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## 2) Evaluating Structural Change by Focusing on Large-scale Family Farms in Korea

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*This paper aims to evaluate the structural changes of family farms in Korea. To approach this aim, firstly, from the Agricultural Census data production behaviors of family farms were examined by focusing on how they manage to procure input resources and practice operations. Secondly, several issues taken up such as the family system, governance of rural communities, industrialization process, family cycle and tax system on farmers as elemental form of a business institution that may affect farmers' managements decisions including selection of business enterprise form. In Korea, farmlands are not owned by particular farmers or over a long period of time through inheritance. There are virtually no communal constraints on the transactions of leased farmlands. Furthermore, even at the present time, Korean farmers have access to a broader labor market far beyond the community boundary when in need of additional labor or custom farm services. Under the circumstances, new farmers enter and others exit from farming. If there is a mechanism of farmers' reproduction based on the family cycle where the incoming farmers replace the outgoing ones, the conclusion is that, unless appropriate policy measures are implemented, large-scale farmers will not maintain or expand their scale further and that small-scale family farmers will continue to be the majority.*

### **1. Introduction**

One of the structural characteristics on agriculture sector in Korea is that it's hard to enlarge farm size and to perform the scale economies under the small-scale farmers having large proportions in farms and farmland. Therefore, policy makers have been interested in what are the factors to

disturb structural changes can be provide high productivity required to bear the borderless competition in global food market. It is serious problem for Korea as a food importing country to secure global competitiveness of domestic agriculture through removing those factors.

For the reasons mentioned above, over the past few decades, a considerable number of studies have been conducted on seeking suitable ways of agrarian structural reform in Korea. A long-standing issue in those studies concerns mainly either the productivity gap between small-scale farms and large-scale farms, or limits of family farming as a business enterprise. Generally, former issue pays attention to the fact that the scale economies plays a prominent role to help enlarge farm size by large-scale farms rather than small-scale farms. In the case of later, there is a doubt that family farm system might disturb emergence of large farms could be pursue higher efficiencies and management ability as like the modern firms.

This paper discusses the later issues related to the evaluation of agrarian structural changes taking account of family system and farm management environment in Korea. Although the former issues also should be considered, it is not our present concern.

## **2. Theoretical Framework**

The traditional peasant economics or the studies of business enterprise form depict a scenario where peasants evolve first into family farms and subsequently into modern firms as the peasant society becomes fully integrated into the modern market economies and as highly productive and efficiently managed farmers expand their scale (Frank Ellis (1993), Yoshida, K.(1979), Urabe, T.(1976)). The modern firms mentioned above—as opposed to the family farm—employ permanent workers/staffs and divide ownership and management since they are based on capital combination rather than personal link-up.

The growth path of the family farm is not applicable to Korea because it does not explain why the transition in farm business enterprise and farm size is not progressing in Korea. Furthermore, large farmers tend to use a temporary workforce or custom farming to operate their farmlands seem to be underdogs in the shift to modern firms.

New Institutional Economics states, however that the farmer decides whether or not to choose the enterprise form as an internal organization based on the surrounding business environment (Coase, R. H.(1937), Williamson, O. E.(1975)) . In this paper, the author presents—through inductive reasoning—that there are no effective elements that induce farms to shift from the family farm paradigm to the modern firm since, in Korea, there is a traditional procurement system through which management resources and factors of production are available from large markets.

New Institutional Economics counts not only legal institutions but also habits, conventions and routines as important institutional factors that affect transactions (Richard, N., Langlois and Paul L. Robertson(1995)). In the case of farmland transactions, these factors may be inherited practices under the family system or the communal constraints in rural society. The market environment this paper assumes is impossible if a farmland is inherited over generations as a family asset instead of being put on the market and if the governance in the rural community tacitly prohibits the transfer of farmland through personal transactions when the ownership and the right of use belong to different individuals. Other factors—the process of industrialization in Korea and agricultural tax system—are also discussed as important institutional factors affecting farmers' behavior and their choice of whether or not to choose the organizational form of modern firms.

