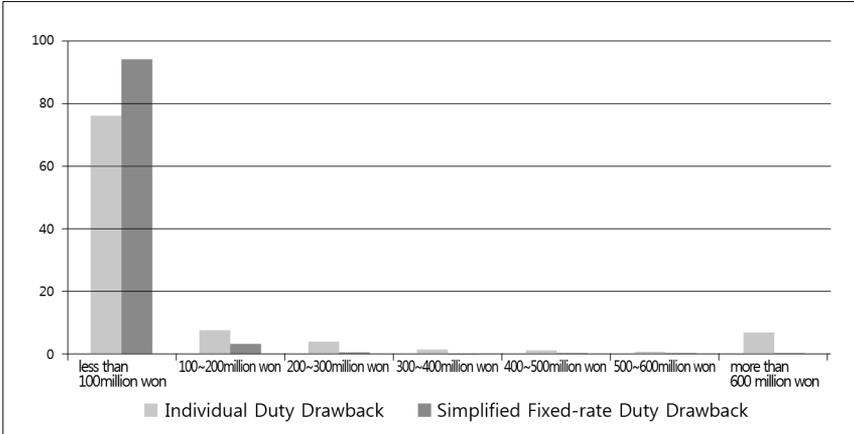
[Figure III-2] Amounts of Simplified Fixed-rate Drawbacks Claimed by Businesses (2013)

(Unit: %)



[Figure III-3] Distribution of Individual and Fixed-rate Duty Drawbacks by Claimed Amount (2013)

(Unit: %)



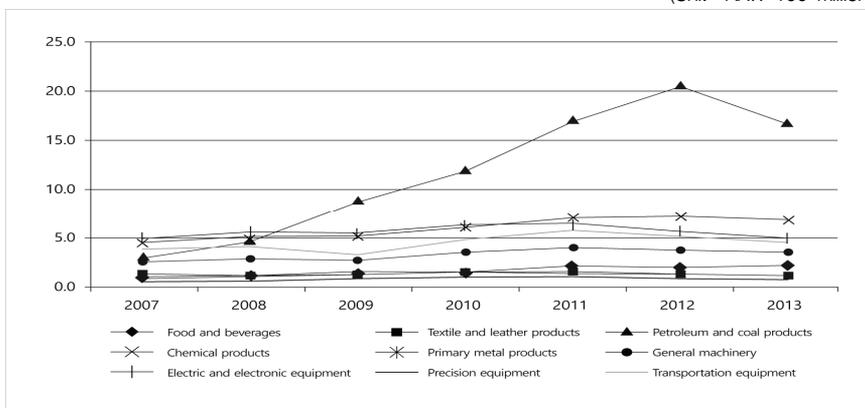
B. Analysis of the Trends in Duty Drawbacks by Industry

We looked into drawbacks payment trends by industry for individual and simplified fixed-rate duty drawback. The total amounts of drawbacks provided barely exceeded 2 trillion won from early 2000 to 2007. Since then, however, the amounts have multiplied, reaching 5 trillion won in 2012. In order to analyze the root cause of this rapid growth, we reviewed the trends of drawbacks claims by industry.

We first examined the trend in drawbacks claimed by industries receiving individual duty drawbacks of more than 100 billion won each. As you can see in Figure III-4 below, the petroleum and coal industries saw dramatic growth in their amounts of drawbacks. Since Korea’s coal export industry is practically nonexistent, we can deduce that the increase in the amount of individual duty drawbacks in the petroleum product industry explains the overall rise in the total drawback amount. The amount of individual duty drawbacks for the petroleum product industry stood at 280 billion won in 2007 and surpassed 2 trillion won in 2012, growing by almost 1.7 trillion over five years.

[Figure III-4] Trends in the Amounts of Individual Duty Drawbacks by Industry

(Unit: KRW 100 million)



Over the same period, the amount of individual drawbacks surged by more than about 200 billion in the chemical products industry, and also by 100 billion in the general machinery, transportation equipment, and electric and electronic equipment industries each.

Growth in individual duty drawback amounts in the petroleum and coal industries can be attributed to the rise in exports from these industries. The growing exports of transportation and electric and electronic equipment stand out. The increase in the amount of individual duty drawbacks for these industries may not be as dramatic as the increase in the volumes of exports from these industries because the Korean government applies different drawback rates to different industries, depending on the quantities of duty-levied raw materials used.

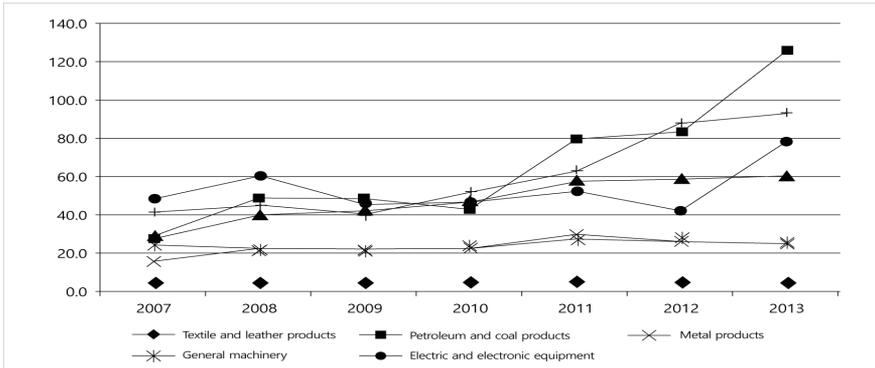
For analyzing the amount of simplified fixed-rate duty drawbacks, we examined only those industries that claimed more than 10 billion won in drawbacks each. This is because the total amount of simplified fixed-rate duty drawbacks is smaller than that of the individual duty drawbacks.

A significant increase in the amount of simplified fixed-rate duty drawbacks was evident in the general machinery industry. The amount more than doubled from about 30 billion won in 2007 to approximately 67 billion

won in 2012, placing the industry on top of the list of industries that saw the biggest increase in the amount of simplified fixed-rate duty drawbacks. Other industries showing growth in terms of the amount of simplified fixed-rate duty drawbacks they received include the electric and electronic equipment, chemical product, and textile and leather industries, whose drawbacks increased by 20 billion won over the same period.

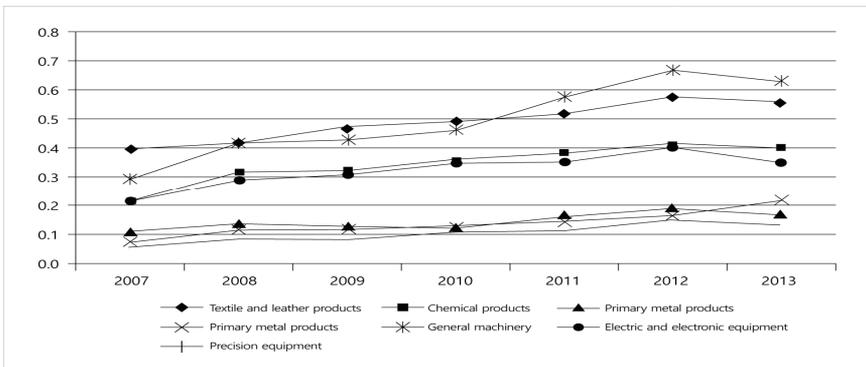
[Figure III-5] Trend in the Export Volumes and the Amounts of Individual Drawbacks by Industry

(Unit: KRW 1 trillion)



[Figure III-6] Trends in the Amounts of Simplified Fixed-Rate Duty Drawbacks by Industry

(Unit: KRW 100 billion)



Consequently, the amount of simplified fixed-rate duty drawbacks has risen since 2007, but the increase is relatively small compared with the growth of the amount of individual duty drawbacks. Therefore, our analysis reveals that the growing amount of individual duty drawbacks has been responsible for the rise in the amount of duty drawbacks in general in Korea since 2007. In particular, the rise in the amount of individual duty drawbacks for petroleum products emerged as the main contributor to the increase.

2 The Effect of Duty Drawbacks on Exports

In this section, we will turn to the statistical data on duty drawbacks from the Korea Customs Service to estimate the effect of the duty drawback system on promoting exports. We will then discuss its implications for future policy based on the empirical analysis.

