



## **Korea's Experience in Agricultural Commercialization**

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### **INTRODUCTION**

Agriculture plays a crucial role in the stages of economic development. In addition, agriculture has transformed from the individual level to a commercial scale with the growth of the economy. On the other hand, Korea's agriculture has changed very rapidly over the last 60 years. While the stages of agricultural transformation from individual level to commercial can be distinguished by using various criteria, the proportion of self-consumption of farmers is the most important and persuasive criterion.

By using the proportion of self-consumption of farm households for rice, the most important agricultural product in Korea, this paper classifies the stages of commercial agriculture in Korea and reviews the outstanding agricultural policies at each stage in order to suggest implications for the commercialization policies of underdeveloped countries.

### **Stages of Commercialization of Agriculture in Korea**

Fig. 1 illustrates the share of consumption by farm households within total production for the case of rice, which is the most important cash crop in Korea. This share is a clear indicator that shows the developmental stages of commercializing agriculture in Korea. It was 75% in the 1950s and has continuously decreased until now. The share was 57%, 50%, 26%, 14% and 7% in 1960s, 1970, 1980, 1990 and 2000, respectively. In 2010, it was only 5.2%.

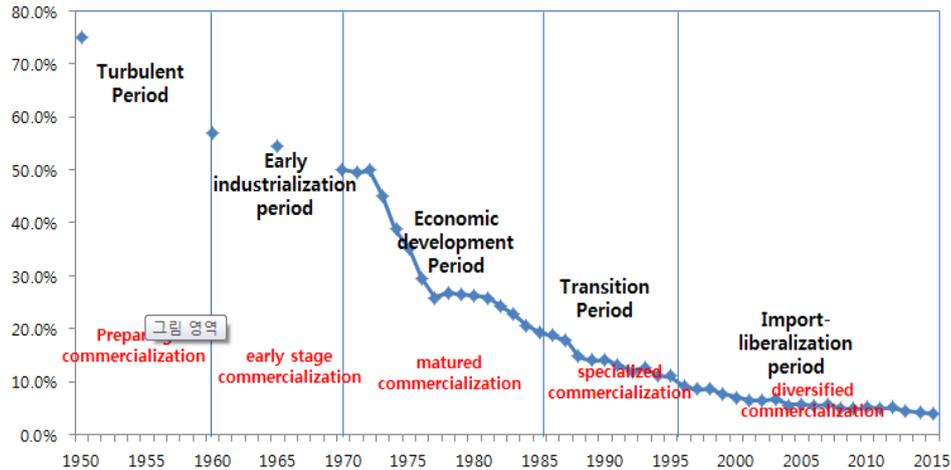


Fig. 1. Shares of own consumption by farm households within total production(rice)

Source: Statistics in Korea(<http://kosis.kr/>). Authors' own classification

As shown in Fig. 2, it is noticeable that the share has continuously declined as the commercialization has progressed, regardless of the amount of rice production. According to the classification of the stages for agricultural development and agricultural policy by the Korea Rural Economic Institute and Rural Development Administration, the period from 1945 to 1959 has been referred to as a turbulent period. Meanwhile, the 1960s until the mid-1980s is named as early industrialization and economic development period. The mid-1980s to the mid-1990s has been called as the transition and import-liberalization periods.