### **3. Features on family farming system**

#### ***3.1 Change of farm size***

The farm size per farm in Korea exceeded one hectare in the 1980s and reached 1.47ha in 2010. The rise in the sales and leasing on farmlands pushed up the percentage of farms over 3ha from 0.3% in 1960 to 8.3% in 2010. However, even in 2010, 65.3% of all farms are less than one hectare and 40.6% are below 0.5ha. Nonetheless, the percentage of farms between one and two hectares dropped from approximately 30% in 1990 to 19.7% in 2010. Some interpret the fall as the proof of the steady progress of “bipolar diffusion with a turning point at 1.5ha.” (Kim, J (2012)) Yet, as of 2010, only 3.4% (39,590) of all farms were over five hectares and 0.8% (9,385) are over 10 hectares. This indicates that enlargement of farm size is slow to progress and large-scale farms are still very few in number.

**Table 1 Distribution of Farmers and Farmland by farm size**

	<u>less than 0.5ha</u>	<u>0.5~1ha</u>	<u>1~3ha</u>	<u>over 3ha</u>	(over 10ha)	(over 50ha)	Total (ha or households)	
Distribution of farms and farmland(%)								
farm households	40.6	24.7	26.4	8.3	0.8	0.0(239) <sup>a</sup>	100.0	1,163,629
farmland								
Paddy field	12.6	18.1	31.5	37.8	10.7	1.6	100.0	839,996
Up land field	23.7	20.8	29.0	26.5	7.8	1.5	100.0	609,364
Holding of farmland(%)								
Paddy only	23.1	16.6	10.1	11.2	15.1	17.3	17.1	198,723
Paddy-cum-upland	24.4	59.4	74.2	73.9	69.8	53.4	50.3	585,071
Upland only	52.5	24.2	15.7	14.9	15.1	29.2	32.6	379,835
Percentage of tenancy farms(%)								
Paddy fields								
by farm size	20.9	38.5	62.4	83.2	88	79.7	37.9	297,119
Pure tenancy in tenancy	65.6	29.7	15.6	11.5	9.2	22.0	31.8	94,359
Upland fields								
by farm size	23.2	38.4	51.6	63.9	73.0	74.1	30.2	291,090
Pure tenancy in tenancy	62.4	35.2	23	28.8	31.0	38.4	46.9	136,388
Distribution of tenanted land (%)								
Paddy field	5.5	11.1	29.7	53.6	16.3	2.2	40.3	338,298
Upland field	14.3	16.3	28.5	40.9	14.7	3.0	33.2	202,103

Source: 2010 Census of Agriculture in Korea

Note: The real number of farmers over 50ha

### ***3.2 Distribution of farmland***

Table 1 shows the state of farmland ownership for paddy field and upland field by farmland size. The following is the features.

Firstly, in every classified farm size, very high percentages of farmers have both paddies and upland. This indicates that Korean farmers are seeking scope economies that come from growing a multiple of different crops rather than relying, solely on rice, which is the country's staple food.

Secondly, 61.2% of tenanted land is distributed to farms less than 3ha and only 16.3% is managed by farms over 10ha. This means that Korean farmers are competing for farmlands tenant and that, in such a competition, large-scale farmers do not have an advantage compare to small-scale ones.

Thirdly, many tenant farmers do not own farmland at all. They are “pure tenants” and represent 31.8% of rice paddies and 46.9% of the upland farms in tenancy farms. Sixty-five point six percent of tenant rice farms and 62.4% of the upland tenant farms less than 50a are pure tenants. Even among farms over 50ha, 22.2% of tenant rice farms and 38.4% of upland tenant farms do not have owned farmland.

**Table 2 Farm households number by period of employment (%)**

	<u>less than 1 month</u>	<u>Period of employment(%)</u>		
		<u>1~3 month</u>	<u>3~6 month</u>	<u>over 6 month</u>
<u>less than 0.5ha</u>	14.9	1.8	0.4	0.5
<u>0.5~1ha</u>	22.7	4.2	0.9	0.9
<u>1~3ha</u>	25.4	7.9	1.5	1.4
<u>over 3ha</u>	26.3	14.5	3.2	3.0
(over 10ha)	28.2	22.0	6.5	7.2
(over 50ha)	22.7	21.7	14.1	21.3
Total	20.5	5.0	1.1	1.1
(householders)	239,090	58,586	12,267	122,356

Source: 2010 Census of Agriculture in Korea.

