

# Politico-economic Factors of Fiscal Expenditures: Focusing on the Agricultural Industry

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# I

## Introduction

Along with families and companies, the government comprises an important sphere within the national economy. Unlike families and companies, it is a singular economic player and influences the national economy exercising a much higher level of individual spending by means of its fiscal expenditures. Therefore, when the government determines how to allocate public finances, one of the primary standards should be economic efficiency. Of course, it is undeniable that politics often plays a larger role than does economic efficiency when these questions are decided. Stemming from their respective realities, politicians, interest groups and the general public all maintain distinct preferences for the dispersal of limited resources, so it can be said that the allocation of public finance is achieved by means of compromises between different groups with divergent interests. Therefore, in order to more fully understand how South Korea's fiscal operations are conducted, politico-economic factors must be taken into consideration.

Under these circumstances, this study aims to examine the activities of politicians and interest parties that influence budgeting and then investigate the impact of these activities on Korea's fiscal expenditures. It will focus in particular on agriculture, since the agriculture, forestry and fisheries sector has received a considerable share of public money relative to its weight within the national economy. As of 2011, this sector accounts for a mere 2.5 percent of GDP, but it absorbs roughly 5.7 percent of Korea's national budget, demonstrating that it obtains funding disproportionate to its economic footprint. The non-

agricultural sector takes a critical view of this, while the agricultural sector claims that it requires even greater support, highlighting the wide gap in respective perceptions. In response, this study hopes to narrow the breach between the agricultural and non-agricultural sectors by looking into why some factors beyond simply economic matters are considered when allocating the budget for the agriculture, forestry and fisheries sector (mainly focused on agriculture). A more specific goal is to ascertain how political players exercise their influence on the share of the budget dedicated to the agriculture, forestry and fisheries sector, and whether or not political factors actually impact related government spending.

Before taking up the main subject, two hypotheses closely related to this study need to be described. The first proposal is that Korea's agriculture, forestry and fisheries sector maintains its present level of budget thanks to the influence of interest groups comprised of agricultural producers and workers in related industries. The second theory is that politicians tend to pass legislation that favors the agricultural sector in an effort to carry votes. These two theories are applied by economists to explain the Development Paradox, and are represented by the collective action model and the politician-voter model.<sup>1)</sup> The collective action model looks at the relations between agricultural policies and the socio-economic conditions through which farmers are able to exert their combined influence as an interest group. In the politician-voter model, farmers are perceived as rather passive and agricultural policies are considered to be directed more by politicians' efforts to maximize their political backing. With this in mind, this study intends to look into what types of influence on agricultural policies and agriculture-related government spending farmers have exercised as an interest group or through interest organizations. Furthermore, it hopes to determine how lawmakers conduct themselves as political players when agricultural issues are on the table.

To this end, the second section of this study contains a review of

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1) The Development Paradox refers to the situation in which developed countries pursue agricultural protection policies while underdeveloped countries try to grow other industries at the expense of agriculture. In other words, Development Paradox is a term that explains a trend in which farmers in rich developed countries are protected by a high level of subsidies and tariff barriers while their counterparts in poor developing countries are burdened with low prices and high taxes.

references that describe agricultural protectionism from a politico-economic viewpoint. The third part looks into what kind of role farmers, fishers and politicians play in agricultural administration. The fifth section contains a regression analysis on the share of budget allocated to the Ministry of Agriculture, Food and Rural Affairs, the protection level of respective commodities and related fiscal expenditures. In addition, by utilizing international data that includes both developing and developed nations, we examine how politico-economic factors influence fiscal expenditures and agricultural protection.

## II

### Preceding Research on Politico-economic Factors in the Agricultural Sector

#### 1 Theoretical Consideration

As national income increases, the level of protection for the agriculture industry rises, despite the fact that the industry's economic importance falls. Developed countries maintain high prices for their agricultural products or provide subsidies to supplement farmers' income, while developing countries levy taxes on farmers and keep the prices of their agricultural output low. Therefore, many scholars concur that the agricultural sector is swayed by politico-economic factors that cannot be explained through conventional economic models (Swinnen, 2010; Miller, 1991; de Gorter and Swinnen, 2002). Anderson and Hayami (1986) explain that the fundamental reason behind such a trend is that the role of agriculture evolves as economic development progresses. As national income swells, foodstuffs take up a smaller share of family budgets. As a consequence, consumer resistance to policies for keeping the prices of agricultural products high weakens. Also, with all industries undergoing restructuring, agriculture's share in GDP and employment narrows, thus reducing the government's political costs when yielding to farmers' demands. Lastly, as the economy develops, the agricultural industry's comparative advantage disappears, so the government attempts to manage the import of agricultural products through trade barriers, which do not require any

high degree of government spending.

According to the politico-economic model introduced by Downs (1957), politicians wish to maintain voter support, and farmers apply greater pressure on the government as demand for agricultural protection policies grows. The consumers of agricultural protection policies are farmers, whereas the suppliers of agricultural protection policies are politicians.<sup>2)</sup> Therefore, understanding the respective roles of farmers and politicians is the key to analyzing the politico-economic factors surrounding agricultural protection policies.

Discussions related to the behaviors of the aforementioned two groups are largely clustered around two models. The first is the collective action model according to which agricultural protection policies result from the emergence of interest groups and their subsequent political activities. The second is the politician-voter model, which considers that politicians elevate levels of agricultural protection in order to secure additional votes. In the case of the model which emphasizes the importance of farmers' collective action on determining the level of agricultural protection and government spending on the agricultural sector, the government and politicians are considered passive, and general voters are considered to be rationally ignorant (Becker, 1983). To the contrary, in the case of the model that emphasizes politicians' efforts to win support and maximize their influence, politicians are considered to be the more active players.

In the collective action model, the power of farmers as an interest group is influenced by the overall number of farmers, the share of farmers in the greater labor market and the regional concentration of farmers. Because an interest group is formed when the benefits gained from its formation exceed the resulting costs (e.g. physical travel, communications expenses, etc.) (Olson,

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2) In a study by Anderson and Hayami (1986), agricultural protection policies are mainly restricted to trade barriers, but in this study agricultural protection policies mean not only trade barriers (including tariff barriers and non-tariff barriers) but also direct payments on products, production supports such as subsidies on agricultural products and farm inputs, and investment in agricultural production infrastructure, the welfare of rural areas and regional development. The purpose of this study is to better understand changes in fiscal expenditures. However, since fiscal expenditures on agriculture usually lead to a rise in the prices of domestic agricultural products, a high level of agricultural protection can be easily interpreted as the end result of fiscal expenditures.

1990; de Gorter and Swinnen, 2002).

Becker (1983) argues that the political influence of a particular interest group is determined by the effectiveness of the related organization, which in turn is determined by its size and ability to control the problem of free riders. The size of an interest group is directly related to the issue of free riders. On the other hand, a small-scale interest group is unable to benefit from economies of scale. Therefore, maintaining an optimal size is important to interest groups and their political influence. Olson (1990) explains how interest groups of agricultural and non-agricultural natures are formed according to the development stage of a national economy, on the premise that the size of an interest group influences the potential and impact of its collective action. In other words, in the early phases of economic development, the agricultural sector can be discriminated against because a large number of farmers are spread over a great expanse of land and underdeveloped transportation and communications infrastructure inevitably lead to lack of concentration power. On the other hand, non-agricultural workers (or companies) are in a favorable position to exercise their influence because they are small in number and concentrated in urban areas, which means they are more conducive to organization. Therefore, developing countries at early stages of national development more intensively foster secondary and tertiary industries, including the heavy chemical industry, and introduce policies aimed at keeping the prices of agricultural products low.

Compared to farmers, consumers of agricultural products (taxpayers) are less likely to participate in collective action, since they overwhelmingly outnumber farmers and thus their cost of conducting collective action is dramatically higher and they are able to benefit from collective action regardless of their actual participation. Agricultural producers are in a better position to form an interest group than are agricultural consumers. Therefore, agricultural producers work hard to support various agricultural protection policies, thus sustaining price differences between domestic and imported agricultural goods and securing further subsidies.

Relations between farmers and taxpayers are also influenced by the amount of deadweight cost, which is incurred due to taxes and subsidies. Becker (1983) relates that as the amount of taxes per person decreases, the deadweight for each taxpayer goes down. Therefore, as the number of taxpayers rises, the

resistance to subsidies for a particular group of people is reduced. When the size of a group that receives subsidies is relatively small compared to the total number of taxpayers, it is easier for that group to win subsidies, which explains why farmers in developed countries receive them.

Miller (1991) asserts that the political power of a particular group is determined by government policies, and that political power is in turn influenced by the characteristics of the group and the total costs and fixed expenses of the group's political activities. The group's fixed expenses are influenced by the group's size, the transportation and communication costs related to its activities, income inequality within the group, capacity for lobbying, bureaucratic preferences, experience with pursuing political activities and the efficiency of government agencies. The size of a group, in particular, has both beneficial and adverse effects. The bigger a group becomes, the greater the political power it gains, since bureaucrats favor large groups. However, as it grows, its fixed expenses for political activities also rise as a result of growing ranks of free riders.

According to Dutt and Mitra (2009), the level of agricultural protection is in a negative relation with agricultural sector employment and bears a positive relation with agricultural productivity. Further, it was found that organized interest groups (or industries) receive more protection from the government compared to their un-organized counterparts. As the share of agricultural sector in the labor market declines, it becomes easier for landowners and agricultural employees to organize, which leads in turn to a higher level of agricultural protection. Meanwhile, as agricultural productivity improves, lobbying activities are able to win additional benefits and the level of agricultural protection climbs. Also, Gardner (1987) proved theoretically as well as empirically that as farm households grow fewer and their regional concentration increases, the cost of the organizing process diminishes and agricultural groups are more likely to be formed.

The collective action model offers a vital clue for understanding differences in each country's level of agricultural protection, but it is insufficient on its own. De Gorter and Tsur (1991) show that support for the agricultural sector can be explained not only by the collective action model, but also by the politician-voter model. De Gorter and Tsur relate that politicians invariably

wish to maximize their political support base, and voters determine the level of their support according to two types of motives. One is the relative income motive, which means people experience a sense of relative deprivation when others have a higher income and a sense of satisfaction derived from those with lower incomes. The other is the income redistribution motive, which means that voters support policies that could bring them increased benefits. According to these two motives, voters decide their level of support for the government and individual politicians.

De Gorter and Tsur (1991) analyzed what kinds of political decisions are made if either or both of these two motives are considered in determining level of political backing. In a case where only the relative income motive is considered, an optimal level of taxes can be set at the point where the incomes of two groups are equalized, and it can be influenced by each group's relative size and the initial income gap. According to this model, as an economy is developing, the number of city dwellers grows, and as their relative income rises, their level of taxes per person goes down. This leads to more subsidies per person for farmers and fishers. On the contrary, in developing countries where farmers and fishers outnumber city dwellers and their relative income is higher than that of city dwellers, farmers and fishers are required to pay higher taxes.

Meanwhile, in a case where only the income redistribution motive is considered, the optimal level of taxes per person for urban dwellers is zero. In other words, if only the income redistribution motive is valid for determining the level of each group's political support, it is rational for politicians not to introduce policies that could result in an income transfer between different groups. In reality, however, it is difficult to establish that only one of these two motives may be at work. Therefore, when both motives come under consideration, politicians desire to introduce income redistribution policies according to the relative income motive, while their aspirations for these policies can be somewhat compromised due to the income redistribution motive.

De Gorter and Swinnen (2002) explain that politicians tend to support agricultural protection policies as a means to augment their support base. According to their research, politicians' tendency toward protecting small groups such as farm households can be explained due to the fact that the benefits of

the government support are concentrated among a small number of people and the cost of income redistribution (in this case, as a result of policy) is widely distributed, thus maximizing the eventual political gains. In other words, politicians are influenced by the fact that the higher the subsidies a person receives, the greater is the support returned for that particular policy.

## 2 Analysis of Actual Evidence

Many scholars focus on the influence of political factors over the phenomenon of developed countries being increasingly protective of their agricultural sectors through an array of subsidies while developing nations instead levy taxes on their agricultural sectors. However, previous studies on the political factors impacting the agriculture, forestry and fisheries sector have focused on the level of protection for domestic agricultural industries rather than on fiscal expenditures. The preceding research has used indexes such as Nominal Rate of Protection (NRP), Producer Assistance Coefficient and Producer Support Estimate (PSE) to indicate level of agricultural protection. These indexes comprehensively illustrate not only fiscal expenditures directed at the agricultural sector, but also the protection level for domestic agricultural products including the price differences between domestic products and imported goods that result from trade barriers.

One of the most important of the variables that have been used to explain changes in the level of agricultural protection is the size of the group or groups able to exercise political influence over the agricultural sector, which also refers to the number of farm households, that of agricultural workers and the share of agricultural workers in the labor market. Previous studies have found that the fewer farm households and the smaller the proportion of agricultural workers there may be, the higher the level of agricultural protection rises (Gardner, 1987; Jin, 2008; Miller, 1991; Olper, 1998; Van Bastelaer, 1998). This analysis of actual data demonstrates that the lower the number of farm households, the easier it becomes for them to be organized. Although agriculture accounts for a relatively small share in an economic sense, agricultural workers can easily carry

out collective action as an interest group, which leads to a high level of sustained protection.