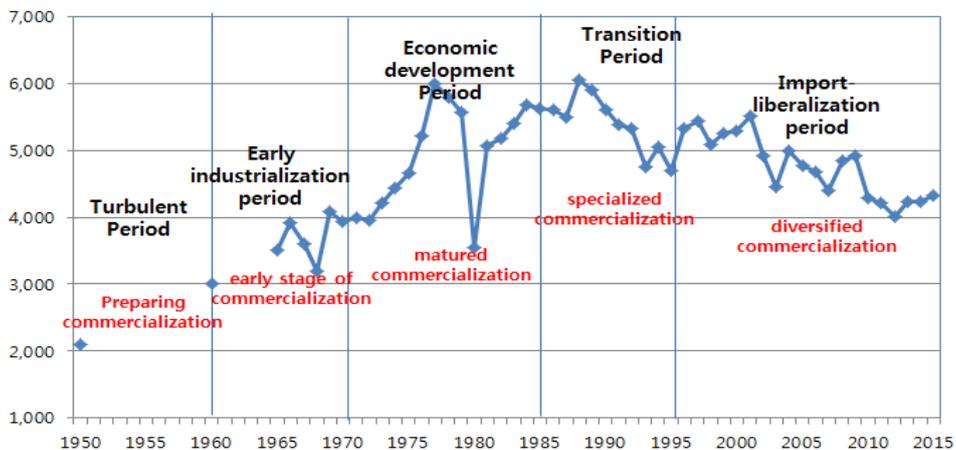


Fig. 2. Yearly Rice Production in Each Classified Period

Source: Statistics in Korea (<http://kosis.kr/>). Authors' own classification

Based on this classification, we can compare the shares of own consumption of rice by farm households within total rice production in Table 1. This share is calculated to be 75%, 55.8%, 32.3%, 13.9%, and 6% for turbulent, early industrialization, economic development, transition and import-liberalization periods.

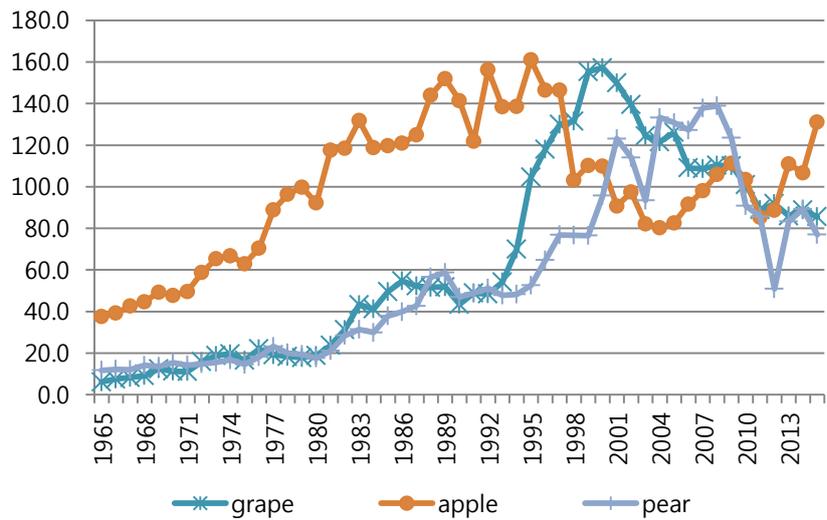
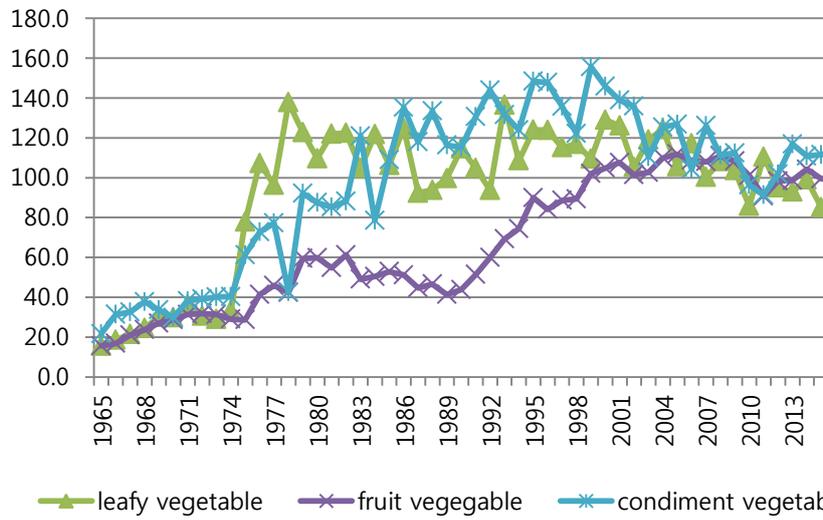
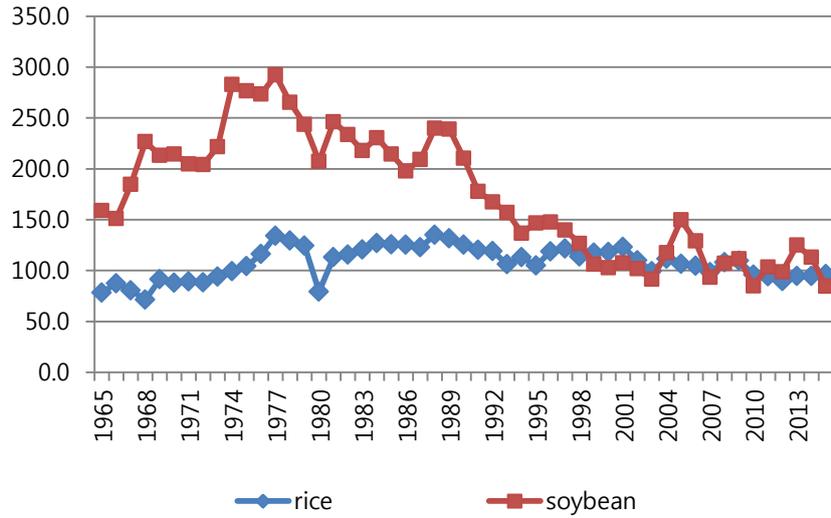
Table 1. Yearly Rice Production in Each Classified Period