### ***3.3 Employment of farmworkers***

Table 2 shows the percentages of farms that hire workers for different periods of employment. It shows that 20.5% farms employed temporary workers for less than one month, 5.0% for one to three months, 1.1% for three to six months and 1.1% for over six months. Regardless of farm size, 20% to 30% of farms hire workers for periods shorter than one month during the busy farming season. It is noteworthy that some very large-scale farms (dozens of hectares) do not hire any workers and that very few farms hire workers for six months or longer. These large-scale farms are probably using farm labor contracts (Chang, M & Lee, J.(2011)). It is unclear how this workforce is counted on the census.

### ***3.4 Custom farm work***

#### **Table 3 Farm householder Numbers related to Custom Farming**



	<u>Farm households having rice harvester(%)</u>	<u>Percentage of farm households by farm size</u>		
		<u>Utilizing custom farm work to rice harvest</u>	<u>Providing custom farm services<sup>a</sup></u>	
			<u>by farm size</u>	<u>of total</u>
<u>less than 0.5ha</u>	2.3	90.4	0.6	9.7
<u>0.5~1ha</u>	6.4	87.7	1.6	14.2
<u>1~3ha</u>	19.4	75.1	4.9	32.9
<u>over 3ha</u>	57.9	37.7	17	37.1
(over 10ha)	79.8	19.1	25.1	5.4
(over 50ha)	70.9	33.8	21.6	0.1
<u>Total</u>	10.8	83.2	3.0	
(households)	(84,588)	(652,132)	(23,331)	

Source: 2010 Census of Agriculture in Korea.

Note: The percentage of farms be answered to provide either of custom farm services including rice harvest

Although less than 20% of Korean farmers own farm machinery, important rice farming works are mechanized on nearly 100% of the farmlands. This is because many farms that do not own farm machinery but use custom farm works. The percentages of farmers who purchase custom farm works in Korea (2010) show that 62.8% of tilling, 65.9% of rice transplanting and 83.9% of harvesting are done through custom farm works. In each area of work, the percentage of farmers who use custom farm works has been increasing steadily compare to 10 years ago (1990).

The percentages of farmers who use custom farm works for rice harvesting are approximately 90% of farmers smaller than one hectare, 75.1% of farmers between one and three



hectares, 37.7% of farmers over 3ha, 26.0% of farmers over 5ha and 19.1% of farmers over 10ha. Even among farmers over 50ha, 29.1% do not have a combine harvester and 33.8% purchasing custom farm service for rice harvesting (see Table 3).

On the other hand, Korea's agricultural census shows that the farmers who work as custom farm operators represent only three percent of all farmers that own a rice paddy. The shares of custom farm operators by farm size show that many farmers less than 3ha work as custom farm operators.

The total of the farmlands worked on wholly by custom farming (496,662ha) and the 50% of the total of the farmlands worked on partially by custom farming (25,438ha) were added and regarded as the demand of custom rice harvesting. Then, the sum was divided by the total number of farmers that worked as custom farm operators (23,331). As a result, if every custom operator provides 22ha as custom farm service, all the demand of custom rice harvest would be covered. According to the results of many related case studies, there are custom farm operators across a wide area that contract for farmlands between 20ha and 100ha (Yun, S.(1990)). Thus, there is little possibility that the custom farming system would not function due to lack of custom farm operators.

**Table 4 Farm household numbers by careers in census years**

Census year	2000		2005		2010	
Career	<u>Numbers of</u> <u>Farm</u> <u>households</u> (‘000)	%	<u>Numbers of</u> <u>Farm</u> <u>households</u> (‘000)	%	<u>Numbers of</u> <u>Farm</u> <u>households</u> (‘000)	%
less than 5years	55.1	4.0	49.8	3.9	59.9	5.1
5~9	62.8	4.5	67.0	5.3	77.3	6.6
10~14	81.9	5.9	79.0	6.2	91.9	7.8
15~19	68.4	4.9	48.8	3.8	49.0	4.2
20~24	152.9	11.1	113.3	8.9	98.1	8.3
25~29	81.1	5.9	67.1	5.3	46.8	4.0
over 30years	881.2	63.7	847.9	66.6	754.3	64.1
Total	1383.5	100.0	1272.9	100.0	1177.2	100.0

Source: 2010 Census of Agriculture in Korea.