Another important variable related to the formation of interest groups is regional concentration. Gardner (1987) and Jonsson (2007) used regional concentration as an explanatory variable in order to relate why the level of protection differs among commodities since the regional concentration of producers influences their communication costs.

A major variable used in explaining the related level of agricultural protection is market opening. Especially in those countries where agricultural products are imported, agricultural market opening is considered a huge risk factor and it leads to an urgent need to increase fiscal expenditures to blunt the damage to the agricultural industry. For example, the US has been operating its Trade Adjustment Assistance (TAA) program, a subsidy for when the income of farm households absorbs a blow stemming from a rapid increase in imports. In addition, South Korea has witnessed a high level of demand for compensation for the damage to the agricultural industry whenever the country enters into market-opening negotiations. With this in mind, Jin (2008) and Swinnen, Olper and Vandemoortele (2011) included UN Negotiations as a dummy variable in regression analysis.

Meanwhile, according to the politician-voter model, the income gap between urban and rural areas and the relative proportions of urban and rural dwellers are also considered to be among the factors that explain level of agricultural protection. The per capita GDP gap between urban and rural areas and the proportions of urban and rural dwellers are used by De Gorter and Tsur (1991), the rural population by Klomp and de Haan (2013), non-agricultural value added per capita compared to agricultural value added per capita by Olper (1998), and the relative predominance between the agriculture and non-agriculture industries by Van Bastelaer (1998). Also, the share of food in urban households' expenditures is a variable tied to the politician-voter model. When the proportion dedicated to food in an urban household's expenditures is low, city dwellers tend to become generous towards expanding fiscal expenditures on the agricultural sector (Olper, 1998). Such variables are also closely related to countries' income levels, so per capita GDP, the share of agricultural GDP and the share of agricultural employment have all been

complementarily used.

Certain previous studies have taken into consideration not only socio-economic variables that can explain interest groups' collective action and politicians' desire to maximize their own utility, but also political variables in a more direct manner. Dutt and Mitra (2009) showed that a government's political inclination (left leaning or right leaning) and the level of income inequality are important factors that have a direct effect on the level of agricultural protection. Klomp and de Haan (2013) did not address the level of agricultural protection, but instead focused on fiscal expenditures directed at the agricultural sector, a focal point of this study. Other previous studies examined the number of farm households, the shares of urban and rural income, the proportions of urban and rural population, and the level of agricultural protection, which is the result of political compromise between urban and rural areas. Klomp and de Haan, in contrast, examined how political events such as elections and political systems influence fiscal expenditures benefitting the agricultural sector.

Meanwhile, a study by Gawande (2005) looked into how lobbying activities by agriculture-related groups affect agricultural protection. Their study analyzed how agricultural policies have been influenced by lobbying funds from the Political Action Committee (PAC) of each agricultural group between 1991 and 2000. As a result, it indeed established a positive relation between agricultural PAC's lobbying funds and non-tariff barriers or other trade barriers in the US. Furthermore, the average tariff rate in the US has shown a strongly positive relation with export subsidies and lobbying activities. There is a distinction between the US and Korea in that Korean agricultural groups do not conduct lobbying activities as aggressively as do their US counterparts. Nevertheless, this study is meaningful because it shows that competition between different commodities leads to differentiated levels of protection for each.

In Korea, it is difficult to find previous studies that have investigated agriculture from a politico-economic point of view. One study by Lee Shi-young and Jun Sung-hee (2003) is the sole case of taking a politico-economic approach towards Korea's agricultural protection policies. The authors explain that South Korea protects its agriculture due to the political transaction costs within the system, as well as out of respect for national sentiment. When agriculture is left unprotected, agricultural workers need to be redeployed in other industries

and adapt themselves to new jobs, incurring additional costs. However, politicians simply do not wish to pay these political transaction costs. Also, urban dwellers consider agriculture to have its own intrinsic worth and feel unfavorably towards importing rice, the staple food of the nation. Therefore, politicians show a positive attitude towards agricultural protection.



## Roles of Political Players in Agricultural Policies

### 1 Activities and Fiscal Expenditures of Korean Farmers' Groups

This section examines the roles and impact of farmers and fishers as an organized interest group by looking into the state of agriculture-related groups that are currently operating in Korea.

A total of 537 non-profit, non-governmental agricultural or agriculture-related organizations are registered with the Ministry of Agriculture, Food and Rural Affairs (as of April 2013). Among these, 208 are commodity groups that represent producers of specific items, and eight are farmers' groups<sup>3)</sup> with nation-wide networks. Farmers' groups generally have a nationwide network, are interested in overall agricultural administration rather than in specific commodities, and tend to voice their opinions enthusiastically. Major farmers' groups include the Korean Advanced Farmers Federation, Korea Agriculture & Rural Infrastructure Mates, Woman Farmer's Association, Korea Advanced Women Farmers Federation, New Farmers, Korean Women Peasant Association, and Korean Peasants League. Farmers' groups and commodity groups are both political. They engage in demonstrations intended to influence the government

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3) A farmers' group refers to "an agriculture-related private group that represents farmers' opinions in order to promote the development of the agricultural sector and farming villages and protect farmers' interests through struggle, discussion and presentation of alternatives" (Lee *et al.*, 2007).

and they participate in the policy-making process whenever discussion arises regarding a policy that is for or counter to their interests.

Various groups, which are related to food, food distribution, social programs for farming and fishing communities, research and hobbies are also registered as agriculture-related groups. Food and distribution groups consist of food producers and distribution industry workers, and those groups represent particular types of occupation. Some agriculture-related groups do not aggressively participate in agricultural administration but instead operate community or education programs targeting rural residents or advocate environmentally-friendly and alternative farming systems. Usually, these groups are not particularly political. Research groups pursue the study of agricultural economics and technology, while academic associations fall into the category of research groups. Meanwhile, farmers' groups and commodity groups work hard to ensure that their opinions are reflected in government policies on behalf of the entire body of farmers and fishers or producers of specific commodities. On the other hand, other groups more resemble civic groups in nature.

By conducting a survey targeting all these groups, their cost of organization, level of activities and financial achievements are all comprehensively evaluated in this paper. Studies that adopt the collective action model point out that what is important for interest groups in order to effectively see their opinions reflected in government policies is keeping their organizational costs low and effectively controlling free-riders. The lower their organizational costs may be and the more fully they are able to control free-riders, the better the results they achieve. To investigate whether or not this theory is also applicable to South Korea's private agriculture-related groups, various indicators have been introduced in this study. These indicators include communications costs, organizational costs, organizational scale and political activities. The communications costs of each group are determined by means of how the group's executive body delivers news and gathers opinions among its members. For example, when an executive body connects with its members mainly through regular meetings, the communications costs of that group are categorized as high; when the executive body connects with its members through manners other than regular meetings, its communication costs are categorized as not high. Organizational costs take into consideration not only communications costs, but

also the regional distribution of each group. The organizational costs of a group with high communications costs and a widely-dispersed membership are categorized as “very high”; the organizational costs of a group with low communications costs and widely-dispersed members are categorized as “high”; those of a group with high communications costs and a regionally concentrated membership are categorized as “low”; and those of a group with low communication costs and a regionally-concentrated membership are categorized as “very low.” When it comes to organizational size, when the scale of a group’s general and special membership is as large as or greater than the median value, that group is categorized as large, while when the figure is less than the median value, it is categorized as small.

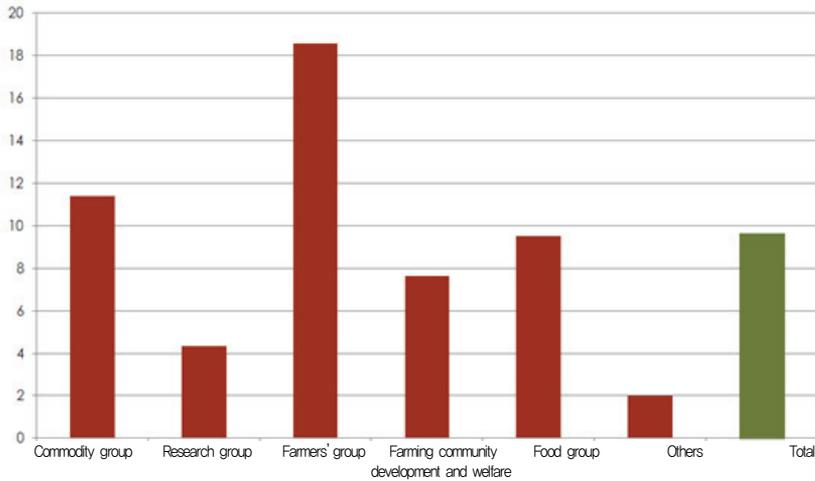
Political activities refer to the total number of appearances by a group in the media, including newspaper and television, participating in a government agency policymaking meeting, visiting government offices, taking part in a strike or demonstration, joining in with lawmakers’ legislative activities, submitting statements and sitting on a committee operated by the government or National Assembly. The aforementioned activities have been selected because, in comparison with other activities such as joining an academic association or debate as a participant, they demonstrate considerably higher public exposure and are deemed to be more political, which can in turn promote the groups’ aims more aggressively.

When viewed by type, farmers’ groups, which are political and have an interest in overall agricultural policies, most frequently participate in political activities (as expected), with a yearly average of 18.6 occasions. Commodity groups do so 11.4 times on average. Both farmers’ groups and commodity groups take part in more than the average number of political activities. Groups related to food or rural development and welfare participate in political activities 9.5 and 7.6 times, respectively.

Also, when looking into the relations between the frequency of political activities and the size of an organization based on the number of its general members, it is found that the more members a group may represent, the more frequently that organization takes part in political activities, although the correlation is very weak ([Figure III-2]).

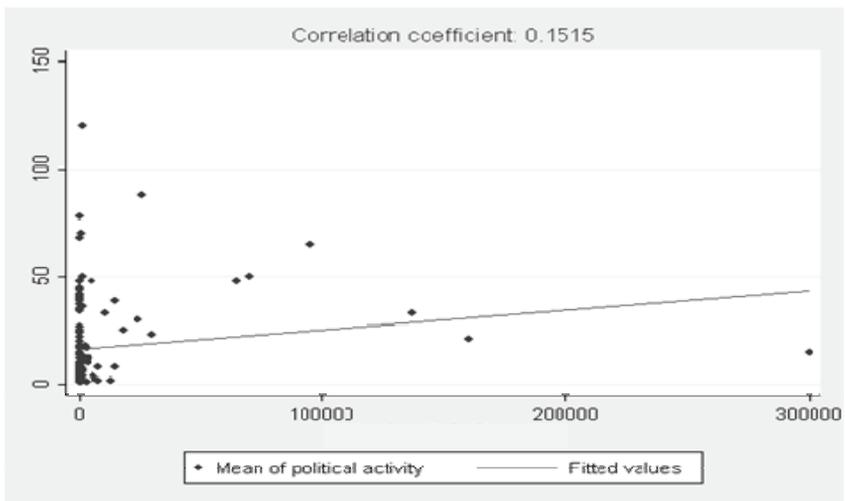
[Figure III-1] Frequency of Participating in Political Activities by Type of Group

(Unit: Firequency)



[Figure III-2] Correlation between Number of Members and Frequency of Participation in Political Activity

(Unit: Firequency, No. of general members (persons))



<Table III-1> shows how the frequency of each group's participation in political activities varies according to its communications costs and group size. When the average occurrences of participation in political activities are calculated by category, groups with low communications costs take part in political activities more frequently than do those with high communications costs. Also, small-sized groups, whose total membership falls below the median value, join in political activities less frequently than do large groups. However, when the categories are subdivided, mixed results are shown. In the case of small groups, those with high communications costs carry out political activities more frequently than do those with low communications costs; on the other hand, in the case of large groups, those with low communication costs actually conduct political activities more frequently than do those with higher such costs. Among small groups, those with high communications costs participate in political activities on a yearly average of 10.4 times, while those with low communications costs join in political activities on a yearly average of 9.1 times, which is lower than the overall figure. The reason behind this inconsistency appears to be that small-sized groups can reduce free riders and improve their organizational cohesiveness through face-to-face meetings. In the case of large groups, face-to-face meetings simply result in considerably greater communication costs rather than improved cohesion. Therefore, large groups with high communication costs are less likely to engage in political activities.

Not only communications costs, but also the regional distribution of each group's membership must be taken into consideration in order to clearly understand the relationship between organizational costs and frequency of political activities <Table III-1>. The result shows that groups with high organizational costs conduct political activities most frequently, regardless of their size. This is due to of the fact that although such groups have a widely-dispersed membership, they have overcome their drawbacks in terms of regional distribution through improved communications and regional subgroups, which allows more aggressive political efforts.