Year	Classification of the period according to the characteristics of agricultural policy	Classification of the period from the perspective of agricultural commercialization	Shares of own consumption by farm households within total production (rice, %)
1910 ~ 1945	Colonial period	Seeking foothold for commercialization	-
1945 ~ 1960	Turbulent period	Preparing commercialization	75.00%
1960s	Early industrialization period	Early stage of commercialization	55.80%
1970 ~ mid 1980s	Economic development period	Matured commercialization	32.30%
mid 1980s ~ mid 1990s	Transition period	Specialized commercialization	13.90%
mid 1990s ~	Import-liberalization period	Diversified commercialization	6.00%

By connecting the characteristics of agricultural policy to the stages of economic development, the classification of steps for commercializing agriculture in Korea is possible. The Colonial period is characterized as the period of seeking a foothold for commercialization, the turbulent period is the period for preparing commercialization since the policy was especially focused on the foundation of land ownership, early industrialization and economic development periods has been called as the early stage of commercialization and the matured commercialization stage, respectively. The transition period is characterized as the period of specialized commercialization because of the emergence of professional farmers. Finally, the import-liberalization period can be named as the period of diversified commercialization since large scale livestock farming, greenhouse farming and the farmers specialized in fruits or vegetables emerged in this period.

Figure 3 shows the trend of production for major crops since 1965 (that is, since the period of early commercialization). The production of rice, which is the most important crop in Korea, had increased until 1980. However, since then, it started to decline. Soybean production had increased until 1975 and showed a continuous decreasing trend afterward. Leafy and condiment vegetable production had increased until the late 1970s and early 2000s, respectively. However, the production of these vegetables had decreased since the late 1970s and early 2000s. Production of fruit vegetables reached the peak in the mid-2000s and has declined since then.

Production of apple, pear, and grape had increased until 1995, the mid 2000s and late 1990, respectively. In the case of livestock products, the production of pork and chicken show a continuous increasing trend until now. Beef production had increased until the late 1990s but showed the very high level of volatility.



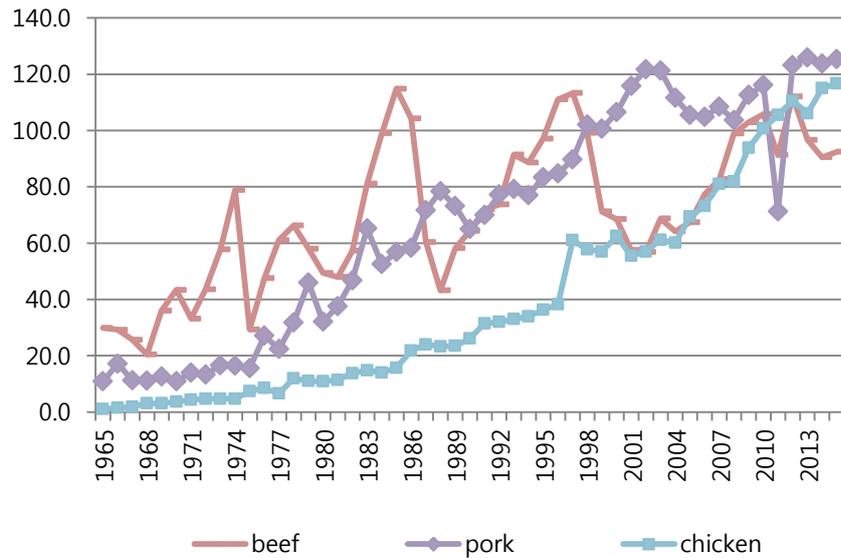


Fig. 3. Production Index for Major Crops in Korea  
 Source: Statistics in Korea (<http://kosis.kr/>)

The production trend of major crops depicted in Figure 3 indicates that production of these crops, except for soybean, tends to increase at the stage of preparing commercialization, the early stage of commercialization and the stage of matured commercialization.