The information used in this empirical analysis includes the amounts of individual duty drawbacks, the amounts of simplified fixed-rate duty drawbacks, the amounts of exports, the amounts of customs duties levied on imported raw materials, and other statistics concerning the period from 2001 to 2012. Based on the duty drawbacks statistics, we estimate and evaluate the effect of the duty drawback system on exports, by drawback type, industry and business category.

A. Analysis of the Effects of Duty Drawbacks on Exports by Drawback type and Industry

In the case of fixed-amount drawbacks, only small companies are eligible for the benefit. Therefore, in determining the type of duty drawbacks to be applied, unobserved attributes of exporters should be considered. This means that the effect of duty drawbacks on exports can vary depending on the given drawback type and also from industry to industry. For example, in the case of individual duty drawbacks, the petroleum industry is the biggest beneficiary in terms of the amount of drawbacks provided, while the metal product industry receives the largest amount of fixed-rate drawbacks.

A central hypothesis that this study seeks to test is stated below:

- If duty drawbacks help exporting companies reduce the tariff cost, they will enhance these companies' competitiveness as exporters.

In order to test this hypothesis, it is critical to control for various factors which may influence exports. In particular, if we fail to properly control for the impact of FTAs on exports, the effect of the duty drawbacks on exports might be exaggerated due to the omitted variable bias. Thanks to the increasing number of FTAs, the duty rates on raw materials for Korea's exporting businesses have declined steadily and this will eventually influence exports. In order to take the impact of FTAs into account, we used tariff rates as a control variable.²⁾

The given duty drawback scheme and tariff rates are major factors affecting exports. We thus define exports as a function of duty drawbacks and tariff rates, using the following linear regression equation:

$$\ln(\exp_{it}) = c + \beta_1 \ln(\text{ref}_{it}) + \beta_2 \ln(\text{tr}_{it}) + m_i + t_t + m_i t + \epsilon_{it} \quad \text{Equation (1)}$$

Dependent variables and major explanatory variables are defined as follows:

- $\ln(\exp_{it})$: log value of the amount of exports (unit: million won) for firm i in year t
- $\ln(\text{ref}_{it})$: log value of the duty amount of drawbacks (unit: million won) for firm i in year t
- $\ln(\text{tr}_{it})$: log value of the tariff rate (%) for firm i in year t
- m_i : unobservable firm's fixed effect for firm i
- t_t : t year dummies (time effects)

2) For the purpose of this study, the most ideal effective tariff rate variable should be calculated by dividing each exporter's paid duty by the import amount for raw materials that will be used for overseas consumption, but such data does not exist. Therefore, this study defines as "tariff rate" the amount calculated by dividing the duty each exporter paid by the total import amount and using this tariff rate as a proxy variable of the effective tariff rate. Since the duty reduction caused by FTAs is a reflected in this proxy variable, we conclude that this is an adequate variable for controlling the FTA effect.

- m_{it} : firm-specific time trends for firm i
- ϵ_{it} : errors

Generally, exporters' export values can be influenced not only by the given drawback type and tariff rates, but also by other factors, including exporters' unobserved attributes. If such factors are not properly controlled, the effect of duty drawbacks on exports can be overestimated due to the omitted variable bias. Duty drawbacks statistics used for this analysis are panel data gathered in the years 2001 through 2012, and the panel data are very useful (unlike a regression analysis with cross-sectional data) in controlling each exporter's time-invarying unobserved attributes, which may influence export values.³⁾

The panel data therefore help us reduce the omitted variable bias and enhance the validity of the regression analysis result. However, it is not easy to eliminate any and all chances of the omitted variable bias in an empirical analysis. In addressing this fact, this research additionally controls for the firm-specific time trends that each exporter experiences. Due to an exporter's unobserved attributes, its export value trends can vary over time. It is expected that such an approach can help reduce estimation bias. Finally, to control the effect of a macroscopic variable that might influence exports, we use year dummy variables as proxy variables.

To estimate the effect of drawbacks on exports, we use our linear regression Equation (1) as follows:⁴⁾

- First difference the Equation (1) to remove fixed unobserved attributes of an exporter.
- Apply the fixed effect estimation method to the first-differenced equation to estimate parameters of each explanatory variable.

3) In the model, this is referred to as fixed effects

4) See Wooldridge (2013, p. 357) for detail on the model

This regression analysis model is commonly referred to as a random growth model, and it is mainly characterized by its additional consideration of each exporter's heterogeneity.

A linear regression equation takes the form of a "log-log," and the parameters of the amount of duty drawbacks and tariff rates, which constitute its major explanatory variables, indicate elasticity.

The effect of duty drawbacks on exports by drawback type is explained in the table below. The first and third columns show the result of regression analysis based on the general fixed effect model, while the second and fourth columns indicate regression analysis results based on the random growth model (RGM).⁵⁾

1) Analysis of Effect on Exports by Drawback Type

In the following regression analysis of individual duty drawbacks, the elasticity of drawbacks has a range of 0.847 to 0.870. When a firm's specific time trends are considered, we can see a slight drop in elasticity. This slight decline in a firm's specific time trends implies that the amount of exports growth rate can be different as a result of an exporter's unobserved attributes and that omitted-variable bias will be reduced if these are reflected in the model. Therefore, we would like to interpret the regression analysis result mainly on the basis of an estimated figure from the random growth model. When we look at the second column, elasticity stands at 0.856, which indicates that 10 percent of the amount of drawbacks increase is associated with 8.6 percent of the export amount. The elasticity of exports against the tariff rate comes to -0.06 , which implies that the 10-percent decrease in the tariff rates is associated with the 0.6-percent increase in the export amount. In the last row, the one-year lag variable of explanatory variables is included to understand the residual effects of the duty drawback amount. Regarding the amount of individual duty

5) We performed a regression analysis based on a fixed effects model and a random growth model by duty drawback type. The biggest difference between these two models is whether firm-specific time trends are taken into consideration. This is because we need to review whether elasticity changes depending on a consideration of firm-specific time trends

drawbacks, the effect on export looks statistically meaningful for the corresponding year, while the tariff rate remains statistically meaningful for the following year after the elapse of a year. Tariff rate elasticity becomes lower as time goes by and this means that tariff rates lose their effect on exports over time. In addition, the elasticity of the tariff rate for two years is -0.147 , which illustrates that a 10 percent tariff rate drop is associated with a 1.4 percent increase in the amount of exports for the two year period.

In the result for simplified fixed-rate duty drawbacks, the elasticity of the amount of drawbacks to the export value ranges from 0.835 to 0.887. This range is slightly lower than that of the individual drawbacks returns. As in the case of individual duty drawbacks, the regression analysis results in the

〈Table III-1〉 Regression Analysis Results: Individual Duty Drawbacks

Explanatory variable	(1) FE Ln(export amount)	(2) RGM Ln(export amount)	(3) FE Ln(export amount)	(4) RGM Ln(export amount)
Ln(duty drawback amount)	0.870*** (0.015)	0.856*** (0.019)	0.864*** (0.015)	0.847*** (0.013)
Ln(duty drawback amount) t-1			0.009 (0.007)	-0.008 (0.009)
Ln(tariff rate)	-0.185*** (0.050)	-0.059*** (0.018)	-0.123*** (0.029)	-0.076*** (0.020)
Ln(tariff rate) t-1			-0.142*** (0.025)	-0.070*** (0.018)
Constant	4.656*** (0.057)	0.019*** (0.002)	0.000 (0.000)	0.020*** (0.001)
Number of samples	10,792	9,889	9,889	8,987
Exporters' FE	Yes	Yes	Yes	Yes
Annual dummy variable	Yes	Yes	Yes	Yes
Residual effects	No	No	Yes	Yes
Firm-specific time trends	No	Yes	No	Yes

Notes: 1. Figures in the parentheses indicate the Drisc/Kraay robust standard errors
2. *** p<0.01, ** p<0.05, * p<0.1

second and the fourth column show the elasticity of export hovering at 0.886, implying that a 10-percent increase in the amount of drawbacks is associated with an increase of 8.9 percent in the export amount. Regression analysis of the individual duty drawbacks showed that tariff rates were statistically significant, but this is not the case with simplified fixed-rate duty drawbacks. This situation clearly demonstrates the actual nature of the duty drawback system. In the case of individual duty drawbacks, a tariff rate drop resulting from FTAs affects the amount on imported raw materials, consequently affecting the drawback amount. Yet in the case of the simplified fixed-rate duty drawbacks, the amount of drawbacks was determined regardless of tariff rates. This means there is a strong possibility that excessive simplified fixed-rate duty drawbacks will likely be claimed as a result of FTAs.