On the other hand, groups with low organizational costs proved to be those that carry out political activities the least frequently, which shows that their preferred communication method of off-line meetings costs too much to allow them to more frequently conduct organized activities, although their

〈Table III-1〉 Frequency of Participation in Political Activities by Communications Costs and Group Size

(Unit: Number/year)

Classification	Communications costs		
	High	Low	Total
Small	9.1	10.4	10.2
Large	21.0	14.0	16.9
Median	19.3	12.5	14.7

〈Table III-2〉 Frequency of Political Activity by Organizational Costs and Size

(Unit: Number/year)

Classification	Organizational Cost				Total
	Very High	High	Low	Very Low	
Small	11.6	12.4	8.3	1.0	10.2
Large	14.6	21.8	12.5	19.3	16.9
Median	13.4	20.4	10.5	16.6	14.7

members are concentrated within particular areas and enjoy more opportunities to enhance their cohesiveness. The correlation between organizational costs and frequency of political activities is more difficult to understand than is the correlation between communications costs and frequency of political activities.

This is because organizational costs include both regional distribution and communications costs. According to <Table III-2>, the level of communications cost has a greater influence on organizational costs than does regional distribution. Groups with high organizational costs, whose members are widely-dispersed, must dedicate considerable resources to deliver news and gather opinions among their members. Once they begin to operate in a manner that minimizes communication costs, however, their widely-dispersed nationwide membership provides a political vitality to such groups. Meanwhile, groups with very low organizational costs, those whose members are regionally concentrated

and whose communication costs are low, conduct more political activities than do those with simply low organizational costs. This proves that among groups with regionally-concentrated memberships, those with low communications costs are more political than are their counterparts with higher such costs.

Also, groups with very high to high organizational costs engage more often in political activities than do those with low organizational costs, demonstrating that groups with widely dispersed members generally carry out political activities more aggressively.

<Table III-1> and <Table III-2> show that findings of previous studies based on the collective action model cannot be applied without qualification to Korean agriculture-related private organizations. The premise of the collective action model is that lower organizational costs and smaller group size lead to greater political influence. However, the survey shows that large groups tend to participate in political activities more aggressively regardless of their organizational costs.

At this point, the discussion should be turned to how the political activities of private organizations translate into political achievements. Political achievements refer to cases in which a particular group's budget increases or new business is introduced thanks to outside activities. Those groups that responded that their budget had increased or new business had been introduced participated in political activities on a yearly average of 25.5 occasions, while those that reported no political achievements join in political activities a mere 9.8 times.

When the overall body of groups is viewed by communications costs and size, large groups with low communications costs record the greatest number of political achievements; on the other hand, small groups with high communications costs post the lowest number of such achievements. When compared to the frequency of political activities shown in <Table III-1>, achievements are not invariably closely related to frequency of political activities. Small groups with high communications costs participate in a greater number of political activities than do those with low communications costs, but they have recorded fewer political achievements. It is likely that this is due to smaller groups being less likely to hold bargaining power when negotiating with the government (or the National Assembly).

Furthermore, <Table III-4> shows whether or not the activities of private groups lead to a budget increase or the introduction of new business according to their organizational costs and size. When it comes to organizational costs, those with high costs recorded more political achievements than did those with low organizational costs. This demonstrates that groups with widely dispersed memberships bear a greater influence than do groups with regionally concentrated memberships, despite their lofty communications costs. Also, large groups have posted more achievements than have their smaller counterparts, proving that a larger interest group carries more considerable bargaining power. When comparing the frequency of political activities with number of achievements, more frequent political activities do in general lead to more political achievements, but in some cases this does not stand true.

<Table III-3> Achievements by Group Size and Communications Costs

(Unit: %)

Group Size	Communication Costs		
	Low	High	Total
Small	20	17	18
Large	39	32	36
Average	37	26	30

Note: This table shows the proportions of the so-categorized groups that responded as having recorded achievements.

<Table III-4> Achievements by Group Size and Organizational Costs

(Unit: %)

Group Size	Organizational Costs				Total
	Very High	High	Low	Very Low	
Small	26	25	0	0	18
Large	36	48	25	13	36
Average	32	45	14	11	30

Note: This table shows the proportions of so-categorized groups that responded as having recorded achievements.

In regard to the range of an organization, in other words to nationwide versus regional organizations, national groups have recorded more achievements than have regional ones. When looking into each group's achievements by their characteristics, including communications costs, organizational costs and organizational size, groups with low communications costs show more achievements. This result aligns with the findings of previous studies, according to which lower communications costs lead to lower organizational costs and hence a larger influence. In addition, large groups generally recorded a greater number of achievements regardless of their communications or organizational costs, a phenomenon that contradicts the conclusions of previous studies that a smaller group tends to have greater influence. In sum, it can be concluded that previous studies on interest groups cannot be categorically applied to private agriculture-related groups.

## 2 Analysis on Lawmakers' Legislative Activities

Since not only the political activities of farmers' groups, but also those of politicians play an important role, the activities of politicians need to be analyzed in order to understand fiscal expenditures directed at the agricultural sector. This section examines how changes in the political environment affect politicians' legislative activities regarding the agriculture, forestry and fisheries sector by looking at the number of bills proposed by lawmakers between the 11th and 19th National Assemblies. Among the bills evaluated by the Agriculture, Food, Rural Affairs, Oceans and Fisheries Committee during this period, those that were not directly related to the agriculture, forestry and fisheries industry or were considered counter to the industry's interests through deregulation were excluded from the analysis materials.

### A. Analysis by Political Party

The proposals for the bills that were evaluated by the Agriculture, Food, Rural Affairs, Oceans and Fisheries Committee between the 11th and 19th National Assemblies were divided by type of political party. The per-capita average number of bills proposed by lawmakers from the party that holds the executive branch and by those from other parties is 4.76 and 4.80, respectively, which shows no significant difference, although lawmakers from parties not in possession of the presidency slightly outdid their presidential-party counterparts. In regard to bills that were eventually passed, however, presidential-party lawmakers recorded a higher per-capita achievement than did members of other parties. This is because the president's party generally tends to win a majority in seats in Korea's National Assembly, raising the likelihood of passage for bills proposed by members of the president's party. Therefore, when comparing the presidential with other parties, members of other parties carried out slightly more legislative activities favorable to rural areas, but were limited in terms of their success in having their bills passed.

Specifically examining the 18th National Assembly (May 30, 2008-May 29, 2012), presidential-party lawmakers proposed a total of 2,187 bills, higher than the total from lawmakers of other parties. However, this was only because the president's party formed a majority at that time. In terms of the per capita

〈Table III-5〉 **Number of Proposed Bills Relating to the Agriculture, Forestry and Fisheries Sector between the 11th and 19th National Assemblies**

Political party	Proposed bills			Passed bills		
	No. of bills	No. of lawmakers proposing bills	Per capita average	No. of bills	No. of lawmakers proposing bills	Per capita average
President's party	6,479	1,360	4.76	1,652	1,360	1.21
Other parties	7,112	1,483	4.80	1,196	1,483	0.81

Note: When a bill was jointly proposed by multiple lawmakers, it was counted multiple times.  
Source: National Assembly Agenda Information System

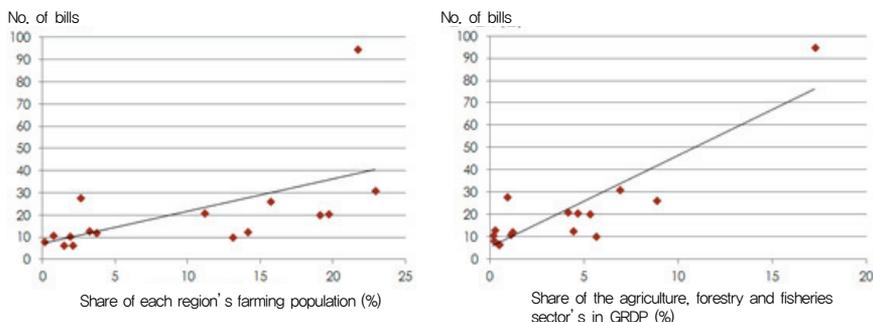
average number of proposed bills, non-presidential-party lawmakers outdid their presidential-party counterparts. In the case of bills proposed by members of the United Progressive Party, which seeks to represent farmers and laborers in particular, the per capita average reached 35, which indicates that it focused more than the president's party or any other opposition party on agricultural workers. It can also be interpreted that left-leaning parties are more active in terms of protecting the agriculture and forestry industry.

This result is at odds with the findings from previous studies on correlations between a government's political orientation and the level of agricultural protection. Olper (2001; 2007) relates that conservative governments tend to protect agriculture more than do progressive governments. Swinnen (2009) also shows that European countries under the control of right-leaning governments tend to provide subsidies to farm households and keep the level of agricultural protection high.

## B. Analysis by Region

To help illuminate the correlations between the number of bills proposed and the characteristics of district constituencies, demographic and economic characteristics such as the share of each region's farming population and the economic weight of each region's agriculture, forestry and fisheries sector are illustrated in [Figure III-3] in comparison with the average number of bills proposed by regional lawmakers. The share of each region's farming population is in a positive relation with the average number of bills proposed in the National Assembly by regional lawmakers. In the case of Jeju Island, where 22 percent of the population works in the agricultural sector, regional lawmakers propose a collective average of 95 bills, followed by 31 bills for those from South Jeolla Province (23% agricultural) and 27 bills of for North Chungcheong Province (17%). Also, provinces with a relatively higher share of agriculture, forestry and fisheries within their Gross Regional Domestic Products (GRDP) show a higher average number of bills proposed by their Assembly members. Regarding Jeju Island, in particular, in which the agriculture, forestry and fisheries industry accounts for 17 percent of GRDP, regional representatives proposed 95 bills,

**[Figure III-3] Regional Characteristics and the Number of Bills Proposed by Regional Lawmakers**



Note: The agriculture, forestry and fisheries industry's share of GRDP is averaged over the three-year period from 2009 to 2011.

Source: National Assembly Agenda Information System.  
 Statistics Korea, GRDP by Economic Activity, annual.  
 Statistics Korea, Population Census, 2010.  
 Statistics Korea, Agriculture, Forestry & Fisheries Census, 2010.

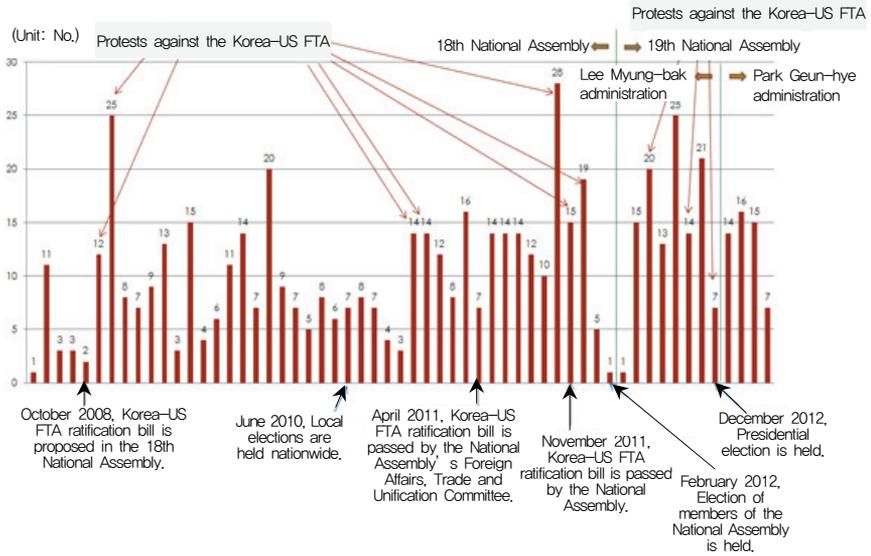
significantly more than did those of other provinces. This is because regional lawmakers from rural areas focus on their constituents' interests in order to shore up political support.

### C. Analysis by Political Calendar

If what drives lawmakers to propose a bill is public sentiment, then it can be assumed that they would be more likely to propose a bill in the run-up to elections. However, when the bills proposed during the 18th National Assembly are analyzed by month, the number of bills proposed shows no direct relationship with the political cycle, including around elections. Actually, when major events such as general elections, presidential elections or local elections are proximate, the number of proposed bills actually declines as a result of reduced legislative activities by the National Assembly.

The number of proposed bills, however, appears to be related to legislative efforts surrounding market openings. When the Korea-US Free Trade

[Figure III-4] Number of Proposed Bills by Political Event



Agreement was in the process of ratification by the National Assembly in October 2008, farmers' groups staged mass protests in opposition to the treaty and lawmakers proposed an increased volume of legislation related to the agriculture, forestry and fisheries sector and rural areas in an attempt to assuage farmers' groups. The bill proposing ratification of the FTA failed initially in 2008, but eventually passed in November 2011. Around the time of its passage, the number of agriculture-related bill proposals soared.