**Table 5 Farm household numbers by reason to enter into farm business**

<u>By resasons</u>	<u>Careers</u>					<u>Total</u>	%
	1st year	2nd year	3th year	4th year	5th year		
Inhertied from a parent	1,518	1,861	3,015	1,892	3,032	11,318	13.9
Enter into farm business from other occupation	5,411	6,186	9,367	6,435	9,155	36,554	45.0
Enter into farm business as a part-time farmer	3,403	3,968	6,774	4,612	7,660	26,417	32.5
Others(branch family etc.)	1,082	1,181	1,908	1,252	1,600	7,023	8.6
Total	11,414	13,196	21,064	14,191	21,447	81,312	100.0

Source: 2010 Census of Agriculture in Korea.

### ***3.5 Reproduction of family farms***

The percentage of farms that have successors dropped from 16.4% in 1990 to 3.5% in 2010. The figure is often referred to in the discussion of the crisis of the family farm. However, Table 4 shows that, at present (2010), 11.7% of all farm operators began farming 10 years ago or later. The percentage has stayed a little below 10% since the 2000 Census. This figure has been on a gradual rise recently. Table 5 lists the responses to the question ‘What made you choose farming as a profession?’ from farmers who have been in the business for less than five years. Thirteen point nine percent say they had inherited farm business from a parent. Forty-five point zero percent switched careers, while 32.5% began farming as a part time farmer. Eight point six percent mentioned other reasons (such as establishing a branch family). In Korea, farmers’ reproduction relies not only on hereditary succession but also on new entries from non-farming households and from other industries.

## **4. Institutional factors effect to famer’s behavior**

### ***4.1 Several questions***

In order to clarify the causal relationships among the features mentioned above, several questions need to be answered.

The first question is how and why the farmlands were put on the market as leased lands. Under the family system, farmlands and farm business are supposed to be inherited by offspring, and the post-war land reform distributed land ownerships widely and evenly. The second question is whether new entrants including those from non-farming households encounter constraints when they acquire operational resources such as farmlands and factors of production. The third question is: why are even large-scale farmers content with purchasing factors of

production from the market although they have assets and an internal labor market? Or, put differently, whether those factors exist that prompt them to choose an enterprise form as an internal organization.

To answer these questions, this paper examines issues such as the family system, governance of rural communities, industrialization process, family cycle and tax system on farmers as important institutional elements that may affect farmers' management decisions.

#### ***4.2 Inheritance and succession on family system***

Under Korea's family system, family property—farmland in particular—has been inherited by all sons, albeit unevenly, since ancient times, and there are very few cases in which the family line, family property and family business are combined and inherited (Gwang-Gyu Lee(1992)). The family lineage is handed down to an individual—the eldest son in particular—in the direct line, but only the right to represent the family, the status of the head of the family and the authority of rites are given to him. Korea's family farm operation is similar to that of the West as the farm is not inherited by offspring, and it is the heir that makes a decision on whether or not to succeed the farm operation.

The convention of farmland inheritance and succession of farm operation in Korea is one reason why farmland markets are maintained sustainably where farmlands change hands from those who have inherited a farmland but have no intention to pass down the farm operation to those who are in need of farmland.

#### ***4.3 Governance on rural community***

Korea has a rural community system called “maeul”, and not a small number of studies have been conducted on the organization and governance structure of “maeul”. These studies point out the characteristics of Korean society: “blood relation is the most fundamental element of any community” (Kuramochi, K.(1994)) ; there is no formal organization based on territorial connection (Katou, K(1993)); the community is based on personal relationships; and therefore, individuals and households are able to move across different regions freely (Akitu, M.(1998)).