A critical feature in Korea's crop production is the switching pattern of the production trend, as summarized in Table 2. The production of grains such as soybean and rice had increased until the early stage of commercialization or the stage of matured commercialization. On the other hand, the increasing trend of vegetables and fruit production was maintained for a longer period. Those productions had increased until the stage of specialized commercialization, except for the production of leafy vegetables which is more traditional and shows lower profitability compared with other kinds of vegetables. The production of livestock products such as pork, chicken, and beef has increased through all stages of commercialization.

These switching patterns also suggest that agricultural production in underdeveloped countries is likely to follow the similar phase that Korean agriculture had experienced, by complying with the changing situation of economic development and agricultural commercialization.

Table 2. Switching Pattern of Production Trend of Major Crops according to the Stages of Commercialization

Crop	Period for preparing commercialization (1945 ~ 1960)	Early stage of Commercialization (1960s)	Matured Commercialization (1970 ~ mid 1980s)	Specialized Commercialization (mid 1980s ~ mid 1990s)	Diversified commercialization (mid 1990s ~ )
Soybean	+	+	-	-	-
Rice	+	+	+ / ...	-	-
Leafy vegetable	+	+	+ / ...	-	-
Fruit vegetable	+	+	+	+	...
Condiment vegetable	+	+	+	+	-
Grape	+	+	+	+	-
Apple	+	+	+	+	-
Pear	+	+	+	+	... / -
Beef	+	+	+	+	...
Pork	+	+	+	+	+
Chicken	+	+	+	+	+

Note: + and - indicate increasing and decreasing trend of the production.  
 ... means no clear increasing or decreasing trend of the production.

Fig. 4 shows the income of average-sized farm households. Farm household income is composed of agricultural income and non-agricultural income. Agricultural income had increased until early 1990 and had maintained its relatively stable status since then. Non-agricultural income, on the other hand, shows a continuous increasing trend for the whole period and, as a result, farm household income has increased until now.

By connecting the changes of farm household income to the stages of commercialization, we can find that agricultural income had increased at the stage of preparing commercialization, the early stage of commercialization and the stage of matured commercialization. The income increase in these periods is due to the rapid increases in the production of agricultural products, as Fig. 4 implies.

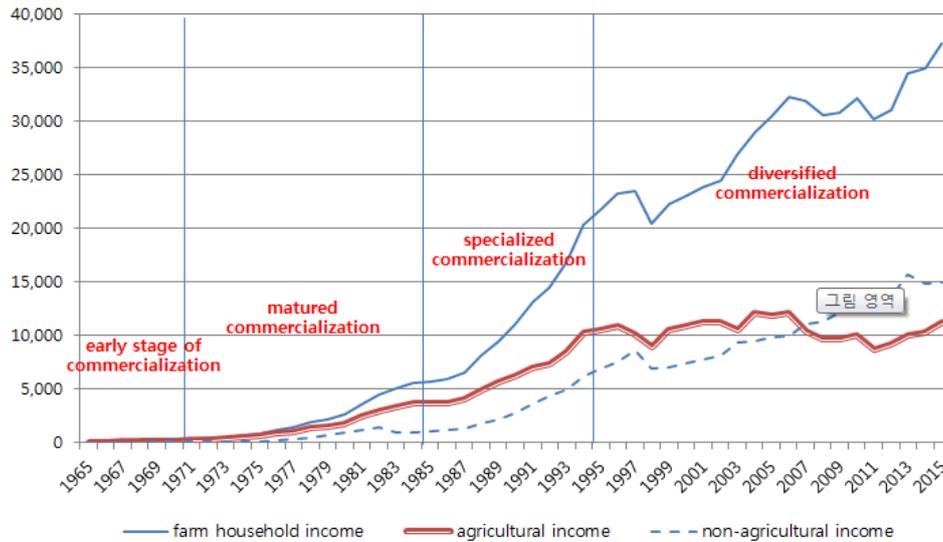


Fig. 4. Farm Household Income (1,000 Korean Won, Nominal)

### Situations surrounding commercialization and main policy interests

The Korean government placed different focus on agricultural policies in each stage of commercialization. Table 3 describes the agricultural policies and economic as well as agricultural situations. In the colonial period, the primary interest of the colonial government was to collect the agricultural products to send those to Japan. In achieving this, investigation of the land and establishment of land ownership were the most important agricultural policies.