〈Table III-2〉 Regression Analysis Results: Simplified Fixed-rate Duty Drawbacks

Explanatory variable	(1) FE Ln(export amount)	(2) RGM Ln(export amount)	(3) FE Ln(export amount)	(4) RGM Ln(export amount)
Ln(duty drawback amount)	0.835 ^{***} (0.018)	0.886 ^{***} (0.016)	0.859 ^{***} (0.022)	0.887 ^{***} (0.012)
Ln(duty drawback amount) t-1			-0.044 ^{***} (0.008)	-0.029 ^{***} (0.0048)
Ln(tariff rate)	-0.033 ^{***} (0.008)	-0.003 (0.003)	-0.027 ^{***} (0.007)	-0.003 (0.003)
Ln(tariff rate) t-1			-0.019 ^{**} (0.006)	-0.003 (0.004)
Constant	7.496 ^{***} (0.293)	0.003 ^{***} (0.0004)	0.000 (0.000)	-0.0007 (0.001)
Number of samples	6,031	5,440	5,440	4,874
Exporters' FE	515	515	515	515
Annual dummy variable	Yes	Yes	Yes	Yes
Residual effects	No	No	Yes	Yes
Firm-specific time trends	No	Yes	No	Yes

Notes: 1. Figures in the parentheses indicate the Drisc/Kraay robust standard errors.
2. *** p<0.01, ** p<0.05, * p<0.1.

2) Analysis of the Effect of Duty Drawbacks on Exports by Industry

Next, we estimated the effect of individual and simplified fixed-rate duty drawbacks by industry by using the most generic model, the random growth model or RGM, with a focus on the industries that have relatively larger drawbacks totals and larger numbers of exporters. This empirical analysis makes use of partial samples divided by industry to estimate the industry-specific effects of duty drawbacks and tariff rates on exports.

When we look at the effect of individual duty drawbacks on exports by industry, the overall elasticity of exports ranges from 0.578 to 0.963 and the highest figure for elasticity is recorded for the electric and electronic equipment industry with 0.963. This means that the amount of exports would increase by 9.6% under the same conditions when duty drawbacks increase by 10%. Elasticity of the petroleum and coal products and transportation equipment industries, which boast the largest export value and duty drawbacks returns, stands at 0.578 and 0.879, respectively. Note that the effects of duty drawbacks on exports in the petroleum and coal industry are significantly smaller than those of other industries. As we discussed in the analysis of statistics by industry, the amount of duty drawbacks for the petroleum products industry is several times bigger than those for other industries. More products are manufactured for overseas consumption than for domestic consumption using petroleum, which is sourced solely through imports. A substantially smaller effect of duty drawbacks on export promotion in the petroleum product industry under these circumstances suggests that the duty drawback scheme is being managed less efficiently in this industry than in others.

The statistical significance of changes in tariff rates is evident in the textile and leather, electric and electronic equipment, and transportation equipment industries. In particular, since tariff rates are high for the electric and electronic equipment industry and transportation equipment industry, there is a need to encourage the utilization of FTAs in order to foster the exports of products of these industries. Residual effects of tariff rates were also evident in the textile and leather industry. The two-year elasticity of tariff rates reflects the residual effect and stands at -0.279, which indicates that a 10 percent drop in tariff rates is associated with a 2.8 percent export growth over the two years.

Regression analysis of the simplified fixed-rate duty drawback scheme indicates that its effect on export promotion is the greatest with respect to the primary metal industry. Elasticity of this industry's exports ranges from 0.875 to 0.925, and it is relatively greater than the effect of the individual duty drawbacks, except in the cases of the electric and electronic equipment and the transportation equipment industries. Considering the fact that only SMEs are eligible for the simplified fixed-rate duty drawback scheme, it seems that the scheme plays a positive role in promoting exports of smaller businesses. However, it turns out that the effect of the individual drawback scheme is larger than that of the fixed-rate scheme in the electric and electronic equipment and transportation equipment industries, which mark deviations from the rule for other industries.

In the case of the fixed-rate scheme, we could not find statistically significant export-promoting effects that applied to all industries. This is because a fixed duty drawbacks is paid regardless of raw materials' tariff rates, as discussed in the previous analysis. The same held true even when we analyzed the effects of the fixed-rate scheme on exports industry by industry. Therefore, it makes more sense from a policy perspective to restrict the eligibility of the

〈Table III-3〉 Elasticity of Exports by Duty Drawback Type and Industry

Industry	Individual duty drawbacks	Simplified fixed-rate duty drawbacks
Food and beverages	0.800	—
Textile and leather products	0.848	0.925
Petroleum and coal products	0.578	—
Chemical products	0.827	0.910
primary metal products	0.795	0.997
Metal products	0.804	0.925
General machinery	—	0.909
Electric and electronic equipment	0.963	0.875
Precision equipment	0.881	0.914
Transportation equipment	0.807	0.802

simplified fixed-rate duty drawback scheme to SMEs, rather than extending it to all industries and thereby encourage claims of excessive drawbacks.

B. Analysis of Effects of Duty Drawbacks on Exports by Business Category

The regression analysis above concerns the average effect of duty drawbacks payments on exports. However, their effect can vary depending on the amount of exports at stake. In other words, if the amount of exports increases, the effect of duty drawbacks on exports may vary. To test this hypothesis, we evaluated how the elasticity of the amount of duty drawbacks changes with increases in the sample quantile of an export value. This is commonly called quantile regression analysis and its biggest advantage is its ability to analyze the distributional change of the export amount, which is not possible with a linear regression analysis using the ordinary least square (OLS) method.⁶⁾ We will go into details regarding this advantage based on the analysis results. The linear regression equation that we used for our quantile regression analysis is as follows:

$$\ln(\text{exp}_{it})^p = \epsilon^p + \beta_1^p \ln(\text{ref}_{it}) + \beta_2^p \ln(\text{tr}_{it}) + m_i^p + t_t^p + \epsilon_{it}^p \quad \text{Equation (2)}$$

Dependent variables and explanatory variables are defined as follows:

- $\ln(\text{exp}_{it})$: log value of the amount of exports (unit: million won) for firm i in year t
- $\ln(\text{ref}_{it})$: log value of the duty amount of drawbacks for firm i in year t
- $\ln(\text{tr}_{it})$: log value of the tariff rate (%) for firm i in year t
- m_i : unobservable firm's fixed effect
- t_t : t year dummies (time effects)
- ϵ_{it} : errors

6) For an understanding of our research approach, see Hodge et al. (2013), McMillen (2013a), McMillen (2013b), McMillen (2012), and Hao and Naiman (2007), all of which also employ approaches similar to the one used here

p in the linear regression Equation (2) refers to a conditional quantile. The conditional quantile is what differentiates the quantile regression analysis from the generic linear regression analysis. For our analysis, we estimated the effect on exports per each quantile of export amount using the quantile regression method. In addition, we seek to closely review the effect on export and distribution of the amount of exports in relation to the duty drawback amount, which is also an effect that cannot be analyzed using linear regression analysis (OLS).⁷⁾

The process of analysis involving Equation (2) is as follows. Run the quantile regression for each conditional quantile $p=[0.02, 0.03, \dots, 0.98]$ and calculate the kernel density of businesses per quantile per year using the 97 estimated amounts of exports from the businesses included in each year.

Then, we estimate the kernel density function in relation to the changes in the duty amount of drawbacks and examine changes in the average value and distributional change of the amount of exports resulting from the changes in the duty drawback amount. In this process, we estimate the time average variables of the explanatory variables and include them into our linear regression equation so as to take into account the unobserved time-invariant attributes of exporting businesses.

First, let us examine how the elasticity of the amount of simplified fixed-rate duty drawbacks changes along with changes in the sample quantiles. As shown in the figure below, the elasticity of the duty drawback amount to exports declines with an increase in the sample quantiles. This means that the effect of duty drawbacks on exports becomes smaller as the amount of exports increases. In other words, this suggests that, given the same amount of increase in the amount of drawbacks, businesses that have been exporting smaller volumes of goods until then would benefit more from that change than larger exporters would.