#### D. Conclusion

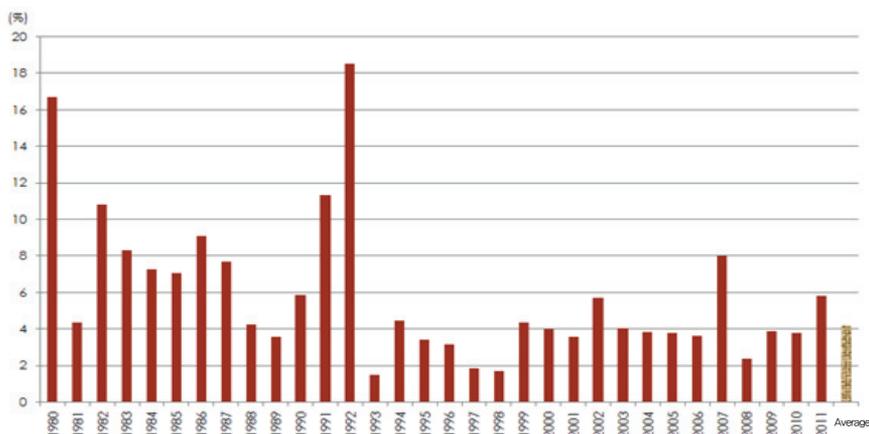
So far, we have explored the differences in the number of proposed bills according to political party, region and political events. In regard to political party, parties not holding the presidency are slightly more active in proposing bills favorable to the agriculture, forestry and fisheries industry, but overall all parties can be seen to advocate the protection of the farming and fishing

industries. When it comes to constituencies, members of the National Assembly whose constituencies include a large fishing and farming population and a large share of GRDP occupied by the agricultural sector tend to propose more agriculture-related bills. When analyzing the 18th and 19th National Assemblies, it is notable that immediately before and after the passage of the Korea-US FTA ratification bill, the number of proposed bills related to the sector in question surged.

It is difficult to state with certainty, however, that lawmakers have supported agricultural protection policies at a higher level compared to other policies. [Figure III-5] shows the proportion of agriculture-related bills proposed compared to other types of bills proposed by year. From 1980 to 2011, only 4.1 percent of all proposed bills was related to the agriculture, forestry and fisheries industry, on average. Since 1993, the yearly averages mainly fall below the overall average. This implies that the agricultural sector may not be the object of favoritism by politicians as opposed to common belief.

Nevertheless, the bills that have been proposed to date mainly feature the intention of protecting the agriculture, forestry and fisheries sector, since

[Figure III-5] Proportion of Agriculture, Forestry and Fisheries-related Bills



Note: When a bill was jointly proposed by multiple lawmakers, it was counted multiple times.  
 Source: National Assembly Agenda Information System

lawmakers commonly wish to minimize political transaction costs. Workers in the agricultural sector are relatively older and not highly-skilled compared to those in other industries, so there is a limitation in terms of them being redeployed through restructuring. The resulting political transaction costs serve as the motive

〈Table III-6〉 Number of Local Lawmakers and Their Constituents

(Unit: Person, %)

Region		No. of lawmakers (A)	No. of constituents (B)	No. of constituents per lawmaker (B/A)
Urban area	Seoul	47	8,379,354	178,284
	Incheon	12	2,207,341	183,945
	Daejeon	6	1,172,121	195,354
	Sejong	1	80,028	80,028
	Gwangju	8	1,108,835	138,604
	Daegu	12	1,978,971	164,914
	Ulsan	6	873,996	145,666
	Busan	17	2,904,884	170,876
	Subtotal	109 (44.9)	18,705,530 (46.6)	171,610
Rural area	Gyeonggi	52	9,238,310	177,660
	North Chungcheong	8	1,222,879	152,860
	South Chungcheong	9	1,586,821	176,313
	North Jeolla	11	1,476,224	134,202
	South Jeolla	11	1,525,053	138,641
	Gangwon	9	1,227,478	136,386
	North Gyeongsang	15	2,172,551	144,837
	South Gyeongsang	16	2,585,307	161,582
	Jeju	3	441,470	147,157
	Subtotal	134 (55.1)	21,476,093 (53.4)	160,269
	Total	243	40,181,623	165,356

Note: There are different opinions regarding if Gyeonggi Province should be categorized as a rural area. However, even when Gyeonggi Province is categorized as urban area, the average number of constituents per urban lawmaker (173,564) is considerably greater than that for rural lawmakers (149,241), thereby not impacting the over-representation of rural areas.

Source: National Election Commission, confirmed number of voters: local constituency 40,181,623, proportional representation 40,185,119, Press Release, April 4, 2012.

for politicians to protect agricultural workers (Lee and Jun, 2003). Korea's political system is a further reason underlying politicians' favorable attitude towards agriculture (Lee and Jun, 2003; Jeong, 2004). The rural regions of Korea are over-represented due to the single-member district system and the majority representation system. In other words, although a rural electoral district typically has a smaller population than does an urban one, there are more representatives of rural areas than of urban areas. <Table III-6> shows that the number of lawmakers representing rural areas is larger than those representing urban areas. Therefore, the activities carried out in the National Assembly are more likely to reflect the interests of rural areas than those of urban areas.

Meanwhile, the average number of bills proposed by all Assembly members, including not only local representatives for rural areas but also those for urban area and proportional representatives, was 12. Proportional representatives proposed an average of five bills per person and lawmakers from urban area put forward an average of ten. The average number of bills proposed by proportional representatives and urban lawmakers was lower compared to that of bills proposed by rural lawmakers. However, given that their political base is not directly related to agriculture and farming areas, urban lawmakers have been equally as active in proposing agriculture-related bills as have rural lawmakers.

Regional representatives whose political support base is found in rural areas are more likely to submit bills related to rural concerns, presumably because they are sensitized to the interests and opinions of their constituents. On the other hand, the reason why lawmakers whose political support base is not found in rural areas also propose bills related to the agriculture, forestry and fisheries industry is that the general public bears a favorable attitude towards agricultural industry and farming communities.

The general public believes that the agricultural industry and farming areas remain important not only in an economic sense, but also from a socio-political point of view. When asked about the value of the agricultural industry to the national economy, over 70 percent of urban respondents replied that it has been and will be important (Kim and Park, 2010; 2011; Kim *et al.*, 2012).

**〈Table III-7〉 Number of Agriculture, Fisheries and Food-related Bills Proposed by Lawmakers in the 11th to 19th National Assemblies**

Region	No. of bills	No. of lawmakers proposing bills	Per capita average
Rural area	15,677	763	21
Non-rural area	14,999	1,372	11
Proportional representative	3,373	708	5
Total	34,049	2,843	12

Note: When a bill was jointly proposed by multiple lawmakers, it was counted multiple times.  
Source: National Assembly Agenda Information System

This survey result can be interpreted as similar to what the politician-voter model would predict: since urban dwellers are greater in number and have higher incomes compared to their rural counterparts, they feel positively toward agricultural protection policies and fiscal aid policies for the agricultural sector. In addition, South Korea has grown rapidly over a brief period of time, and therefore emotional bonds between urban and rural areas have often not yet been broken. Urban dwellers consider Korea to be rooted in agriculture, which gives rise to a social consensus that domestic farm products are preferred and domestic agriculture should be protected. This friendly attitude of city dwellers towards domestic agriculture may not serve as a strong motive for politicians to pursue the protection of agriculture in an aggressive manner, but it is certainly robust enough to motivate them to take an amicable attitude towards agricultural protection, at the very least in order to avoid public criticism.

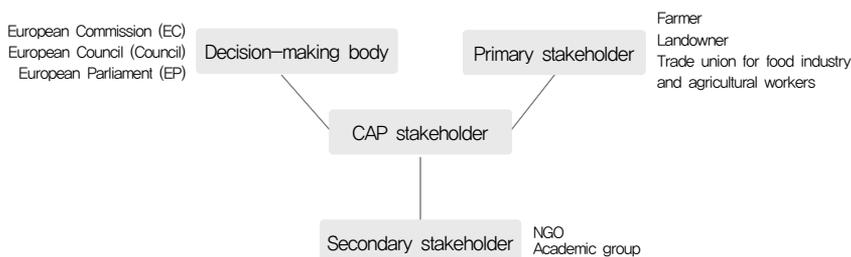
### 3 International Cases

#### A. Decision-making System for EU Agricultural Subsidies Policies and Influence of Interest Groups

Major players in the decision-making system for the Common Agricultural Policy (CAP) of the EU are largely categorized into (a) decision-making bodies, (b) primary stakeholders and (c) secondary stakeholders [Figure III-6].<sup>4)</sup> Decision-making bodies include the European Commission (EC), the European Council and the European Parliament (EP), as well as other EU organizations. Primary stakeholders are groups of people who are directly affected by changes in agricultural policies and who are also major agents of agricultural management such as farmers; members of trade unions related to food manufacturing, processing and distribution; and landowners. Secondary stakeholders include academic groups and NGOs that have an interest in and exercise influence on agricultural policies.

Under the so-called “Policy Coherence for Development,” the EU attempts to reflect the interests of developing nations and allows them to offer their opinions when changes in the CAP are being discussed. In fact, since 2013

[Figure III-6] CAP Decision-making System



4) In this section, a “stakeholder” is considered as a similar concept to an “interest group” for the convenience of discussion.

EU stakeholders themselves have also discussed how changes in the CAP would affect developing countries as part of the reform process. However, it is known that developing countries have yet to directly provide any opinions in the CAP reform process.<sup>5)</sup>

In October 2011, the African, Caribbean and Pacific Group of States (ACP) expressed opinions regarding the EU's plan for abolishing sugar quotas. Also, in the ACP-EU Joint Parliamentary Assembly held in December of the same year, how ACP countries would be impacted by CAP reform measures including genetically modified organism (GMO) rules and direct payments was addressed. Consultations and lobbying activities by various stakeholders and interest groups have a significant influence over the CAP due to the nature of the EU process of proposing policies and making decisions.

First of all, the EC gathers opinions from a variety of advisory committees as it prepares to propose a bill. At this point, Europe-level interest groups are granted exclusivity in the politics of the EU. While advisory committees only provide advice and carry no official authority, they have the opportunity to conduct unofficial lobbying activities by capitalizing on their ability to contact decision-making bodies.

At times the EU itself actually encourages the formation of agricultural interest groups at the EU level. Given its limited budget and staff, by doing so the EU is able to take advantage of the expertise available from interest groups. The size of the related EU staff is usually smaller than that of a member country's related agency, which at times makes it inevitable for the EU to depend on specialized information provided by member governments. However, with agricultural interest groups as resources, the EU is able to exercise independence from member-country governments and it can also partner with interest groups in attempts to persuade member countries, the Council and the EP when establishing regulations or implementing policy projects. The EU designs and implements policies that span Europe, so as negotiating partners it prefers

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5) Since 2013, various stakeholders have suggested opinions on the effects of CAP reform plans, and the European Commission (EC) posts those opinions on its website after dividing them by groups and countries. This can be seen at the following website.  
([http://ec.europa.eu/agriculture/cap-post-2013/consultation/contributions\\_en.htm](http://ec.europa.eu/agriculture/cap-post-2013/consultation/contributions_en.htm))

continental groups with a membership based in multiple European countries rather than mono-national groups.

Among such interest groups, COPA-COGECA, which is mainly comprised of producer groups from EU member countries,<sup>6)</sup> holds a special position in relation to the CAP. This organization was initially established in 1958 and 1959 as two separate groups, COPA (Comité des Organisations Professionnelles Agricoles) and COGECA (Comité Générale de la Coopération Agricole), but subsequently merged in 1962. In 2003, COPA-COGECA became an umbrella organization binding 29 groups from 15 member countries. COPA-COGECA has a centralized and comprehensive membership system and reflects agriculture-related interests in virtually all of the EU member countries.

The Council of Agricultural Ministers decides all matters regarding the CAP on behalf of EU member countries. Agricultural ministers commonly discuss agricultural bills suggested by the EC, and there is a potential for lobbying activities since decisions can also be made through qualified majority voting in which the number of votes is adjusted in proportion to each country's population. This also reinforces the position of lobbying groups not only among member countries, but also on an EU level. Interest groups rapidly increased in number during the 1980s as the EU's role was being strengthened.

Unofficial lobbying activities at the EU level are generally conducted through coalitions, which in turn results in an issue common with collective action. The decisions resulting from lobbying activities are applied to the EU as a whole, so there can occur the problem of some agricultural producers who do not participate in lobbying activities becoming free riders.

## **B. Decision-making System for US Agricultural Subsidies Policies and Influence of Interest Groups**

Lobbyists who have signed a contract with interest groups, law firms or consulting companies are involved in the enactment process of the Farm Bill

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6) See details about COPA-COGECA on the following website.  
(<http://www.copa-cogeca.be/Menu.aspx>)

through both the executive branch and the Congress by means of both direct (contacting the administration and Congress members) or indirect (influencing public opinion in favor of a policy through the media or other channels) lobbying activities. Several farmers' organizations, including the National Cotton Council, the National Corn Growers Association and the American Farm Bureau Federation (AFBF), submitted legislative proposals related to the 2013 farm bill to the related congressional agricultural committees. In addition to such official proposals, farmers' organizations present their views or exert pressure on members of congress and the administration by sending letters either individually or jointly with other related groups.