In the turbulent period, the stage of preparing commercialization of agriculture, recovery of farmlands and laying agricultural infrastructure appeared to be the main task in the agricultural sector. Therefore, land reform and instigation of food production were the main focus of agricultural policy. In establishing land ownership, government forfeited land by rewarding the land owner who does not cultivate and distributed the forfeited land to the cultivators who did not own the land. This kind of land reform made a lot of farm land owners. Therefore, the incentive system for those farmers who work hard and getting more benefits was settled. This was one of the most important bases in transferring to the commercialized agriculture.

At the stage of early industrialization, the early stage of commercialization of agriculture, increase in the food production and maintaining low food price were required for pursuing industrialization. First and second economic development plans were made and implemented by the government during this period. Agricultural policies in this period focused on the establishment of agricultural infrastructures such as readjustment of arable land and agricultural water development, encouragement of food production, and an increase in the farm household income. Development of the basins in four big rivers (Han river, Nakdong River, Keum River and Yeongsan River) was implemented, and the high-yield seed was developed and distributed to increase the land-productivity. As one of the most successful cases, Tong-il rice was invented at this period. This variety of rice dramatically increased yield which resulted in 100% self-sufficiency in rice was achieved. The effort for increasing land productivity was also made in this period by expanding the utilization of chemical fertilizers and pesticides. For this, the government founded several fertilizer-producing factories and

forced farmers to use the fertilizers.

In the economic development period, the stage of matured commercialization, the increase in food production was achieved. However, agricultural labor moved to urban areas thus the problem of lack of agricultural workers appeared. The government continued economic development plans and The New Village Movement (Saemaul Undong) in rural areas started in this period. This movement contributed to form the infrastructure in rural areas. Main agricultural policies in this period were improving the agricultural structure, fostering young farmers and increasing of farm household income.

In the period of transition, the stage of specialized commercialization, overall circumstances in the agricultural sector were unfavorable. Farm household economy has worsened. Debt in farm household, the representative indicator of farm household economy, had continuously increased in this period. Based on this circumstance, agricultural policies were focused on the enhancement of the competitiveness of agriculture, reduction of debt in farm household and development of non-agricultural income. For the economy as a whole, high rate of economic growth was achieved on the one hand. However, on the other hand, a regional imbalance in economic development and urban-rural income disparity appeared in this period.

In the period of import-liberalization, the stage of diversified commercialization, diverse phases of commercialization such as large size livestock farms, greenhouse farming, production of environmentally-friendly agricultural products had appeared, although farm household economy worsened due to the increase in the imported agricultural products. Agricultural policies in this period had concentrated on the support of farm household income. Direct payment is in the center of the agricultural policy. Policies for stabilization of agricultural price, fostering a renting system of agricultural land, maintaining arable land, encouraging composite agriculture were initiated in this period.

Table 3. Agricultural Policies and Economic & Agricultural Situations at Each Commercialization Stages

Year	Main Economic conditions	Situations in Agriculture	Main focuses of agricultural policy
1910 ~ 1945	Planned economy under colony	Absorption of the surplus in agriculture by Japan	land investigation, establishment of land ownership
1945 ~ 1960	US military government, Korean war, Establishment of Korean Government	Recovery of farm land and laying agricultural infrastructure appeared to be the main tasks	land reform, instigation of food production
1960s	Implementation of early economic development plans(1st:1962 ~ 1966, 2 <sup>nd</sup> : 1966 ~ 1972)	Increase in the food production and maintaining low food price was required for pursuing industrialization	establishment of agricultural infrastructure(readjustment of arable land, agricultural water development), instigation of food production, increase in farm household income
1970 ~ mid 1980s	Continuation of economic development plan(3rd, 4th, 5th: 1972 ~ 1986), Saemaul movement	Increase in food production was achieved, agricultural labor moved to urban area	improvement of agricultural structure, fostering young farmers, increase in farm household income
Mid 1980s ~ mid 1990s	High rate of economic growth, worsening of farm household economy, regional imbalance in economic development, urban-rural income disparity	worsening of farm household economy (increasing debt in farm household)	enhancement of the competitiveness of agriculture, reduction of debt in farm household, development of non-agricultural income
Mid 1990s ~	Import-liberalization	Increase in imported agricultural products	Stabilization of agricultural price, production of environmentally-friendly agricultural products, direct payment

## Some reference policies for suggesting the recommendations to agriculture in underdeveloped countries

Table 4 reports the policies implemented by the Korean government during the period of preparing commercialization of agriculture. The policies are examined by classifying into seven categories: land policy; food production policy; price policy; policy for competitiveness and agricultural structure; marketing policy; farmers' organization policy; and policy for agricultural extension.