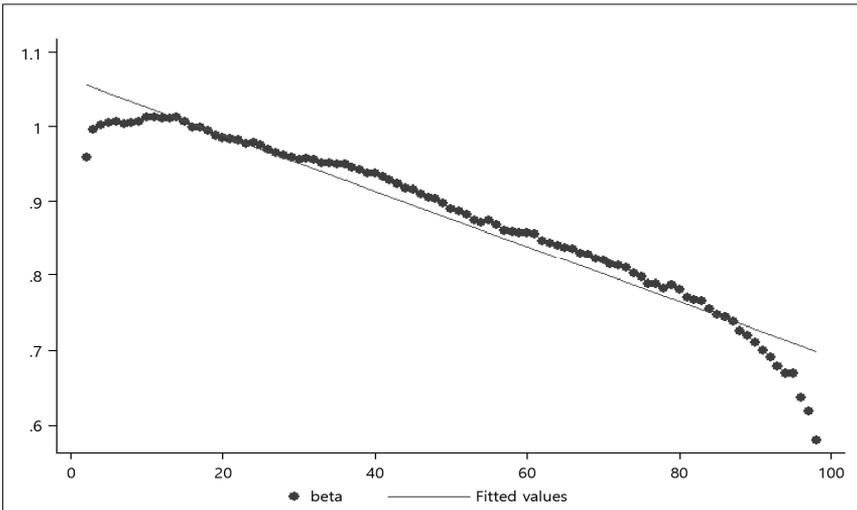
The same pattern is noted with respect to simplified fixed-rate duty drawbacks as well. However, the margin by which the marginal export-promoting

7) Firm-specific time trends of exporters are not reflected in Equation (2), but we will consider them in future research

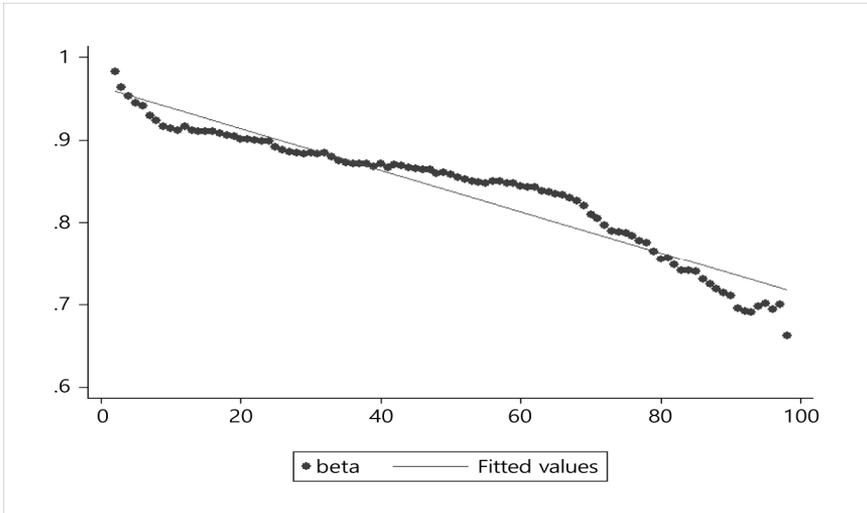
effect declines in response to the increase in the amount of simplified fixed-rate duty drawbacks is smaller than is the case with individual drawbacks. A decline in the effect of duty drawbacks on export promotion for those with larger export values was witnessed in the case of both individual and simple fixed-rate duty drawbacks. In particular, with simplified fixed-rate duty drawbacks, the effect drastically dwindles beginning with the 70th quantile and above. This is a very interesting finding that warrants further research, as it may help us decide the scope of potential beneficiaries to be included in the simplified fixed-rate duty drawback scheme.

In the case of simplified fixed-rate duty drawbacks, the amount of drawbacks serves as a baseline for determining the scope of exporters to benefit from the scheme. Since 2010, eligibility for this scheme has been raised to “up to 600 million or less,” with debates continuing over increasing the scope of beneficiaries even further. We therefore need to understand how the changing amounts of drawbacks would affect exports and the distribution of amounts of exports, thus finding policy implications for whether or not to expand the scope

[Figure III-7] Elasticity of Amounts of Drawbacks to Amounts of Exports:
Individual Duty Drawbacks



[Figure III-8] Elasticity of Amounts of Drawbacks to Amounts of Exports:
Simplified Fixed-rate Duty Drawbacks



$$E(\ln(\text{exp})|X, \ln x = \gamma_0) = \hat{c} + \hat{\beta}_1 \gamma_0 + \hat{\beta}_2 \ln(tr) \quad \text{Equation (3)}$$

$$E(\ln(\text{exp})|X, \ln x = \gamma_1) = \hat{c} + \hat{\beta}_1 \gamma_1 + \hat{\beta}_2 \ln(tr) \quad \text{Equation (4)}$$

of the scheme's beneficiaries. Before we proceed, let us first look at the two equations below:

If elasticity ($\hat{\beta}_1$) is larger than 0, the estimated amount of exports would move to the right by $\hat{\beta}_1(r_1 - r_0)$. If elasticity ($\hat{\beta}_1$) is smaller than 0, the result would be opposite. The distribution of the amounts of exports in response to changes in the amounts of drawbacks shows that the distribution of export-promoting effects and amounts of exports change depending on the drawback scheme and amount. In terms of individual drawbacks, the distribution of the amounts of exports by businesses receiving less than 100 million won in drawbacks each per year is found over a relatively wider range. Now, when we shift our focus to businesses receiving between 100 million and 200 million won in drawbacks each per year, the distribution of the amounts of exports moves toward the right, but its range narrows down around the average value.

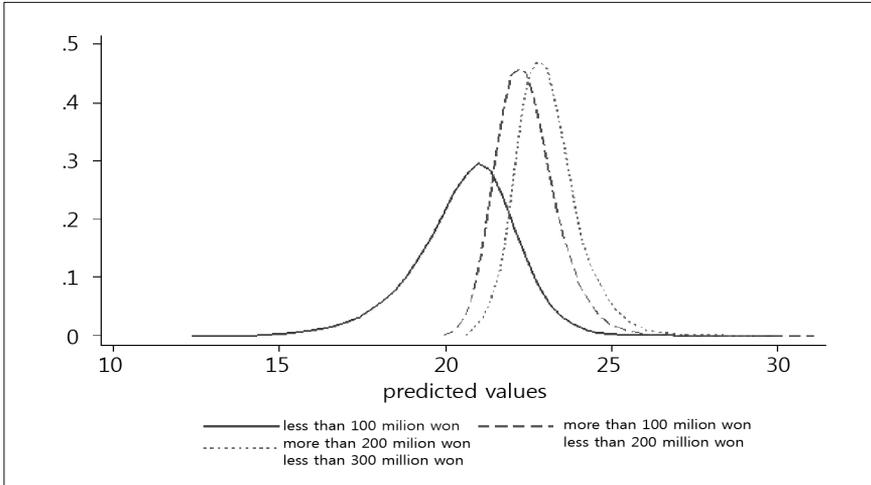
This indicates that, as the duty amount of drawbacks increases, the margin of change in the amount of exports becomes smaller. However, we can see that the exporters whose duty amounts of drawbacks stand at more than 600 million won each a year are those involved in the petroleum and coal industry, and their amounts of exports are widely distributed as is the case with exporters receiving less than 100 million won in duty drawbacks each a year.

When we look at the rightward movement of the average amount of exports with the increase of duty drawbacks, (1) the rightward movement is largest for the group with a duty amount of drawbacks ranging from more than 100 million won to less than 200 million won, and, (2) as the duty amount of drawbacks becomes larger, the rightward movement becomes smaller from one group to another. This indicates that the elasticity of export decreases as the amount of drawbacks increases.