The AFBF, the largest nationwide farmers' organization in the US, was founded in 1919 and consists of more than six million, generally conservative, members. Regarding the 2013 farm bill, the AFBF urged (a) the provision of a choice of program options to producers; (b) the expansion of federal crop insurance; (c) the design of a crop support system that encourages producers to respond to market signals rather than government payments; (d) the exclusion of programs based on production costs; and (e) a guarantee of equity across program commodities.<sup>7)</sup>

The National Farmers Union (NFU), the second-largest nationwide farmers' organization, was established in 1902 and is estimated to have over 250,000 members. When the House of Representatives passed a version of the farm bill that excluded the nutrition title on July 11, 2013, the NFU sent a letter to members of the House on behalf of an alliance of 532 organizations.<sup>8)</sup> Moreover, 243 groups, including the Rural Coalition and the National Family Farm Coalition, issued a joint statement supporting the retention of nutrition programs and an expansion of conservation programs.<sup>9)</sup>

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7) See the website of the AFBF. (<<http://www.fb.org/issues/docs/farmbill13.pdf>>)

8) See the website of the NFU.  
(<<http://www.nfu.org/news/239-family-farm-policy/1799-nfu-to-house-strongly-oppose-splitting-nutrition-programs-from-farm-bill>>)

9) See the statement.  
(<<http://sustainableagriculture.net/wp-content/uploads/2013/07/Full-and-Fair-Farm-Bill-Now-Statement.pdf>>)

In addition to nationwide farmers' organizations and groups representing specific commodities, a broad range of interest groups representing consumers, taxpayers and environmental organizations voice their opinions and engage in diverse activities. The Environmental Working Group (EWG), for instance, asserted that the 2013 farm bill must (a) strengthen resource conservation programs; (b) reform subsidies to focus them on protecting family farmers; and (c) support farmers who turn away from the administration of antibiotics, hormones and toxic pesticides.<sup>10)</sup> Under these principles, the EWG has demanded the abolishment of direct farm payments, reform of insurance subsidies and strengthening of nutrition programs.

Taxpayers for Common Sense (TCS), a taxpayer advocacy group, agitates to end direct payments and tighten regulations on the agricultural support system (such as exclusion of corporate farms from insurance subsidies and other support benefits).<sup>11)</sup>

### C. Comparison between Developed Countries and South Korea

Agricultural support policies in the EU and the US are implemented within a framework of budgets and programs spanning the several succeeding years, as opposed to those in South Korea which must be designed annually. Multi-year frameworks for agricultural administration enhance the transparency of policy measures and present a direction for agricultural administration reform, encouraging stakeholders to participate in a more rational decision-making and mediation process.

The rural population and the proportion of agriculture in the overall economy have declined in advanced countries and in South Korea as well. In other countries, however, agricultural restructuring took more than a hundred years to secure competitiveness, while the Korean agricultural sector has undergone its restructuring at a rapid pace since the 1960s and is now faced

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10) See the website of the EWG. (<<http://www.ewg.org/farmbill2013>>)

11) See the website of TCS.  
(<<http://www.taxpayer.net/library/article/house-farm-bill-draft-analysis-squanders-savings>>)

with external challenges including market opening and the implementation of the WTO rules (Lee and Lim, 2004).

Over the course its restructuring process, the EU has emphasized the environment and rural development, such as agriculture's role in protecting the environment and providing public goods and services, in order to maintain its agricultural subsidies. In the aftermath of the outbreak of BSE (also known as "mad cow disease") in the early 2000s, the EU also set food safety as one of its key policy goals. In the US, authorities have promoted the legitimacy of agricultural subsidies by reflecting the concerns of urban residents such as through the Supplemental Nutrition Assistance Program (SNAP or "food stamps"). The United States, like the EU, is also bulwarking the environmental protection function of agriculture and the requirements for such protection.

In contrast, Korean agricultural subsidies have not secured legitimacy as unshakably as have those in the EU and the US. However, several points are considered to have strengthened the position of Korea's agricultural subsidies: (a) many living Koreans directly experienced the significance of food security during Korean War and the subsequent period of severe national poverty; (b) it is broadly acknowledged that the agricultural sector was relatively sacrificed for the sake of the industrialization process; (c) there is an increasing concern that the self-sufficiency rate in food production has been on a steady decline since the 1970s; and (d) the income gap between urban and rural areas has continuously expanded. Based on these considerations, agricultural subsidies have mainly focused on rice, the staple food of the country. Still, the environment, rural development and welfare are insufficiently included within agricultural measures in Korea compared to those found in developed nations.

In South Korea, lobbying activities by interest groups are concentrated on the executive branch and the National Assembly and, as occurs in advanced countries, these groups are able to express their opinions on policy proposals through related meetings and discussions. Nonetheless, in the EU and the US opinions are collected in a more open manner and from a wider range of interests. For example, farmers' organizations, committees and agri-food manufacturers all submit an official statement on agricultural policies with the assistance of experts. They are also allowed to donate to political parties or directly to politicians, while contributor lists are open to the public. The sizes of agricultural

subsidies and lists of beneficiaries are also released.

In Korea, collective action by farmers' organizations tends to draw more attention compared to in developed countries. Also, it is physically easier for farmers to hold rallies and their other transaction costs are low due to the relatively limited land space. Such a direct expression of opinions may further imply that official channels for collecting opinions from interest groups are restricted and that the administrative system is ineffective.

# IV

## Analysis of Protective Factors in the Agriculture Sector

### 1 Analysis of Domestic Agriculture

This section examines whether the socio-economic variables as described in the collective action and politician-voter models covered in the preceding studies are applicable to South Korea. The first to be investigated is the relation between the budget of the Ministry of Agriculture, Food and Rural Affairs (MAFRA) and the number of farming households or the farming population, which are the major variables related to the formation of interest groups according to the collective action model. As mentioned, under this theory an agricultural interest group can be formed when the number of workers in the agricultural sector decreases, since smaller size means the communications costs of collective action are reduced and it becomes easier to manage free riders. In terms of the politician-voter model, the income gap between urban and rural areas and the proportion of food in household expenditures are important variables. De Gorter and Tsur (1991) presented a model to explain that the relative income motive encourages politicians to support an income redistribution policy.

#### A. Time Series Analysis

The following formula is a regression equation that features the correlation between factors described in preceding studies—the size of

agricultural producer groups, the proportion of food in household expenditures, and the income gap between urban and rural areas—and the proportion of the MAFRA budget out of the overall national budget.

$$Budget_t = \alpha + Budget_{t-1} + X_t + openness_t + political_t + \theta_t$$

$Budget_t$  is the proportion of the MAFRA budget out of the national budget. The proportion of the previous year's budget is included as an independent variable since once a budget project is determined it tends to be continuously implemented over the following year. The motives in the collective action model and politician-voter model, including the proportion of farms, the income gap between urban and rural areas and the proportion of food within overall household expenditures, are marked as  $X_t$ . In previous agricultural policies, market opening negotiations served as a critical watershed for agricultural administration and there was a growing call for restructuring and damage compensation in response to market opening. In light of these occurrences, the periods of the Uruguay Round (UR) negotiation, the WTO renegotiation, the Korea-Chile FTA, the Korea-US FTA and the Korea-EU FTA are included as a dummy variable  $openness_t$ . The impact of negotiations on agricultural products can differ depending on the time from the completion of the negotiations to the passage of the related bill in a plenary session of the National Assembly. Accordingly, an adjusted dummy variable is applied. For example, from 1986 when the UR negotiations were initiated, nine years passed before the 1994 passage of the settlement plan in the National Assembly. Thus, 1/9, 2/9, and 9/9 are assigned as dummy variables to the regression equations for the years of 1986, 1987 and 1995, respectively. The dummy variable for 2004 is 1 in the light of the renegotiation over rice. The dummy variable for a year without a negotiation is 0.<sup>12)</sup>

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12) The UR negotiation took nine years, from 1986 to 1994; the Korea-Chile FTA spanned six years from 1999 to 2004; the rice renegotiation lasted one year, starting and ending in the same year of 2004; the Korea-US FTA covered five years from 2006 to 2011; and the Korea-EU FTA took five years from the beginning of the negotiation in 2007 to its ratification in 2011.

Moreover, at points when the income of farmers dipped due to natural disasters or the failure of government policies, farmers' groups staged public protests urging the government to produce appropriate countermeasures. Pressure from farmers' groups led the government to release a large-scale investment and loan plan on every such occasion, which contributed to changes in the agricultural budget. Accordingly, 1 is assigned as a dummy variable as an independent variable to the regression equation of a year with protests and rallies by farmers' groups, while 0 is applied to that of a year without.

Furthermore, 1 is assigned as a dummy variable to the regression equation for a year with a presidential or general election, while 0 is applied to that of an ordinary year, in order to ascertain if the myriad agricultural support plans pledged by candidates prior to elections actually affect eventual financial support.

<Table IV-1> shows the result of a regression analysis in which the proportion of the MAFRA budget within the overall national budget from 1971 to 2011 is applied as a dependent variable. According to the result, variables used in prior studies that examined the politico-economic factors involved in agricultural protection are not in correlation with budgets. However, the number of farming households and the square of that number—indicators of the potential for the agricultural population to carry out organized activities—do show a statistical correlation with budgets on some occasions. However, most of the other variables do not demonstrate any statistically significant correlation with the overall share of the MAFRA budget. Only the size of the proportion of the MAFRA budget from the previous year demonstrates a meaningful correlation with the proportion of the MAFRA budget for the current year regardless of the type of model, implying that the preceding year's figures play an important role in the statistical explanation of the budget. This is presumably because the Korean government pursues incremental budgeting rather than renewing the budget on a yearly basis through a rational decision-making process. As the authorities in charge of budget execution lack the data, capacity and time to allow for proper decision-making, they appear to set the budget plan for the following year simply by slightly adjusting the current year's figure. Since a budget determined under the principle of incremental budgeting does not aggressively reflect socio-economic shifts, the previous year's budget performance, rather than any socio-economic variables, serves as a better

evidence base for the budget appropriation for the following year.

〈Table IV-1〉 Result of Time Series Regression Analysis

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Proportion of the MAFRA budget within the national budget in the previous year	0,7572*** (0,0936)	0,7875*** (0,1082)	0,7881*** (0,1041)	0,8128*** (0,1192)	0,8016*** (0,1218)	0,7277*** (0,1746)
No. of farms	0,0150** (0,0056)	0,0150 (0,0098)	0,0148** (0,0057)			0,0174 (0,0241)
Square of the no. of farms	-4,4E-06** (1,6E-06)	-4,3E-06 (3,9E-06)	-4,2E-06** (1,6E-06)			-5,9E-06 (7,8E-06)
Proportion of food in household expenditures				-0,0434 (0,0608)	-0,0587 (0,0660)	0,0029 (0,1526)
Income gap between cities and rural areas				6,1739 (3,4204)	6,9765* (3,6795)	5,1698 (4,7955)
Market opening dummy		0,8261 (0,7782)	0,8250 (0,7656)	1,0281 (0,8188)	1,0906 (0,8340)	0,9180 (0,9167)
Rally dummy		-0,0929 (0,6971)	-0,0927 (0,6867)	0,0254 (0,7594)	-0,0648 (0,7809)	-0,2374 (0,8584)
Election dummy					0,3230 (0,5041)	0,3008 (0,5202)
Proportion of agriculture, forestry and fisheries out of GDP		0,0072 (0,2699)				
Constant term	-10,5766** (4,3468)	-11,2816 (6,8115)	-11,1478** (4,5566)	-3,5718* (2,0551)	-3,9775* (2,1730)	-15,1933 (15,6282)
Portmanteau (Q) statistic	21,6254	24,9576	24,9283	21,0458	19,8667	19,8027
Prob>chi2	0,2490	0,1261	0,1269	0,1005	0,1344	0,1365
R <sup>2</sup>	0,8299	0,8360	0,8360	0,7946	0,7979	0,8030
No. of Observations	40	40	40	32	32	32

Note: Figures in brackets indicate standard error.

## B. Commodity Panel Analysis

The collective action model explained above is focused on political competition between agricultural producers and consumers. However, interest groups can impact not only the relation between the agricultural and non-agricultural sectors, but also the internal functions of the agricultural industry. Before a market-opening negotiation, for instance, producers of specific commodities may pressure the government, demanding a low level of market opening for their particular commodity. As the systematization level and the frequency of political activities of producers differ by commodity, the government may also respond in individual ways. In this research, a regression analysis was conducted based on materials on respective commodities in order to examine how the existence of an interest group for each commodity affects the budget allocation of the MAFRA and the level of commodity protection. Features of respective commodities, political variables, macroeconomic conditions, level of market openness, and the incidence of calamities that have an impact on agricultural production are included in the regression analysis to identify the level of support for each commodity. The analysis model is composed based on the existing theoretical model and on previous studies.