There are few communal lands owned by “maeul” in rural Korea, so “maeul” is hardly a constraint in land transfer. Incidentally, lease contracts of farmlands are not confined within a certain geographical area—“maeul”—but conducted across regional boundaries, making it free for anyone to enter or exit farming.

Kato says there is no “social stratum on farm size” inside Korea’s “maeul” that shows the family’s status in the “maeul”. He has made this conclusion from the fact that anyone can lease farmland easily if so desired. What this means in the context of the entry barrier to agriculture is that anyone can begin farming if he desires because there is no constraint and he can obtain a farmland.

#### ***4.4 Farm Labor Procurements***

In rural Korea, there is a kind of social convention on the farming sector that farmers in the community cooperate in the busy farming season. The practice is a form of reciprocal transaction that is a typical way of non-commercial exchange seen in the Peasant Society. However, it is reported that, both before and after the war, the reliance on communal collaboration in farming was relatively low in the closed rural communities, and many farmers used migrant custom farm operators or seasonal farm workers who moving across the country (Jeong, Y. (1979), Oh, M.(1983), Yun, S.(1990)). Even at the present time, Korean farmers

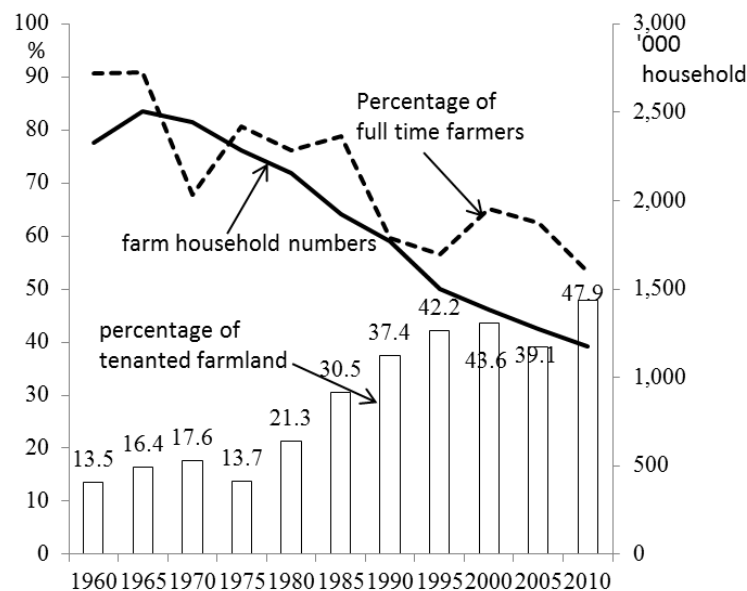
have access to a broader labor market far beyond the community boundary when in need of additional labor or custom farm services.

#### ***4.5 Industrialization process***

Migration of rural population in Korea shows a distinct feature: not only a single member but also the whole household leaves the rural community (Park, J.(1989)). Part of the reason is the country's policy on industrial location. The rural communities outside the designated industrial locations have few opportunities to secure another income source besides farming. Thus, the migration of rural population to urban and industrialized areas was, in many cases, a household-wide migration (Taniura, T.(1995), Aris Chowdbury and Iyanatul Islam(1993)). As increasingly greater numbers of farming households leave the rural area while they retain the ownership of their farmlands, it is a natural development that some of them become leased farmlands. For the farmers who stayed and had no source of income other than farming, there were very few options available to maintain and increase their livelihood but to lease the farmlands left by the farmers who had abandoned farming and left for urban areas (Jeong, G.(1993)). Thus, the economic development based on the industrial location Strategy, that was unique to Korea, and the pattern of labor migration it caused gave rise to the emergence of great numbers of absentee owners and farmers who needed to tenant farmlands from them.

Figure 1 shows the changes in the number of farmers, the percentage of fulltime farmers and the percentage of leased farmlands between the 1960s and 2010. While the percentage of fulltime farmers has remained at high levels, the farmlands left over by farmers who abandoned farming are distributed as leased farmlands among fulltime farmers and the percentage of leased farmland has been rising every year.