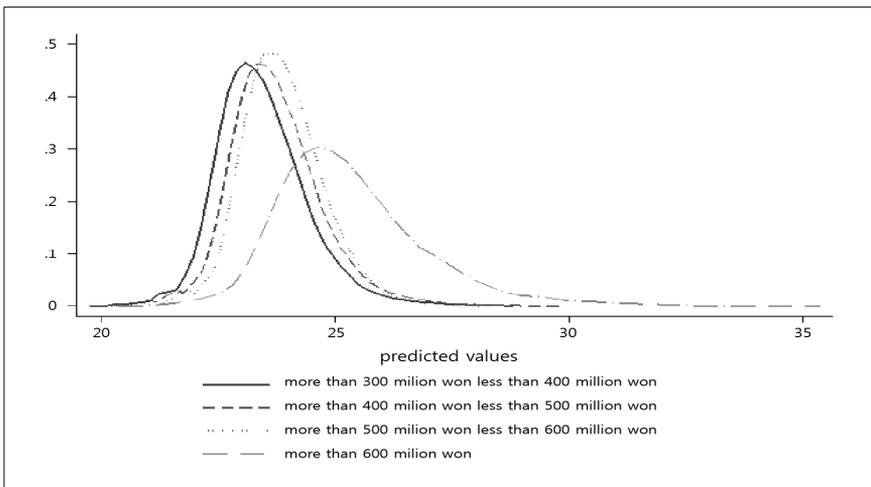
Turning now to our regression analysis results for simplified fixed-rate duty drawbacks, a similar result was observed with the simplified fixed-rate duty drawback. However, the amount of exports distribution was relatively more dynamic for exporters whose duty amount of drawbacks is higher than 300 million. In addition, with an increase of the duty drawback amount, the rightward movement of the estimated average amount of exports becomes smaller from one group to another. This is more clearly witnessed in the groups with more than 100 million of duty drawbacks than those with less than 100 million.

What this empirical analysis result hints at is that we need to be more cautious in expanding the beneficiaries of the simplified fixed-rate duty drawback scheme. For exporters that claim larger duty amounts of drawbacks, the effect on exports driven by simplified fixed-rate duty drawbacks is smaller, but it is more likely that excessive duty drawbacks will be paid due to the intrinsic nature of the scheme. This therefore makes it more difficult to justify the expansion of the scheme. If the beneficiaries of the simplified fixed-rate duty drawback scheme are expanded, it will generate more harm than good due to the larger cost incurred by duty drawbacks payments. It will consequently damage the efficiency of the duty drawback system.

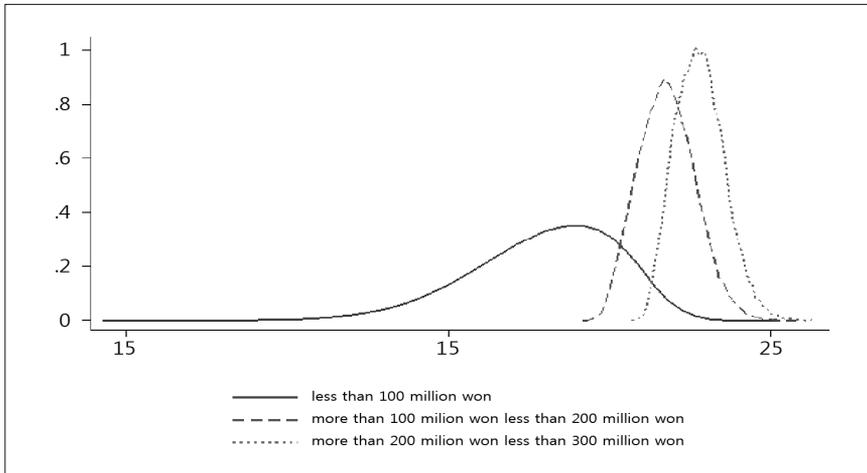
**[Figure III-9] Effect of Amounts of Drawbacks on Export Amounts:
For Businesses Collecting Less than 300 Million Won in Individual
Drawbacks**



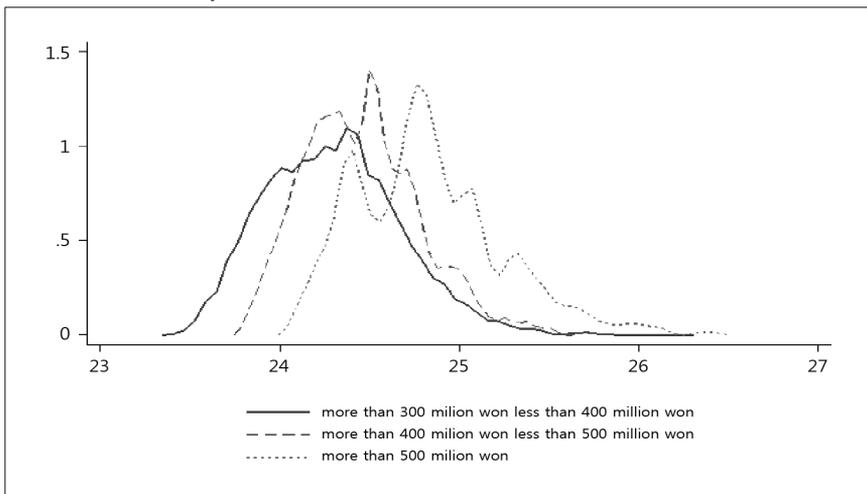
**[Figure III-10] Effect of Amounts of Drawbacks on Export Amounts:
For Businesses Collecting 300 Million Won or More in Individual
Drawbacks**



**[Figure III-11] Effect of Amounts of Drawbacks on Export Amounts:
For Businesses Collecting Less than 300 Million Won in Simplified
Fixed-Rate Drawbacks**



**[Figure III-12] Effect of Amounts of Drawbacks on Export Amounts:
For Businesses Collecting 300 Million to 600 Million Won in Simplified
Fixed-Rate Drawbacks**



C. Shortcomings of Empirical Analysis

The regression analysis has some limits. The most pressing one is the problem of simultaneity between exports and duty drawbacks. Exports may increase due to duty drawbacks, while in turn the amount of duty drawbacks may be affected by an increase in exports. To solve this problem, instrumental variables that are closely related to duty drawbacks but that do not affect exports are necessary. Unfortunately, however, such instrumental variables were not available for this study. It would be worthwhile in future research to devise and test such instrumental variables to solve this problem.

D. Section Conclusion

The previous section addressed what impact duty drawbacks has on exports and how the duty amount of drawbacks affects exports and amounts of exports. The findings can be summarized as follows.

First, the elasticity of export under the individual duty drawback scheme ranged from around 0.847 to 0.870, and under the simplified fixed-rate duty drawback scheme it ranged from 0.835 to 0.887. The elasticity of exports under simplified fixed-rate duty drawbacks (0.887) was slightly larger. This means that the export marginal effects of the simplified fixed-rate duty amount of drawbacks are relatively larger than those of the individual duty drawback amount. Also, the elasticity of the amount of drawbacks to amount of exports was found to decline as the quantile increased, which means the export marginal effects of duty drawbacks become smaller as the amount of export increases.

The export elasticity of drawbacks by industry ranged from 0.578 to 0.963 under the individual duty drawback scheme, with the electric and electronics industry showing the highest and the petroleum and coal industry the lowest. Under the simplified fixed-rate duty drawback scheme, the elasticity ranged from 0.802 to 0.997, with the metal industry showing the highest with the transport equipment industry the lowest. The elasticity under the simplified fixed-rate duty drawback scheme, save for the electric/electronics and transport equipment industries, was relatively higher than elasticity under the individual duty drawback scheme, which means that the duty drawback system is playing

a positive role in supporting SMEs' exports.

The analysis on tariff rates shows that the effects on exports in the electric/electronics and transport equipment industries, where tariff rates are relatively higher, were the highest under the individual duty drawback system. Therefore, it is necessary to encourage exporters to take advantage of FTAs in the context of promoting exports in the electric/electronics and transport equipment industries. Meanwhile, in the case of simplified fixed-rate duty drawback scheme, it seems that tariff rates have no effect on exports. This is probably because the amount of simplified fixed-rate duty drawbacks is determined regardless of tariff rates.

According to the results of analyzing the duty drawbacks scale, the amount of exports of companies whose return amount is no more than 100 million won shows a wide distribution regardless of the type of duty drawback system. On average, the greater the return amount, the slower the increase in the export amount. This means that the larger the return amount, the larger the export amount, but a larger return amount also means a smaller export marginal effect. In the case of the simplified fixed-rate duty drawback amount, the larger the return amount, the smaller the export marginal effect. This is a lot more noticeable for companies whose return amount is 100 million won or over.