The following formula is the regression equation for this analysis.

$$Support_{it} = \alpha + X_{it} + other_t + openness_t + disaster_t + political_t + \epsilon_{it}$$

The dependent variable( $Support_{it}$ ) indicates the level of support for each commodity. In this study two indicators are used. The first is the Producer Single Commodity Transfers (PSCT) released by the OECD. The PSCT is the annual gross income transferred to an agricultural producer from consumers and taxpayers. The agricultural producer should maintain productive activities in order to receive such government support (OECD, 2010). The PSCT includes the price support effect created by a gap between a market price and a farm gate price, and the sum of all kinds of direct payments and financial support provided for the use of farm input.<sup>13)</sup> Therefore, the PSCT indicates the comprehensive protection level of a commodity, which includes income

transferred from both the government and consumers. Since the PSCT implies the protection level as influenced not only by direct fiscal expenditures, but overall agricultural policies as well, it cannot appropriately address fiscal expenditures, the major theme of this study. However, its time series is longer than that of other indicators that represent support level by commodity.

The second indicator is the product-specific Aggregate Measure of Support (AMS), which Korea has reported to the WTO since 1995. The product-specific AMS is the sum of that support which has been recognized as a commodity support policy with a market-distorting effect, including subsidies granted in proportion to production output, such as deficiency payments. This indicator corresponds better to the objective of this study in that it describes the fiscal expenditure on each commodity, but the available time series is short since the support record submitted by Korea to the WTO is limited to only the period from 1995 to 2008. In addition, there may have occurred a loss of information as the indicator does not include any direct payments that have been granted for each commodity but that are acknowledged as having no market distorting effect. In the case of rice, for example, only variable direct payments are included in the AMS calculation because fixed direct payments that are granted according to a fixed-area standard of are considered to not distort markets, while variable direct payments that are granted depending on production output do have such an effect.

Eleven commodities (rice, barley, soybeans, milk, beef, pork, chicken, eggs, napa cabbage, garlic and red peppers) are used as panel materials for PSCT analysis from 1986 to 2011.

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13) The PSCT used in this study is one of the subsections of the PSE released by the OECD on a yearly basis, which measures the level of protection in the agricultural market of respective countries. The PSCT is an indicator as a measurement of the protection level of a specific commodity and includes output-based subsidies, farm-input-based subsidies and direct payments made on the premise of continuous production. However, subsidies for unspecified commodities are missing from the calculation of the PSCT, and the indicator thus diverges slightly from the actual protection level of the commodity. In the case of rice, for instance, fixed and variable direct payments are included in the calculation of the PSCT, while subsidies that are not limited to rice, such as farming transfer direct payments, are not included.

The panel materials for 16 commodities, including rice, barley, soybeans, milk, beef, pork, chicken, eggs, garlic, red peppers, onions, ginseng, apples, pears, corn and tangerines for the years from 1995 to 2008 are used for the product-specific AMS analysis.

〈Table IV-2〉 Basic Statistics of Dependent Variables

(Unit: %)

Commodity	compared to production output				production output			
	Average	Standard deviation	Minimum value	Maximum value	Average	Standard deviation	Minimum value	Maximum value
Rice	14.4	7.5	0.0	29.8	77.0	12.4	47.9	93.9
Barley	32.3	9.1	20.0	51.0	123.4	31.4	47.9	177.6
Soybeans	5.0	3.9	0.8	13.8	89.9	11.4	68.9	122.5
Milk	63.5	67.1	0.0	199.4	1,047.2	1,631.7	-4,680.0	3,294.4
Beef	2.3	3.3	0.1	10.0	47.9	22.9	16.9	92.8
Pork	0.2	0.3	0.0	0.6	42.0	17.1	3.3	67.0
Chicken	0.0	0.0	0.0	0.0	27.4	15.8	11.4	57.8
Eggs	0.0	0.0	0.0	0.1	12.1	11.4	-17.0	31.7
Napa cabbage	n.a.	n.a.	n.a.	n.a.	21.5	2.0	15.1	24.2
Garlic	1.6	2.1	0.0	8.2	57.0	25.6	-19.4	83.7
Red peppers	0.3	0.2	0.0	0.6	66.1	8.0	46.4	80.8
Onions	2.2	1.6	0.1	5.5				
Ginseng	1.2	1.2	0.2	4.3				
Apples	0.8	0.4	0.0	1.3				
Pears	1.1	0.9	0.0	2.6				
Corn	7.3	6.4	0.0	18.5				
Tangerines	0.3	0.3	0.0	0.9				

Source: OECD, PSE Database.  
Statistics Korea, Index of Agriculture, Forestry and Fisheries Production.  
WTO, Document G/AG/N/KOR/43.

As commodity support level is closely related to the proportion of production, the figures in the two indicators are divided by production output for the purpose of controlling the proportion of each commodity.

〈Table IV-3〉 Features of Farms Cultivating a Specific Commodity

Commodity	No. of farms (unit: household)		Regional concentration level		Proportion of large-scale farms/ small-scale farms		Average income (unit: 1,000 KRW)	
	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation	Average	Standard deviation
Rice	1,154,995	274,340	0.135	0.002	0.580	0.437	702	140
Barley	138,649	127,606	0.347	0.038	0.847	0.529	207	56
Soybeans	695,495	189,414	0.143	0.016	0.398	0.272	372	110
Milk	18,805	9,852	0.229	0.030	1.873	2.361	1,549	1,060
Beef	388,979	204,957	0.132	0.015	0.032	0.051	1,184	522
Pork	68,722	80,629	0.151	0.023	0.263	0.389	124	101
Chicken	102,516	85,379	0.167	0.024	0.071	0.022	234	368
Eggs	55,829	17,154	n.a.	n.a.	0.058	0.020	453	1,091
Napa cabbage	851,600	438,938	0.129	0.012	0.422	0.292	1,004	209
Garlic	544,635	250,019	0.226	0.034	0.442	0.304	1,477	656
Red peppers	881,409	283,962	0.147	0.007	0.417	0.292	6,955	2,300
Onions	101,120	8,979	0.331	0.025	0.565	0.381	1,415	741
Ginseng	12,403	1,635	0.189	0.009	3.268	2.129	8,861	3,366
Apples	46,393	12,017	0.447	0.017	2.030	1.298	2,409	511
Pears	36,288	5,583	0.143	0.006	2.224	1.661	2,605	665
Corn	118,811	20,888	0.219	0.019	0.800	0.718	812	174
Tangerines	23,397	2,294	0.998	0.002	0.741	0.226	3,315	1,833

Note: The census is conducted every five years. The number of farms in a year without a census is calculated by interpolation.

Source: Statistics Korea, Agriculture, Forestry and Fisheries Census for pertinent years.

$X_{it}$  in the regression equation indicates commodity features that affect the formation of an interest group, and collective action by interest groups may have an influence on the protection level of each commodity (Olson, 1990; de Gorter and Swinnen, 2002). The number of farms or of employees in the agricultural industry is a typical example of such a variable. According to the collective action model, the lower the number of farms, the easier it is to form an interest group and to take collective actions, and thus the protection level of a specific commodity increases. Therefore, the number of farms and the commodity protection level potentially stand in a negative relation. This study uses the proportion of farms cultivating a specific commodity among all farms.

If producers of a certain commodity are concentrated within a small area, it becomes easier for them to carry out collective action, which increases the protection level for that commodity. Regional concentration level in this study indicates the square root of the sum of squares of the proportion of a cultivation area in each city or province. The related formula is as follows:

$$A_i = \sqrt{\sum_{j=1} \left( \frac{A_{ij}}{A_i} \times 100 \right)^2}$$

$A_i$  indicates the national cultivation area of a specific commodity, and  $A_{ij}$  indicates the cultivation area of the commodity in each city or province.

Moreover, this study also takes into consideration the gaps in cultivation volume between producers of the same commodity. Jonsson (2007) demonstrates that producers with severely unequal cultivation volumes participate in lobbying activities more actively than do those with similar cultivation volumes among producers of a given commodity. This is due to the fixed expense required for lobbying activities. Producers of a specific commodity with a high proportion of large-scale farms are able to afford the fixed expenses for lobbying, while those with the high proportion of small-scale farms cannot afford such costs and thus cannot aggressively participate in lobbying activities. Therefore, this study includes the cultivation gap among producers by applying the proportion of large-scale farms compared to that of small-scale farms according to the standard of harvest area of each commodity. For arable crops, including rice,

the calculation is more specifically the total number of farms of over two hectares divided by the total number of farms of less than 0.5 hectares. For cattle, the total number of farms with over 50 head of cattle is divided by the total number of farms with less than 10 head. In terms of pigs, the total number of farms with over 1,000 pigs is divided by the total number of farms with less than 100. For chickens and eggs, the total number of farms with over 5,000 chickens is divided by the total number of farms with less than 500 chickens. The higher this indicator, the higher is the proportion of large-scale farms specialized in a specific commodity. Producers of a commodity with a high proportion of large-scale farms would more willingly participate in collective action on behalf of their common interests with greater desire and capability for political activities. Therefore, this indicator is expected to bear a positive relation with commodity support level.

The last point to be considered is the income level of the producers of each commodity. In this study, income per area unit or per head of livestock is used as an explanatory variable. Producers of a commodity with a high income per area unit are able to gain additional benefits from agricultural protection policy, and thus an influence over such policy highly sought among these producers. Accordingly, the income level of each commodity is expected to show a positive relation with agricultural protection policies or fiscal expenditures.

Meanwhile, agricultural protection levels are affected not only by the characteristics of a commodity in connection with the political activities of producers, but also by external environmental conditions.  $other_t$  in the regression equation is a variable related to external environmental conditions, including the inclinations of urban residents toward agricultural protection. The attitude of urban residents is likely to stand in close relation with agricultural protection since their views on agricultural protection affect the decisions of politicians, and politicians strive to maximize their political support among both urban and rural residents. The income gap between urban and rural areas and the proportion dedicated to food among urban households' total expenditures are representative examples. The larger the income gap and the lower the proportion of food in urban households' budgets, the higher is the acceptance of urban residents toward agricultural protection. Accordingly, these variables are expected to show a negative relation with the commodity support level for

each commodity.

The disaster variable is a dummy variable that is marked 1 for a year with a major amount of unplanned financial support being provided in response to a natural disaster, including for cold waves, typhoons, and livestock diseases such as foot-and-mouth disease. It is assigned 0 for a year without any such provisions. In order to identify the occurrences of disasters, the study collected data on years characterized by the occurrence of typhoons, based on the amount of property damage aggregated by the National Typhoon Center and records of crop damage by natural disasters maintained by the National Emergency Management Agency. The study sorted out years with damage to over 100,000 hectares of farmland and used data on foot-and-mouth disease outbreaks recorded in the monthly report on livestock diseases. These materials were selected on the grounds that when producers are faced with unexpected damage, they tend to call for government support through collective action. Therefore, the disaster variable is expected to be in a positive relation with commodity support level.

Some variables are related to both the agricultural and non-agricultural sectors, including the market opening variable. In South Korea, an importing country of agricultural products, farmers have rigorously opposed agricultural market opening on every occasion of pertinent negotiations. Some urban residents also believe that market opening spawns unfavorable conditions for agricultural producers, and thus the government is required to provide them with compensation. In these two aspects, market opening serves as an important opportunity to increase agricultural protection levels.<sup>14)</sup>

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14) The ideological tendency of the ruling party can be another political variable that needs to be considered. Olper (2007) and Swinnen (2010) demonstrate that conservative administrations tend to protect agriculture. In contrast, Bates (1989) asserts that even a progressive administration is willing to protect agriculture when society suffers from severe inequality. In South Korea, however, ruling and opposition parties may show conservative or progressive attitudes regarding a given issue, but mostly implement policies pursuing practical interests. There has been no practice by a ruling party of rapidly shifting its tendency to become conservative or progressive. There has been a slight difference between administrations, but mainly a conservative party has held power, and thus it is difficult to identify from the data whether or not the ideology of respective administrations has resulted in changes in budget allocations. Accordingly, this study excludes the ideological tendency of the government as a variable.

**<Table IV-4> Expected Effect of Explanatory Variables**

Variable	Expected sign	Variable	Expected sign
Proportion of the no. of farms	-	Proportion of food in household expenditures	-
Regional concentration level	+	Income gap between urban and rural areas	-
Proportion of large-scale farms/small-scale farms	+	Election dummy	+
Average income in the previous year	+	Market opening dummy	+
Disaster variable	+	Rice dummy	+

Lastly, the election variable is a dummy variable that is marked as 1 for a year with a presidential and/or general election, and 0 for a year without. It is expected that politicians wish to raise the level of support for agriculture in order to attract voters in the run-up to elections.

<Tables IV-5> and <Table IV-6> show the panel analysis result of each dependent variable. The correlation between each dependent variable and the proportion of farm households is similar to the pooled PLS result, but it appears to lack statistical significance. The proportion of large-scale farms/small-scale farms shows a distinction between the results of the panel analysis and the pooled OLS, with the estimated figure of the coefficient being a negative number, which is opposite to the previous result. The average income of the previous year has a positive correlation with the two dependent variables, but it shows a statistical significance only with the PSCT, not the AMS.

The proportion of food in urban households' expenditures and the income gap between urban and rural areas have a positive correlation with the PSCT and a negative correlation with AMS, relations that are opposite to each other.