**Figure 1 Changes on farm households Numbers and Tenanted farmland (1960~2010)**



Source: Report on the Farm Household Economy Survey in Korea, above years

#### ***4.6 Family life cycle and investment behavior***

Jeong (Jeong, G.(1993)) and Kim (Kim, J (2012)) used the individual census data to prove that there is a strong correlation between the farm scale/farm equipment ownership and farmer's age/household size. The farm scale and mechanization rate peak out when the farmer is in his 40s and 50s and remain low among younger or older farmers. It indicates that Chayanov's family cycle (Chayanov(1961)) is a constraint on the expansion of Korean farmers' operation scale.

If the family cycle has a strong influence over the decision making on capital investment in farm equipment and others, farm operation will not be sustained over generations. As the





farmer grows old, the management resources he acquired and the business he has been in will be transferred to other farmers. The process repeats itself over time.

#### ***4.7 Tax on agricultural sector***

The Korean government abolished in 2009 the tax on income from farming. Even before that, there was virtually no tax imposed on the income earned from growing crops. Besides, farmers are eligible for 50% or more exemption on the tax on capital gain from the transfer of self-owned farmland, tax on the acquisition of farmland or farm equipment/facility and value-added tax(Kim, M. and Kim, S.(2011)). Corporate farms are also eligible for the same preferential tax treatment. Thus, farmers do not have to keep a record for the balance of their tax return or to do the account processing that is required to calculate the tax since they do not have to pay income tax. It is an important factor that hampers the farmer into streamlining and improving management using calculative control so that he manages his operation more like a modern company. Therefore, under the present tax system, farmers will probably not become business enterprises or corporations as a modern firms because they do not have to reduce tax payment or to efficient management for tax saving.

### **5. Conclusion and Discussions**

In general, the shift of the family farm to the modern firms progresses in parallel with the change that occurs in the management structure of large-scale tenant farmers as they expand their scale. The process starts with the landed farmer who needs more than a family labor force. As more leased land is added and the scale of operation grows, family labor does not suffice and investment goes into farm equipment and external labor to make up the shortage. Out of this



process, a modern firm as a hierarchy is derived to meet the high levels of management needs (Kanaoka, M.(2012)).

However, in Korea, relatively large numbers of farmers—even among large-scale ones— do not have internalized farm equipment or permanent employed worker. This explains how farmers may continue to rely on temporary workers or custom farming when they obtain additional land. One reason behind this is the transaction environment farmers are in where farmland, labor and custom services are freely purchasable or available in the respective markets.

In Korea, farmlands are not owned by particular farmers or over a long period of time through inheritance. There are virtually no communal constraints on the transactions of leased farmlands. Under the circumstances, new farmers enter and others exit from farming. If there is a mechanism of farmers' reproduction based on the family cycle where the incoming farmers replace the outgoing ones, the conclusion is that, unless appropriate policy measures are implemented, large-scale farmers will not maintain or expand their scale further and that small-scale family farmers will continue to be the majority.

This paper is not an experimental study on the farmers' procurement system for management resources and factors of production based on an econometrics model or different monographs on field surveys. Korean farmers neither invest actively in farmland/ equipment nor shift to a modern firms. Experimental studies need to be conducted in the future on the factor price and management performance to see whether Korean farmers' contractual transactions are a rational choice that ensures economic efficiency (as like Hayami, Y. & Otsuka, K.(1993)). Korea is not a developing country where the market economy system does not function properly in rural areas. However, the objects of the observation or analytical methods employed by traditional peasant economics may still be effective in explaining the economic behavior of small-scale farmers who represent a dominant proportion of all farmers and rely on farming to keep a livelihood.

In conclusion, I would like to pose a question. Many Korean farmers rely on market exchange although it may not be a rational choice. If so, would the relatively high prices of agricultural products in Korea and the country's tax system that imposes no tax obligation on farmers form the base of their existence? The fact that the prices of agricultural products are high enough to make even small-scale farming profitable and many farmers ignore the calculative control of farm operation management indicates that farmers may continue economically inefficient transactions as long as they are able to pay for the factor price.

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