The empirical analysis of this study served as a foundation from which to draw policy implications. It points to two key policy directions. First, it would be undesirable to expand the scope of companies subject to the simplified fixed-rate duty drawback scheme. The simplified fixed-rate duty drawback scheme is only for SMEs satisfying certain conditions, but there have been continuous discussions focused on expanding the scope of eligibility for this scheme. However, this study shows that the larger the duty drawback amount, the smaller the export effects and the higher the likelihood of excessive refunds. So, if the scope of eligibility for the simplified fixed-rate duty drawback scheme is expanded, the scheme will likely become more inefficient.

Second, it is worth considering a bonded area system for the petroleum and coal industry as part of an advance duty exemption system. The duty amount of drawbacks in the petroleum and coal industry is much larger than that of other industries, but the export marginal effects of the industry are much smaller compared with other industries. Therefore, the petroleum and coal industry would

be a prime candidate for an advance duty exemption system, as this would reduce inefficiency in duty drawback. Reduced inefficiency relating to duty drawbacks also would have a positive impact on the exports of petroleum and coal products.

IV

Measures for Improving the Duty Drawback System

1 FTAs and the Issue of Substitution Drawbacks

A. FTAs and Individual Duty Drawbacks

With the number of FTAs entered by Korea on rise, the duty burden for imported raw materials is decreasing and the duty drawbacks for export goods made from those materials is expected to decline as a result. If raw materials are imported duty-free under an FTA, the exporter does not need to apply for duty drawbacks for the products he makes with those materials, and therefore would avoid spending the administrative cost of filing drawback claims.

At present, nevertheless, the multiplication of FTAs to which Korea is a party continues to complicate the duty drawback system in the country. Let us assume that a company imports raw materials and produces finished products. It supplies some of the finished products for domestic consumption and exports the rest overseas. This company imports some of the relevant raw materials duty-free under an FTA, but other materials by paying duties on them. Let us suppose that our company imports the same kind of raw materials, of the same quality, from different countries, with Korea being a party to FTAs with only some of these countries.

In this scenario, the company in question may want to use materials for which it paid duties in manufacturing goods for exports only, angling for duty drawbacks in return, while using the materials it imported duty-free to manufacture goods for domestic consumption. In this way, the company can

reduce its tax burden. Even if the company in question were to have no temptation to do so, it is technically very difficult for companies to sort and strictly divide between which materials—of the same type and quality—are to be used for manufacturing export goods and which for manufacturing goods for domestic consumption.

In the interest of equity of taxation, the tax authorities, on the other hand, would naturally want to monitor and ensure the accurate distribution of the tax burdens on imported raw materials that are used to manufacture goods for both exports and domestic consumption. If the company in question seeks to minimize its tax burden by confining the use of high-duty materials to manufacturing goods for exports and the use of duty-free materials to manufacturing goods for domestic consumption, the tax authorities may suspect that the company is filing for excessive duty drawbacks (and, by implication, unfair or even illegal financial gains).

This practice is prevalent among businesses and industries in Korea. Numerous companies in Korea produce goods for both domestic consumption and exports and imports raw materials from multiple countries worldwide. These Korean manufacturers also mix and combine raw materials of various origins in manufacturing goods for both domestic consumption and exports.

B. Domestic Raw Materials and Substitution Drawback

Prior to the dawn of the boom of FTAs, substitution drawbacks formed a major issue facing the tax authorities. This occurred when a manufacturer imported raw materials, but then substituted raw materials procured domestically for the imported ones in manufacturing goods for exports and ended up filing drawback claims on the domestically procured raw materials used. The Act on Special Cases Concerning the Refund of Customs Duties, Etc. Levied on Raw Materials for Export provides that, if raw materials produced domestically, of the same quality and characteristics as that of imported raw materials, are used along with imported raw materials interchangeably in the production of goods for exports, then the domestically produced raw materials should also be eligible for duty drawbacks along with the imported ones that were used together.

The Act recognizes substitution drawbacks as is the custom of the

international law. The International Convention on the Simplification and Harmonization of Customs Procedures (the “Kyoto Convention”) and the WTO Agreement on Subsidies and Countervailing Measures (SCM) require signatory governments to recognize substitution between imported raw materials and domestically procured ones, mutually interchangeable because they share the same qualities and characteristics, as lawful.

The SCM sets forth that, if any amount of duty drawbacks provided exceeds the amount of the original duties levied on the given raw materials, such drawbacks shall be seen as constituting export subsidies. The SCM, however, recognizes substitution drawbacks in the case of domestically produced raw materials that are used in manufacturing interchangeably with imported ones of the same qualities and characteristics, and also requires domestic legislations to recognize substitution drawbacks likewise. As a member of the WTO, Korea has accordingly inserted the relevant provision into the Act on Special Cases Concerning the Refund of Customs Duties, Etc. Levied on Raw Materials for Export.

There are several reasons the international law explicitly recognizes substitution drawbacks. For one, there are not many cases where a raw material domestically produced has the same quality and characteristics as that of an imported raw material, and also it is assumed that if a raw material of the desired quality and characteristics were domestically available, manufacturers would use it instead of importing materials from overseas. Manufacturers would import only the raw materials of the quality and characteristics not available at home. The substitution drawbacks therefore end up encouraging manufacturers to use domestic materials.

However, with the number of FTAs on rise, manufacturers in Korea claim substitution drawbacks not only for domestically produced raw materials, but also for materials that are imported from diverse origins and that are therefore subject to different tariff rates. Some even question whether it is appropriate to call this current practice as that of substitution drawbacks. Unfortunately, no formal complaint or debate has been held at the level of the international community on this subject matter.

Substitution drawbacks concerning domestically produced and imported raw materials may encourages the use of domestic raw materials. On the contrary,

substitution drawbacks concerning imported raw materials of different origins and subject to different rates may serve more harm than good, encouraging businesses to claim excessive drawbacks and even leading to international conflicts over alleged violations of the SCM.

The Act on Special Cases Concerning the Refund of Customs Duties, Etc. Levied on Raw Materials for Export recognizes substitution between domestically produced materials and imported ones, but does not permit substitution on imported raw materials subject to different tariff rates. Once the Korea-China FTA is entered into effect, more than half of Korea's trade will be conducted with its FTA counterparties. Therefore, it will be difficult to accept substitution drawbacks on imported raw materials.

In the meantime, it is not necessary to take preemptive action over an issue that has yet to be raised in the international community. Also, as the number of FTAs Korea has signed is increasing, all tariff rates are nearing zero percent, and the controversy over substitution drawbacks on imported raw materials will likely vanish on its own in the end. Therefore, the government should focus on devising the policy that helps exporters make the best possible use of FTAs. With tariffs on imported goods drastically lowered or even eliminated, both exporters and tax authorities can save administrative costs associated with duty drawbacks. In the end, the elimination of customs duties will benefit businesses most by enabling them to avoid financial, administrative and risk costs associated with tariffs and drawbacks altogether.

2 Scope of Application: Simplified Fixed-Rate Duty Drawback Scheme

With the growing number of FTAs, the simplified fixed-rate duty drawback scheme is newly emerging with more repercussions than benefits. Excessive drawbacks will likely result from increasing FTAs and the scheme will no longer serve as an adequate incentive for exporters to use domestically produced raw materials. Therefore, it is necessary to adjust the scope of its eligibility to satisfy the original purpose of the scheme.

A. Sizes of SMEs Eligible for Simplified Fixed-Rate Duty Drawbacks

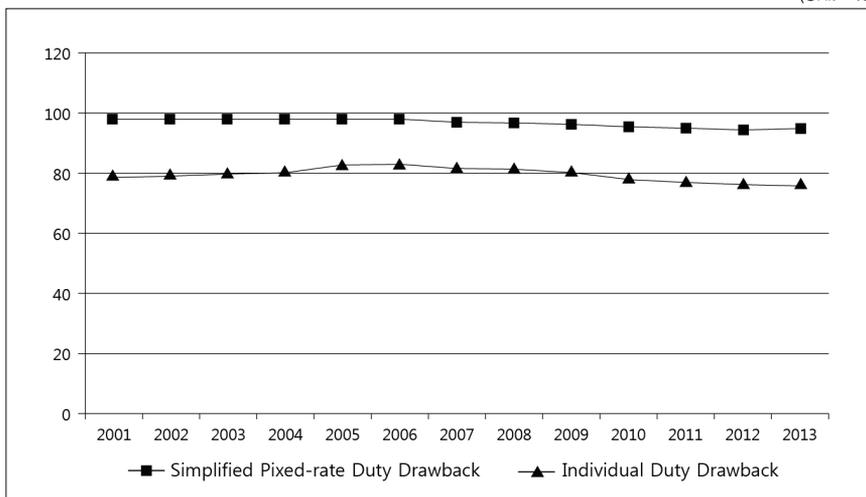
1) Eligibility

With the Korean government continually raising the ceiling on the amounts of simplified fixed-rate duty drawbacks that may be refunded, the scope of eligible SMEs has also been expanding. The ceiling on the simplified fixed-rate duty drawbacks for SMEs has been rising rather abruptly, from 20 million won in 1992, to 50 million won in 1993, 100 million won in 1994, 300 million won in 2001, 400 million won in 2003, and 600 million won in 2010.