Table 4. Policies Implemented by Korean Government at the Period of Preparing Commercialization of Agriculture

Policy area	Detailed policies
Land policy	Reallocation of agricultural land pre-owned by Japanese, establishing the principle of "cultivator only owning", the establishment of ownership
Food production policy	Instigation of rice production(supply of fertilizer by the government, low price for fertilizer), a continuation of food deficit(share of food-deficit to the required amount of consumption 1946(6%)-> 1962(10.8%), a policy that allows exchange between rice and fertilizers
Price policy	Maintaining low price (utilization of government procurement policy, aided food)
Policy for competitiveness and agricultural structure	-
Marketing policy	Self-formed rice wholesale market, a continuation of vegetable and fruit wholesale market founded by the colonial government
Policy for farmers' organization	Foundation of Farmers' Cooperative Act (1957)
Policy for agricultural extension	Introduction of Agricultural Extension Service(US type)

In the period of preparing commercialization of agriculture, reallocation of agricultural land and establishment of the principle of “cultivator only owning” were the main policies associated with land. For food production, instigation of rice production through the direct provision of fertilizers and subsidizing by the government were the most important policy. The government allowed farmers to repay the fertilizer price by produced rice at this period. Price support policy at this stage was just dull. The government maintained low food price by utilizing the government procurement and aided food from foreign countries. The government maintained and supported the self-formed rice wholesale market and vegetable/fruit wholesale market founded by the colonial government. Farmers' Cooperative Act was founded by the government in 1957 for supporting for farmers' organization. US type of Agricultural Extension Service was established in this period.

Table 5. Policies Implemented by Korean Government at the Early Stage of Commercialization of Agriculture

Policy Area	Detailed Policies
Land policy	land reform, Legislation of Agricultural Land Act, readjustment of agricultural land, land development project
Food production policy	5-year plan for increasing food production, the establishment of self-sufficiency target, land development, subsidy for fertilizers
Price policy	Legislation of Agricultural Price Stabilization Act, 2-part price support policy,
Policy for competitiveness and agricultural structure	Agricultural mechanization policy, policy for increasing land for farm household, development of ground water, a foundation of fertilizer-producing companies(35 companies in 1969)
Marketing policy	Legislation of Agricultural Price Stabilization Act, opening agricultural cooperative 's joint market in a wholesale market
Policy for farmers' organization	Establishment of comprehensive farmers' cooperative
Policy for agricultural extension	Establishment of Rural Development Administration, Establishment of Korea Rural Community Corporation (Development of ground water, land development, agricultural mechanization)

At the early stage of commercialization of agriculture in Korea, land reform, legislation of Agricultural Land Act and land development product were the main land policies. For food production policy, the government implemented a 5-year plan for increasing food production, established self-sufficiency target and subsidized fertilizers. Legislation of Agricultural Price Stabilization Act and 2-part price support policy were the main price policy. For the policy on competitiveness and agricultural structure, agricultural mechanization policy, policy for increasing land for farm household, development of ground water and foundation of fertilizer-producing companies (35 companies in 1969) were the main ones. For the policy on farmers' organization, the establishment of comprehensive farmers' cooperative is noticeable. Currently, the farmers' cooperative in Korea performs the functions of agricultural finance, agricultural marketing, supplying agricultural inputs and even retailing of agricultural products. These comprehensive functions were entitled to the farmers' cooperatives by the government at this period. For the marketing policy, legislation of Agricultural Price Stabilization Act and opening of agricultural cooperatives' joint market in wholesale markets are the important ones. Establishment of Rural Development Administration (RDA) and the establishment of Korea Rural Community Corporation of which roles are the development of ground water, land development, and agricultural mechanization are important among the policies for agricultural extension at this period.