〈Table IV-5〉 Panel Analysis Result

(Dependent Variable: Proportion of PSCT Compared to Production Output)

Explanatory variable	Fixed effect	Fixed effect	Fixed effect	Fixed effect	Fixed effect
Proportion of farms	0.124* (0.064)	-0.070 (0.077)	-0.132 (0.082)	-0.064 (0.096)	-0.073 (0.088)
Regional concentration level	0.440 (0.330)	0.459 (0.316)	0.275 (0.315)	0.469 (0.322)	0.329 (0.313)
Proportion of large-scale farms/small-scale farms	-0.014 (0.016)	-0.045*** (0.017)	-0.040** (0.016)	-0.045** (0.018)	-0.038** (0.016)
Average income for the previous year	0.082*** (0.023)	0.060*** (0.023)	0.061*** (0.023)	0.059** (0.023)	0.057** (0.022)
Proportion of food in household expenditures		0.635*** (0.152)		0.653*** (0.159)	
Proportion of income in urban and rural areas			1.320*** (0.282)		1.766*** (0.324)
Korea-US FTA dummy				0.022 (0.092)	0.254** (0.099)
Disaster dummy				0.022 (0.054)	0.096* (0.055)
Election dummy				0.021 (0.057)	0.032 (0.055)
Constant term	4.597*** (0.633)	2.689*** (0.759)	4.214*** (0.606)	2.651*** (0.799)	4.426*** (0.611)
Sigma_u	1.331	1.230	1.201	1.234	1.239
Sigma_e	0.382	0.367	0.363	0.369	0.358
Rho	0.924	0.918	0.916	0.918	0.923
No. of Obs	204	204	204	204	204
No. of Groups	10	10	10	10	10

Note: 1. \*\*\*, \*\* and \* indicate that a variable has a meaningful effect when it exceeds 99 percent, 95 percent and 90 percent, respectively.

2. Log value is applied to variables other than dummy variables.

3. The selection between fixed effect model and random effect model is done according to the Hausman test result.

〈Table IV-6〉 Panel Analysis Result

(Dependent Variable: Proportion of Product-Specific AMS Compared to Production Output)

Explanatory variable	Fixed effect	Random effect	Fixed effect	Random effect	Fixed effect
Proportion of farms	0.821* (0.493)	0.204 (0.186)	0.956 (0.501)	0.183 (0.188)	0.711 (0.518)
Regional concentration level	1.524 (1.786)	-0.031 (0.488)	2.063 (1.823P)	-0.032 (0.488)	2.236 (1.826)
Proportion of large-scale farms/small-scale farms	-0.106* (0.060)	0.098 (0.077)	-0.077 (0.064)	0.080 (0.081)	-0.121 (0.069)
Average income of the previous year	0.077 (0.243)	0.029 (0.154)	0.139 (0.246)	0.043 (0.155)	0.156 (0.246)
Proportion of food in household expenditures		-2.236** (0.991)		-2.743 (1.081)	
Proportion of income in urban and rural areas			-1.734 (1.248)		-2.872 (1.455)
Korea-US FTA dummy				-0.120 (0.445)	-0.352 (0.427)
Disaster dummy				0.343 (0.275)	0.397 (0.234)
Election dummy				-0.027 (0.265)	-0.011 (0.227)
Constant term	4.136 (3.643)	6.469 (3.176)	4.486 (3.641)	7.421 (3.312)	3.505 (3.642)
Sigma_u	2.497	0.756	2.579	0.748	2.539
Sigma_e	1.312	1.312	1.309	1.306	1.299
Rho	0.784	0.249	0.795	0.247	0.792
No. of Obs	178	178	178	178	178
No. of Groups	15	15	15	15	15

Note: 1. '\*\*\*', '\*\*' and '\*' indicate that a variable has a meaningful effect when it exceeds 99 percent, 95 percent and 90 percent, respectively.  
 2. Log value is applied to variables other than dummy variables.  
 3. The selection between fixed effect model and random effect model is done according to the Hausman test result.

The results of time series analysis and panel analysis demonstrate that variables in the preceding politico-economic studies—the number of farms, regional concentration level and income gap within the same group—and variables in the politician-voter model including the income gap between urban and rural areas, cannot be appropriately applied in their entirety to an empirical analysis of agriculture in South Korea. This could be due to errors in the measurement of variables in the analysis. In particular, the budget data for each commodity used in the panel analysis could be substantially different from the actual budget allocated. Moreover, the data regarding the number of farms could be double-counted, since Korean farms generally produce multiple types of commodities. Therefore, financial support for farmers of a particular commodity is not exclusive against those cultivating different commodities, and thus the conditions in Korean agriculture may not perfectly correspond to results from previous studies showing that the number of producers of a specific commodity affects the protection level (or financial support level). Another possibility is that it is difficult for a socio-economic variable to be in direct correlation with a budget, since the agricultural protection levels or budgets are rarely determined on a sufficiently coherent manner in order to be explained by variables, and are instead affected by complex and random unobserved factors. Since each government department conducts projects over several years, rather than within a single year, and since projects that make up parts of mandatory spending cannot be simply abolished or reduced, the data from the preceding year seems to have a considerable influence on the budget allocation process. Budget decisions only reflect the result of political consensus, not the method or structure in which political elements operate. For example, it can be easily assumed that any change in the number of farms would correlate with the agricultural budget. However, since the number itself does not imply actual activities of interest groups, this assumption could lead to a misinterpretation. Budget decisions cannot reflect the process of forging a political compromise between the administration and the National Assembly on budget allocation, either. Therefore, such a quantitative analysis is limited in terms of explaining how political elements impact budget allocation. To better illuminate this aspect, a study would need to be complemented by a qualitative analysis of congressional activities or the roles of interest groups.

## 2 International Comparison

This section illustrates the results of the analysis of politico-economic elements in agriculture using data from other countries. This study is distinguished from most previous studies in two aspects: first, it takes a more comprehensive approach by including emerging countries as well as advanced ones; and second, it presents two different deciding factors by distinguishing between fiscal expenditures directly provided by the government and support transferred by consumers from the market—in other words, market price support.

### A. Model Set-up

As did the Bertelsmann Stiftung (2013), this study divides agricultural support into (a) the fiscal expenditures of the government and (b) market price support provided through trade policies.<sup>15)</sup> The fiscal expenditures of the government includes any loss in public revenues, including concessional taxation, as well as the government budget that is transferred to farmers through direct payments or the establishment of agricultural and rural infrastructure. Support provided through trade policies indicates the market protection effect stemming from import tariffs, which also includes market price support transferred from customers to farmers.

In order to quantify this support in an empirical manner, the study uses the following regression equation based on the aforementioned preceding studies.

$$Y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \epsilon_{i,t}$$

$Y$  is a dependent variable that indicates market price support and fiscal

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15) The size of the agricultural budget of each country is a useful indicator that directly represents the volume of governmental fiscal expenditure on the agricultural sector. However, it is difficult to collect consistent materials on the agricultural budgets of respective countries, and thus this study does not use agricultural budget data as a dependent variable. Based on these same grounds, no preceding study has applied agricultural budget data.

expenditures of the government compared to agricultural GDP.  $\beta_0$  and  $\beta_1$  are coefficients, and  $i$  and  $t$  represent a country and a year, respectively.  $X$  is a dependent variable vector, and  $\varepsilon$  is an error term.

The proportion of rural residents is assigned as an explanatory variable indicating demand for agricultural support. According to Olson's collective action theory, when the relative proportion of rural residents is high, it is difficult to counter the free ride issue and thus demand for support measures is expected to be low. Accordingly, the coefficient is expected to be a negative number.

A further explanatory variable related to demand is the proportion of GDP found in the agricultural sector. The agricultural GDP compared to the non-agricultural GDP per capita can be considered as a variable that indicates the income gap between the agricultural and non-agricultural sectors. The larger the income gap between urban and rural areas, the higher is the demand for distributive policies, which leads to an increase in agricultural support. Accordingly, an increase in the relative proportion of agricultural income is likely to lead to a decrease in agricultural support, and thus the coefficient is likely to prove a negative number.

The farm size area per farmer is assigned as an indicator that represents comparative advantage within the agricultural sector. If the farm maintained by each farmer is large, it implies that the agricultural industry has relatively strong competitiveness and is able to hold a dominant position in the market, even in the absence of support from the government. However, most large-scale farms are found in developed countries that provide a considerable amount of agricultural support. Accordingly, it is difficult to estimate the coefficient.

## B. Data

The study uses data from 25 years, the period of 1986 to 2011, for the yearly analysis. The source of definitions and materials on each variable is explained in <Table IV-7> below. A total of 18 countries are analyzed, including 14 OECD member states—Australia, Canada, Chile, Iceland, Israel, Japan, Korea, Mexico, New Zealand, Norway, Switzerland, Turkey, the United States and the EU—and four emerging countries—China, Indonesia, Russia and South

〈Table IV-7〉 Definition and Source of Variables

Classification	Variable	Definition	Source
Dependent variable	Fiscal expenditure	$\frac{TSE - TCP}{Agricultural\ GDP}$	OECD PSE database <a href="http://www.oecd.org/statistics/">http://www.oecd.org/statistics/</a>
	Market price support	$\frac{TCP}{Agricultural\ GDP}$	OECD PSE database
Explanatory variable	Agricultural population	$\frac{Agricultural\ population}{non - Agricultural\ population}$	FAOSTAT <a href="http://faostat3.fao.org/faostat-gateway/go/to/home/E">http://faostat3.fao.org/faostat-gateway/go/to/home/E</a>
	Agricultural GDP	$\frac{percapita\ Agricultural\ GDP}{percapita\ non - Agricultural\ GDP}$	FAOSTAT & IMF <a href="http://www.imf.org/external/data.htm#data">http://www.imf.org/external/data.htm#data</a>
	Farm size	$\frac{Farm\ size}{Agricultural\ population}$	FAOSTAT

Note: TSE = Total support estimate

TCP = Transfer from consumers to agricultural producers

〈Table IV-8〉 Basic Statistics of Variables

Variable	No. of samples	Simple average	Standard deviation	Minimum value	Minimum value
Fiscal expenditure	401	0,1956958	0,1957517	0,0001*	0,8280396
Market price support	410	0,1479235	0,1664174	0,0001*	0,7735049
Agricultural population	462	0,2766596	0,5014284	0,0163711	2,657849
Agricultural GDP	433	0,442592	0,2531753	0,0673519	1,245463
Farm size	462	9,410938	16,98062	0,1289068	69,41518

Note: \* Part of the samples from data on Australia, Mexico and Indonesia presents negative numbers for fiscal expenditure and market price support. To use log values, a small positive number (0.0001) is assigned.

Africa. These emerging countries lack PSE data from 1986 to 1994, and thus they are not included in the sample for that period. Likewise, the EU does not possess PSE for the same period since it was expanding its membership during that period.

The basic statistics on the variables are summarized in <Table IV-8>. It is unbalanced panel data, and a total of 400 samples are used in the regression analysis.

### C. Model Measurement Result

The coefficient measured by estimating the regression equation above is presented in <Table IV-9>.

<Table IV-9> Model Measurement Result

Explanatory variable	Dependent variable			
	Fiscal expenditure		Market price support	
	Coefficient	Standard deviation	Coefficient	Standard deviation
Agricultural population	-0.9449 <sup>***</sup>	0.2741	1.1789 <sup>**</sup>	0.5370
Agricultural population × Agricultural population	-0.0997 <sup>***</sup>	0.0338	-0.0440	0.0655
Agricultural GDP	-1.0723 <sup>***</sup>	0.2051	-1.4071 <sup>***</sup>	0.4049
Agricultural GDP × Agricultural GDP	-0.1105	0.0929	-0.8300 <sup>***</sup>	0.1862
Farm size	0.5591 <sup>***</sup>	0.1337	0.0308	0.2615
Farm size × Income	-0.3309 <sup>**</sup>	0.1459	0.5462 <sup>*</sup>	0.2845
Constant term	-2.0552 <sup>*</sup>	1.1105	-5.9238 <sup>***</sup>	1.9844
No. of samples	400		395	
R <sup>2</sup>	0.1645		0.1380	

Note: The statistical significance level is marked as follows: \* p<0,1; \*\* p<0,05; \*\*\* p<0,01.

In terms of government fiscal expenditure on the agricultural sector, when the relative proportion of the agricultural population decreases by one percent, the fiscal expenditure compared to agricultural GDP increases by 0.9 percent, as Olson theoretically predicts. The statistical significance of the coefficient of {agricultural population  $\times$  agricultural population} implies that fiscal expenditure is in a nonlinear relation with agricultural population.

The coefficient of agricultural GDP is a negative number with statistical significance, as expected. When the income gap between urban and rural areas rises by one percent, fiscal expenditure goes up by one percent. This implies that an income gap between different sectors is a key driver of political measures. The nonlinear relation between fiscal expenditures and the agricultural GDP is not statistically significant.