Notwithstanding these abrupt rises in the ceiling on the available duty drawbacks, the number of SMEs benefitting from these has remained more or less the same since 1998. Although the ceiling on the amount of drawbacks rose from 100 million won to 300 million won in 2001, and then again to 600 million won in 2010, the number of SMEs claiming simplified fixed-rate duty drawbacks has steadily hovered around 10,000.

[Figure IV-1] Proportion of Companies Receiving Less than 100 Million Won in Drawbacks Each

(Unit: %)



Under both the individual simplified fixed-rate duty drawback schemes, the average amount of drawbacks per company stands at less than 100 million won. As of 2013, about 76% of companies under the individual duty drawback scheme and about 95% of those under the simplified fixed-rate duty drawback scheme received duty drawbacks of less than 100 million won each. This has been the trend since 2001. Also, the number of companies for which the amount of drawbacks falls between 100 million won and 600 million won has not changed much since 2001. This suggests that raising the duty drawback ceilings benefit few SMEs.

2) Future Policy Suggestions

In determining the scope of eligibility for SMEs to benefit from the simplified fixed-rate duty drawback scheme, it is necessary to take into account the purpose of the scheme and the ramifications of its expansion. Because the amount of drawbacks was relatively small against the associated administrative costs for SMEs, the scheme was designed to reduce the costs of applying for and receiving duty drawback. In cases where the duty amount of drawbacks is high, it would be better to use the individual duty drawback scheme.

First, the greater the duty drawback amount, the greater the likelihood of excessive drawback claims under the simplified fixed-rate scheme. Exporters can receive a greater amount of duty drawbacks when they file their claims under this scheme than under the individual duty drawback scheme. Given this situation, the likelihood of excessive drawbacks is greater under the simplified fixed-rate duty drawback scheme.

Second, there are discrepancies with regard to equity and fairness. Many companies applying for individual duty drawbacks will receive duty drawbacks of less than 100 million won, and they will have to pay administrative cost to do so. However, it is inequitable if a company whose duty amount of drawbacks is much larger enjoys the same benefits just because it is a SME.

Third, the simplified fixed-rate duty drawback scheme played a positive role in promoting the use of domestic raw materials before the age of FTAs. However, as preferential tariffs now apply to imported materials under FTAs, companies may opt for imported rather than domestic materials. Therefore, to

reduce this side effect, it is necessary to minimize the scope of SMEs eligible for the simplified fixed-rate duty drawbacks.

Finally, as shown in the regression analysis, the higher the simplified fixed-rate duty drawback amounts, the lower the export marginal effect, particularly if the amount of drawbacks is no less than 100 million. Given the above side effects of the simplified fixed-rate duty drawback scheme, the scope of eligibility for SMEs to receive the simplified fixed-rate duty drawbacks should be minimized.

B. Items Eligible for the Simplified fixed-rate duty Drawbacks

1) Adjustment of Items

The number of imported goods eligible for the simplified fixed-rate duty drawbacks reached 4,260 as of 2014. An adjustment was made in 2004 to lower the number to 2,900, but the number of the items has rather increased by over 1,000 since then.

The reasons why the number of eligible goods has grown are as follows. First, Korea's portfolio of goods it exports continues to change and diversify. The government has expanded the number of eligible imported goods every year based on opinion polls involving exporters. Second, some of the imported goods that are rarely claimed for simplified fixed-rate duty drawbacks still remain on the list. The government has been reluctant to exclude items from the list because it is concerned that the exclusions might hinder export activities of Korean SMEs, while leaving the goods intact on the list little distort the allocation of economic resources.

2) Future Policy Suggestions

It would be unwise to change the imported goods subject to simplified fixed-rate duty drawbacks too frequently. However, it is necessary to consider costs arising as a result of failing to make the necessary adjustments. As the number of the eligible goods increases, the administrative cost also increases, by making it more cumbersome and costly to check which goods are prone to excessive drawback claims and which are under-claimed.

Of particular importance is to eliminate those imported raw materials that are effectively duty-free under FTAs, for their presence on the list may encourage excessive drawback claims.

On the other hand, new imported goods may be added to the list as the range of Korea's exports widens and diversifies, but only after considering the following. First, the goods for which SMEs frequently file individual duty drawback claims should be preferentially considered as new candidates to be added to the list. By adding these to the simplified fixed-rate duty drawback scheme, it would help SMEs reduce administrative costs they would otherwise be burdened with in applying for individual duty drawback.

Second, goods suggested and imported by SMEs whose amount of drawbacks reaches no more than 100 million won each should be also be considered positively because these SMEs are the reason for the existence of the simplified fixed-rate duty drawback scheme. As shown in the empirical analysis, the marginal export-promoting effect of the simplified fixed-rate duty drawbacks is relatively larger than that of the individual duty drawbacks, and the effect was greater when the amount of the duty drawbacks was smaller. This explains why it is necessary to pay close attention to the types of goods exported by SMEs whose amount of drawbacks is small. Also, duty drawback for these SMEs is free from the WTO subsidy issues.

Third, a review of the imported goods that are subject to the simplified fixed-rate duty drawback scheme but do not have individual duty drawbacks is necessary. How can policymakers determine the amounts of simplified fixed-rate duty drawbacks on imported goods that lack any records of individual drawback claims filed? Some such goods remain on the list today, though, due to antiquated individual duty drawback records. However, there are concerns over excessive duty drawbacks on these goods under new FTAs, and, for the items with high amount of the simplified fixed-rate duty drawbacks. It is therefore important companies eligible to claim large amounts of simplified fixed-rate duty drawbacks to file individual duty drawback claims first so that the government may ascertain the quantities of the materials they import from overseas and decide whether to retain or expel those materials from the list.

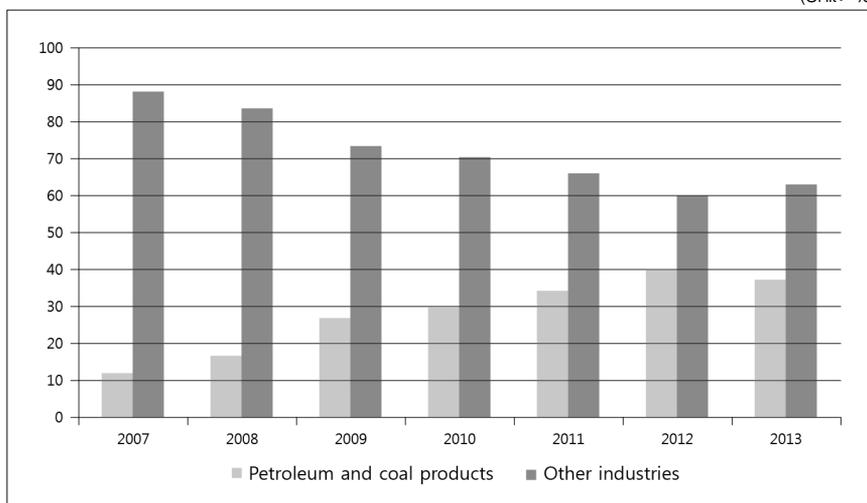
3 Reform of Duty Drawbacks on Petroleum and Related Products

A. Import and Export of Petroleum Products

Korea depends entirely on imports of crude oil to produce various petroleum products, including gasoline and diesel, which are then domestically consumed or exported overseas. The proportion of duty drawbacks for the petroleum products out of the yearly duty drawbacks total reached about 10 percent in 2007 and 40 percent in 2012. The large proportion is primarily because petroleum exports have increased and crude oil, the raw material for the industry, is entirely imported.