Referring to Korea's experience, detailed recommendable policies in each area for the commercialization in underdeveloped countries is summarized on Table 6. For increasing the productivity and reducing production cost, encouraging labor-sharing cooperatives during the busy season, provision and proper utilization of pesticides, establishment of agricultural infrastructure(irrigation system & groundwater pumping system, readjustment of agricultural land, land development), establishment of the provision system of (chemical) fertilizers, investments on the research for high-yield variety and mechanization are recommended. In supplying inputs such as fertilizers or pesticides, policies that allow the exchange between the

supplied inputs by the government with the produced crops after harvesting is worthwhile to implement.

For the establishment of efficient distribution and marketing system, construction of farm-to-market roads, pursuing the cooperative/collective marketing and supporting the long-distance marketing are recommended. With a longer sight, a foundation of wholesale markets in major cities is required. Transaction through wholesale market significantly reduces the marketing cost. Thus Korean government has invested money continuously on the construction of wholesale markets in every region.

Farmers' cooperative plays a vital role in commercializing agriculture. It can take the role of transporting, storing, selling, financing and even retailing. Since it handles larger volume by collecting the agricultural products produced by small size farmers, it can take advantage of economies of scale and strengthen the bargaining power against the merchants or other middlemen who would exercise monopsony power to the farmers if cooperative does not exist. Farmers' cooperatives also can deputize government policies. Financing for marketing and farming, supplying agricultural inputs aided by government and contract farming subsidized by government are the good examples.

For the provision of the incentives to the individual farmers and farmers' organization/cooperatives, price-support policy for the principal crop, an introduction of revenue/income insurance, subsidy for agricultural inputs such as pesticides, fertilizer and agricultural machinery are recommendable. These policies require relatively more substantial budget cost, thus step by step implementation by starting the low-cost policy such as input-subsidizing is more practical.

Table 6. Some Recommended Policies at Each Policy Area

Policy Area	Required Policies
Increase in the productivity and reduction of production cost	<ul style="list-style-type: none"> <li>▪ Establishment of the plan for increasing food production, similar to the 5-year plan in Korea</li> <li>▪ Encouragement of labor-sharing cooperatives during busy season.</li> <li>▪ Provision and proper utilization of pesticides</li> <li>▪ Establishment of agricultural infrastructure: irrigation system &amp; groundwater pumping system, readjustment of agricultural land, land development</li> <li>▪ Establishment of the provision system of (chemical) fertilizer, such as the foundation of fertilizer-producing factory</li> <li>▪ Investment in the research for high-yield variety/seeds</li> <li>▪ Mechanization</li> </ul>
Establishment of efficient distributional/marketing system	<ul style="list-style-type: none"> <li>▪ Construction of farm-to-market roads</li> <li>▪ Pursuing the cooperative/collective marketing</li> <li>▪ Government financing for the marketed products</li> <li>▪ Supporting the long-distance marketing</li> <li>▪ Foundation of wholesale markets in major cities</li> </ul>
Fostering the farmers' organization	<ul style="list-style-type: none"> <li>▪ Establishment of farmers' cooperative by region</li> <li>▪ Implement government policies through farmers' cooperative, such as farm credit/fund allocation, contract farming</li> </ul>
Provision of the incentive to the individual farmers and farmers' organization	<ul style="list-style-type: none"> <li>▪ Price-support policy for the major crop</li> <li>▪ Introduction of revenue/income insurance</li> <li>▪ Subsidy for agricultural inputs such as agricultural machinery and fertilizer</li> </ul>

## CONCLUSION

Commercialization of agriculture means that production of agricultural crops is being sold in the market, rather than used for family consumption. It is ideal to implement the policies that result in productivity increase (cost reduction) and reduction in marketing/distribution cost. However, government's budget for implementing these policies may not be sufficient. Thus, we need to separate the regions and take the different approaches. For the regions that surplus over own consumption is not achieved yet, increase in productivity and reduction in the production cost are what the policies should primarily focus on. Whereas, for the regions where the surplus over own consumption has already been achieved, it is more effective that policies are targeting the efficient marketing/distribution system. Once the marketing cost for these regions is substantially reduced due to the installation of the efficient marketing system, policy effort should be made on expanding the market domestically and internationally. For both regions, the policies that should be implemented with a more prolonged vision are designing the incentive-providing mechanism for the farmers and fostering farmers' cooperatives.

It is not possible to implement all the recommended policies at the same time since there is always a budget constraint. Therefore, the policies that need relatively lower cost should be implemented first. Compared to the policies for establishing efficient marketing/distribution

system, the ones for increasing productivity and reducing cost require a lower cost; thus these policies should be placed on the priority.

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