A positive number for the farm size coefficient represents a typical pattern among agricultural policies in developed countries in which farm size per person and fiscal expenditures increase hand in hand. For instance, direct payments, a major component of fiscal expenditures, are provided according to farm size or a past record of provided subsidies, so large-scale farms are thus granted larger direct payments. If farm size is considered to be an indicator of comparative advantage, developed countries with strong agricultural competitiveness appear to provide a relatively large subsidy to the agricultural sector.

The (Farm size  $\times$  Income) variable also represents a comparative advantage of agriculture. Unlike in the case of only considering farm size, however, fiscal expenditures decrease when income is also high.

The analysis of market price support shows a distinctly different result from that of fiscal expenditures. The greatest divergence is that the agricultural population has a statistically significant positive relation with agricultural support. When the relative proportion of the population increases by one percent, market price support rises by 1.18 percent. This result can be attributed to characteristics of fiscal expenditure and market price support that are distinct from one another. Market price support is intended to protect the overall agricultural sector through market measures, including import tariffs, and thus consumers are obliged to pay relatively high prices.

Market price support is a protective measure funded by consumers and

designed to support not one specific field of agriculture or a particular group of farmers, but the overall agricultural industry. Therefore, it is more effective in developing countries where the agricultural population makes up a relatively high proportion and funds available for investment in the agricultural sector are limited. However, since subsidies with a specific purpose, including direct payments, rely on the government's fiscal expenditures, it requires a sufficient budget. In developed countries, where the proportion of population that is involved in agriculture is on the decline due to economic growth, governments tend to shift related policies from market price support to direct payments. The transition from market price support with a relatively strong trade distortion effect to direct payments without such an effect also conforms to WTO trade rules.<sup>16)</sup> The positive relation between market price support and agricultural population reflects the reality in developing countries whose share of agricultural

〈Table IV-10〉 Comparison between Random Effect Model and Fixed Effect Model

Explanatory variable	Coefficient value	
	Random effect	Fixed effect
Agricultural population	-0.945 <sup>***</sup>	-1.034 <sup>***</sup>
Agricultural population × Agricultural population	-0.100 <sup>***</sup>	-0.105 <sup>***</sup>
Agricultural GDP	-1.072 <sup>***</sup>	-1.085 <sup>***</sup>
Agricultural GDP × Agricultural GDP	-0.111	-0.115
Farm size	0.559 <sup>***</sup>	0.569 <sup>***</sup>
Farm size × Income	-0.331 <sup>**</sup>	-0.372 <sup>**</sup>
Constant term	-2.055 <sup>*</sup>	-1.889 <sup>*</sup>

Note: The statistical significance level is marked as follows: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01.

16) Under the WTO Agreement on Agriculture, market price support falls into the category of amber box subsidies which have to be reduced by member countries, while direct payments based on farm size or past fixed area are allowed, falling into the blue or green boxes. However, the concept of market price support according to OECD standards includes sub-effects caused by border measures including tariffs, which covers a wider range than the WTO's conception of market price support calculated based on the gap between domestic prices and past fixed prices.

population is higher than that found in developed countries, including in this case Korea, as well as the reality experienced in developed countries where changes in agricultural policies are underway.

Agricultural GDP, like fiscal expenditures, is in a statistically significant negative relation with market price support. When agricultural GDP rises by one percent, market price support declines by 1.4 percent. An income gap between urban and rural areas is identified as an important source of demand for agricultural support. Farm size and income, unlike fiscal expenditures, are in a positive relation with market price support at the level of 10 percent.

<Table IV-10> illustrates coefficient values of fiscal expenditures and the level of significance in the random effect and fixed effect models. According to the Hausman test results, the random effect model is identified as the proper one, but the coefficients and statistical significance of the two models are similar.

#### D. Implications

The empirical analysis performed in this study is differentiated in that it includes several emerging countries along with OECD member nations and in that it compares determinants of market price support with those of governmental fiscal support, including direct payments. Based on the result of the empirical analysis, the study presents the following policy implications.

First, the negative relation between the agricultural population and fiscal expenditures indicates that the lobby theory can be generally applied to emerging countries, as well as to advanced nations. This implies that agricultural support is affected more by politico-economic factors than by the scale of a country's agricultural sector or relative competitiveness as an exporting nation. In other words, while the proportion of farm households or agriculture in an overall economy may be on the decline due to economic progress, improved agricultural productivity and accelerated trade liberalization, the proportion of agricultural support does not fall. Exceptionally, starting in 1984 New Zealand accomplished agricultural policy reform in only a few years' time, during which the government abolished a variety of agricultural supports, import supports and other forms of financial support for the agricultural sector (Lim and Hill, 2007; Kim et al., 2009).<sup>17)</sup>

Second, the rationale for the empirical result that countries with a relatively high proportion of agricultural population rely on market price support, thus burdening consumers, lies in the distinct features of direct payments compared to market price support. In developing countries with a relatively high proportion of farms, it is difficult to implement support plans based on direct payments due to a lack of government funds. Also, making direct payments, for which transaction costs are high and which require strict oversight and evaluation, is challenging in countries with poor administrative infrastructure. Accordingly, governments in developing nations tend to indirectly support the income of farms through high consumer prices. However, market intervention, including price level support, price stabilization support, agricultural materials support and import tariffs, which are mostly tools mainly applied in developing countries, is inefficient and minimally effective in accomplishing the policy goal of supporting farmers' incomes (Elbehri and Sarris, 2009; Brooks, 2010).

Starting in the mid-2000s, agricultural support policy in South Korea has shifted from support for the price of rice (the rice reserve system) to direct payments. This could be interpreted as a government attempt to take a more efficient approach to the aforementioned phenomenon of decreasing numbers of farmers and the goal of supporting farmers' incomes by lowering transaction costs (Lim, 2008). It was also an unavoidable decision in order to abide by the WTO agreement under which the government was obliged to reduce tariff barriers and agricultural supports. To this end, the government has switched its policy from AMS to a policy falling into the green box.

Last but not least, narrowing the income gap between urban and rural areas can serve as an effective method for reducing the amount of agricultural support, no matter whether it is provided through the government or the market (Swinnen, 1994). An income gap between regions or industries is a key driver of support policies, particularly in developed countries that import agricultural

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17) In their response to the large-scale agricultural policy reform in New Zealand, the Federated Farmers of New Zealand did not oppose to the reform itself, but demanded that the reform be carried out in a balanced manner between industries. It finally reached an agreement with the government to provide financial service to farmers who are faced with financial hardships by establishing the rural trust company (Park Hyeon-tae, 2005).

products, including Japan (Verba, 1987). In China, although it was not included in the empirical analysis, the gap between urban and rural areas that has been broadening throughout the economic growth process is having a profound effect on financial allocation from the central government to local governments (Knight, 2013).<sup>18)</sup>

There is a hypothesis that the graph of the income gap between urban and rural areas in the process of economic growth resembles an upside-down U. The graph begins with a minimal income gap showing no major distinction between urban and rural incomes, and then rises to a peak as the economy grows before finally plunging back down again. This logic is similar to the Environmental Kuznets Curve (EKC) (Stern, 2004).

In South Korea, despite continuous agricultural support, a depiction of the income gap fails to demonstrate such a reversed U. The income of farm households compared to that of their urban counterparts declined from 113 percent at its peak in 1985 to 73 percent in 2002 (Lee et al., 2004). The ratio eventually reached a record low of 59 percent (Lee and Yun, 2012). The Gini coefficient of urban households has fallen, which shows an improvement in income inequality, while that of farms is on the rise. According to the PSE data, agricultural supports were reduced between 2006 and 2009 and fluctuated over 2010 and 2011 (Jang et al., 2012). Based on these conditions, income support for older, low-income farmers and the development of diversified income sources to supplement agricultural income are required, which indirectly implies that the income gap between urban and rural areas is a critical determinant of agricultural support.

This study is limited in that it does not reflect how various political factors, including the ideological tendencies of the government, elections and interest-group activities, affect agricultural support. It also fails to obtain a statistically significant result for examining the hypothesis that when the proportion of central government debt compared to the GDP increases, agricultural support will be reduced due to a lack of available budget.

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18) As of 2011 in China, the ratio of urban income to rural income was 3.23:1, the largest such gap anywhere in the world (Korea Labor Institute, 2011).

# V

## Conclusion

In the early stages of economic growth, farmers and fishers serve as a driving force for growth by providing both labor and inexpensive foodstuffs. As an economy grows, however, the number of farmers and fishers decrease, and so do the economic weight of agriculture, forestry and fisheries in the overall economy. Nevertheless, the protection level for agriculture and fishery remains high, since not only its economic significance but also social awareness of the unique characteristics of agriculture and subsequent political judgments affect fiscal expenditures.

This study looked into politico-economic factors that influence fiscal expenditures dedicated to agriculture. In the study, a regression analysis was conducted focusing on the correlation between the agricultural population and fiscal expenditures or level of agricultural protection in South Korea, but the analysis result did not perfectly concur with the findings of preceding research. Previous studies assert that a reduction in the agricultural sector encourages the formation of interest groups and subsequent collective action, leading in turn to an increase in fiscal expenditures on the agricultural sector or an enhancement of agricultural protection levels. However, according to the regression analysis in which the MAFRA budget and commodity protection level were assigned as dependent variables, no empirical evidence was found related to the collective action model applied in previous studies. Only the result of the regression analysis on international data from both OECD member countries and emerging nations, including China and Russia, was consistent with previous research findings. The analysis results show that agricultural population has a negative correlation with

fiscal expenditures and therefore a decline in the agricultural population may lead to an increase in their political power and the consequent fiscal expenditures made available to them. Also, the study demonstrated that an income gap between urban and rural areas is a factor that boosts demand for agricultural support, and a broader gap therefore leads to greater fiscal expenditures.

In addition to quantitative analysis, this study probed into the management and operation of agriculture-related private organizations and their achievements in order to identify more accurately how farmers participate in activities as an interest group. According to the survey, the organizational costs of agriculture-related private groups in Korea are relatively high, while their performance is insufficient considering such expense. In addition, they are not as capable of lobbying activities as are their counterparts in developed countries because their organizations are small in size and rely solely on membership dues as a funding source. Instead, Korean farmers attend meetings or discussions conducted by the government or related academic groups to express their opinions, and in many cases also participate in government projects. These activities by Korean farmers are generally moderate, and they can in this regard be considered more partners of the government than its opponents.

However, agricultural interest groups have indeed pressured the National Assembly and the government when an issue emerged that may significantly harm the interests of farmers, including issues of farm debt or market opening. As a result, they have achieved expansions of government spending on agriculture to some degree. The introduction and renewal of special taxes for agricultural and fishing villages, diversified solutions for debt issues and supplementary measures in response to market opening are all appropriate examples of reflections of the demands of farmers and fishers.

Politicians, a key element of the politico-economic aspect of fiscal expenditures, have taken a favorable position toward agriculture and rural areas because they wish to maximize their political influence between two groups of voters: rural and urban residents. According to the analysis of the number of motions related to agriculture, forestry and fisheries submitted by members of the 11th-19th National Assemblies, representatives tend to actively propose bills in favor of agriculture and rural areas, regardless of party or political predilections. Not only representatives of rural constituencies, but also those

speaking for urban districts and proportional representatives actively participate in expanding fiscal expenditures for the agricultural sector, most probably because they take public sentiment into consideration. It would be difficult for them to propose a bill unfavorable to agriculture and rural areas as long as the public supports protective policies for agriculture (or the expansion of agricultural fiscal expenditures).

Since the period of opening of the agricultural market began, domestic and international consideration of agriculture has focused on restructuring and damage compensation. Private agricultural organizations in Korea have put pressure on the government and politicians, insisting that farmers are in need of assistance with restructuring in the face of market opening due to their lack of competitiveness, and demanding that they be granted compensation for damage caused by precipitous market opening. As a result, large-scale investment and loan plans have been repeatedly instigated whenever an international agreement was settled.

According to Pigou's utilitarian approach or Rawls' maximin principle, as well as Kaldor's principle of compensation test (1939), when a specific group is granted compensation for damages caused by institutional reform, the social welfare of the overall society improves and institutional reform can proceed more smoothly. In this aspect, it can be said that market opening—an external factor—resulted in restructuring in the agricultural sector, and it is natural for those farmers who are directly impacted by such a change to insist upon compensation. Proper recompense for an affected group (farmers) can also be seen as part of the process of fostering the maximization of national welfare. However, the problem is determining whether or not farmers are making exorbitant claims. Whether their demands are acceptable to consumers and taxpayers will be an important standard, and thus the dynamics among farmers, consumers and the politicians who require their support become politico-economic factors that determine fiscal expenditures for the agricultural sector.

Given that most government activities related to fiscal expenditures are carried out according to politico-economic logic, this study looks into politico-economic factors that affect fiscal expenditures in the agricultural sector. Since no previous research has addressed this issue, this study provides a novel

perspective for understanding fiscal expenditure in the South Korean agricultural sector. However, the study is limited in that it fails to present a systematic model and instead only enumerates the features of each group that affect fiscal expenditure, as well as in that it does not include government activities, an important element in setting fiscal expenditures, in the analysis.

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