[Figure IV-2] Proportion of the Duty Drawbacks for Petroleum Products

(Unit: %)



Petroleum products have topped the list for the amount of exports since 2011, followed by other major export items such as passenger vehicles, electronic integrated circuits, mobile phones, and ships.

〈Table IV-1〉 Ranking of Korea's Export Goods by Amount

	2007	2008	2009	2010	2011	2012	2013
Petroleum products	5	1	6	4	1	1	1
Passenger vehicles	1	4	5	3	2	2	3
Electronic integrated circuits	2	5	3	1	3	3	2
Mobile phones	3	3	2	6	6	7	4
Ships	4	2	1	2	4	4	6

Note: Compiled by the authors on the basis of the KITA trade statistics
Source: KITA, <http://stat.kita.net/> (retrieved on September 2, 2014)

B. Pros and Cons for the Advance Duty Exemption System

The advance duty exemption system saves administrative costs for both tax payers and tax authorities as opposed to the duty drawback system, which returns duty already paid. It would be more efficient not to impose duty in the first place than imposing duty and returning it later.

However, Korea abolished the advance duty exemption system in 1975 because of its weaknesses. One of them was that it was hard to discern whether an imported raw material was actually used in export goods. In some cases, imported raw material, for which a tax exemption had been applied, was illegally diverted for domestic consumption. With industries developing rapidly and trade volume surging in 1975, this problem worsened and the government decided to abolish the advance duty exemption system and adopt the duty drawback system, the result being that it led to high administrative costs.

This historical precedent still serves as an obstacle to the introduction of an advance duty exemption system. However, for some export items, it would be helpful to take advantage of the strengths of the advance duty exemption system. Under current circumstances, where the number of FTAs is increasing and multiple duty rates apply to a single item, it would be especially useful to take advantage of an advance duty exemption system to avoid excessive duty drawbacks and violation of the SCM. Among the export items that would greatly

benefit from an advance duty exemption system are petroleum products. Unlike other export items made from various raw materials, petroleum products are only made from imported crude oil. In addition, the duty drawbacks for crude oil comprise most of the duty drawbacks paid in Korea.

As shown in the empirical analysis, the elasticity of duty drawbacks for each industry ranged from 0.578 to 0.963 under the individual duty drawback scheme and from 0.802 to 0.997 under the simplified fixed-rate duty drawback scheme. The export elasticity of petroleum and coal products stood at 0.578, far lower than that of other products, while the duty drawbacks ratio to amount of exports was relatively higher. For example, the duty drawbacks ratios of the transport equipment and electric and electronic equipment industries stand at 0.5 percent and 0.6 percent, respectively, while that of petroleum and coal products reaches 1.3 percent (more than double). Therefore, when it comes to petroleum products, it would be much more appropriate to adopt the advance duty exemption system and reduce duty drawbacks inefficiency, rather than try to improve the current duty drawback system.

Since Korea does not have an advance duty exemption system in place for raw material based exports, adopting a bonded area system could serve as an alternative. A bonded area system would have similar effects as an advance duty exemption system by deferring duty.

4 Expansion of Part of the Advance Tax Exemption System

With the expansion of Korea's FTA networks, multiple duty rates may apply to a single product and result in substitution drawbacks and excessive duty drawback. These problems will continue as long as raw materials imported for the purpose of manufacturing export goods are duty-free.

With increasing FTAs, it would be best to partially apply the advance duty exemption system rather than simply maintain current duty drawback practices, especially if Korea wishes to avoid trade conflicts involving subsidy issues. However, it would not be feasible to broadly apply the advance duty exemption system because the checking process to ascertain whether raw materials were actually used in the manufacture of export goods is still required

under the advance tax exemption scheme. Therefore, the advance duty exemption system should only be applied to cases of a single item with multiple duty rates, wide differences in rates, and a high drawback amount. In other words, this study recommends a limited application of the advance duty exemption system.

Administrative costs are unavoidably in duty drawback systems, including the advance duty exemption system. After all, the only system that satisfies low administrative costs for both exporters and tax authorities is the importation of raw materials for free under FTAs.



V

Conclusion

This study suggests ways to improve the duty drawback system of Korea in line with recent changes in economic environment, particularly the expansion of Korea's FTA networks. Unlike existing studies, this study uses actual duty drawback statistics from 2001 to 2013 to analyze the impact of different duty drawback schemes over the past decade by business category, industry, and drawback scheme.

The results of analyses on the impact of the duty drawbacks in each industry show that in most industries drawbacks has the effect of promoting exports. In particular, the results of analyzing the elasticity of the amount of drawbacks show that it is considerably lower for petroleum goods than for other products, and the drawback-to-export ratio for petroleum goods is relatively higher than in the case of other industries. Given these circumstances and that petroleum products are made from imported crude oil, it would be more reasonable to apply the advance duty exemption system to that industry rather than to make improvements to the current duty drawback system to reduce inefficiency. In this context, this study recommends the possible application of the bonded area system (a type of the advance duty exemption systems) for the petroleum industry.

When it comes to the simplified fixed-rate duty drawback scheme, it is better applied to SMEs that incur a small refund amount. If the scope of applying the simplified fixed-rate duty drawback scheme is expanded, excessive refunds could be seen as subsidies and subsequently cause trade conflicts. Since each country has systems aimed at giving advantages to SMEs, it would be

important to implement the simplified fixed-rate duty drawback scheme with a reasonable eligibility scope.

The results of empirical analyses show that the simplified fixed-rate duty drawbacks has nothing to do with tariff rates. So the lower the tariff on imported raw materials as FTAs increase, the higher the likelihood of excessive refunds. With regard to the impact of the refund amount on exports, the higher the amount of simplified fixed-rate duty drawbacks, the lower the impact on exports. This is particularly noticeable when the amount of drawbacks is 100 million won or more. This situation suggests an inefficiency possibly caused by the expansion of the scope of SMEs subject to the simplified fixed-rate duty drawback scheme.

Since smaller amounts of simplified fixed-rate duty drawbacks have a stronger positive impact on exports, improvements should be made to the scheme to support companies whose return amount is less than 100 million won. The first step could be including the goods that those companies export under the simplified fixed-rate duty drawback scheme, since export items continually change. On the other hand, with the number of FTAs increasing, it would be necessary to exempt items whose preferential tariff rate is 0% from simplified fixed-rate duty drawbacks to reduce potentially excessive refunds.

Individual drawbacks carry the risk substitution drawbacks. If the Korea-China FTA is entered into effect, it will mean more than half of Korea's trade will be carried out under FTA agreements. For this reason, it would be difficult to continue allowing substitution drawbacks between domestic and imported raw materials in the long term. However, Korea needs not act preemptively on this issue before it becomes an internationally issue. The same applies to the issue of raw material distribution for domestic consumption and for export. In order to solve these problems, a strict application of the duty drawback system by strengthening substitution drawbacks requirements would be necessary. Also, substitution drawbacks between imported raw materials with wide duty-rate gaps should be restricted to induce the companies to import raw materials by taking advantage of FTAs.

The existence of multiple numbers of tariff rates for a single item is due mainly to FTAs. So making best use of FTAs is not going to cure all problems, which is why the advance duty exemption system should be considered. This system would make it possible to prevent excessive duty

drawbacks by removing tariff rate gaps among imported raw materials used to manufacture export goods. In this way, it would prevent subsidy and trade conflict issues as well.

Since the advance duty exemption system is not implemented in Korea, it would be worth considering the alternative bonded area system as it would have similar effects. For those items that could cause administrative costs or excessive duty drawbacks in the future, it would also be useful to apply a bonded area system and to minimize the application of the duty drawback system.

This study has presented an overview of the duty drawback system operating in Korea for the past decade based on duty drawback data. It has also shown statistical and empirical analyses on duty drawbacks by drawback scheme, industry and business category. Although there are shortcomings in the regression analysis we present here, this study goes beyond previous studies in shedding light on the impact that duty drawbacks have on exports and on the changing amounts of exports. It is our sincere hope that the policy recommendations we have provided will help the duty drawback system in Korea become fairer and more efficient.

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