Background of Low Competitiveness in the Korean Agricultural Sector

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Background of Low Competitiveness in the Korean Agricultural Sector

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Summary

In this paper, we discuss why Korean agricultural market opening has been delayed from an agricultural structure perspective.

Usually, market opening is delayed by low domestic agricultural productivity, whereas productivity increases promote market opening. In the case of intensive land use-type agriculture such as rice cultivation, agricultural mechanization is necessary to improve productivity. However, mechanized agriculture requires large-scale farms and expanding farm scale is not easy. If farmland is not sufficient, even promising farmers will find it difficult to enlarge their farms. Thus, since farmland is in short supply in Korea, productivity has not much improved. Many elderly farmers have small parcels of land and will not release their holdings because, for them, farmland is an important source of livelihood. In this paper, we will examine this elderly farmer's retention problem in comparison with Japanese part-time farmer's retention.[1)]

Keywords: Market Opening, Agricultural Productivity, Farmland, Full-time farmer, Part-time farmer (Farmer with side job)

1. Introduction: Agricultural Competitiveness under Globalization

Although free trade principles have been advocated under globalization, various countries face problems opening their agricultural markets. Japan and Korea's agricultural productivity is relatively low, whereas agricultural productivity in the U.S. and Australia is relatively high. In order to compete with the high-productivity countries, Japan and Korea need to increase their agricultural productivity and prepare to open their markets to those countries.

For land use-intensive agriculture such as rice cultivation, agricultural mechanization is necessary to increase productivity. When the use of machinery is applied to large parcels of land, it becomes possible to manage that land with fewer farmers, so per capita production and labor productivity grow quickly.[2)]

However, to use machinery effectively, the scale of the farms needs to be increased, since it is

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1) The term "retention" means that many small-scale farmers remain in rural areas. If the farm scale shrinks, and the farm income decreases, the small-scale farmers will give up farming, and move out of the rural area. However in Korea and Japan, many small-scale farmers do not move away, and remain in rural areas. It will be referred to as "retention". In Japan, many small-scale farmers are part-time farmer. They can supplement their farm income by the off-farm income, and remain in rural area. In this paper, it will be referred to as "retention" of Japanese part-time farmer. In Korea, elderly farmers shrink the management scale by decrease in ability to work, and remain in rural areas as it is without moving out of farming area. In this paper, it will be referred to as "retention" of Korean elderly farmer.

2) For further information on land use-intensive agriculture such as rice cultivation in Japan, see: Kazuhito YAMASHITA, 2009,"Now Is the Time for the Agricultural Big Bang," RIETI, http://www.rieti.go.jp/en/papers/contribution/yamashita/58.html.

impossible to make a profit without fully utilizing the capacities of the machinery. Since the machinery can work large parcels of land, developing large farms and farmers who know how to manage them is important in raising agricultural productivity.

Although Japan and Korea are actively promoting farm expansion, their progress has been slow. This is because small farmers are resolute about not giving up farming. As a result, the amount of surplus farmland keeps decreasing. To increase average farm size, some small farmers must give up farming. If many small farmers do so, their land can be consolidated into larger farms, raising the farm scale in the country. Therefore, in order to develop large farms, the government has to entice many small farmers to leave farming. Governments cannot usually force farmers to give up farming, so the Japanese and Korean governments are examining ways to gradually reduce support for small farmers. Here, "small farmer" is generally a part-time farmer in Japan and an elderly farmer in Korea. If support for small farmers drops, small farmers will give up farming and their farmland can be redistributed. This is the current primary strategy in both Japan and Korea: lessening farm support, consolidating farmland, promoting large farms, raising agricultural productivity, and preparing for market opening.

However, this policy faces political difficulties. Small farmers will only give up farming due to economic difficulty. That is, if farming small parcels were to become unprofitable, small farmers would be expected to stop farming. When farm families do find themselves in difficult circumstances, they demand support from the government, and if the government ignores their difficulties, even more small farmers, who make up the majority of farmers in these countries, will fall on hard times. On the other hand, if the government grants farmers' pleas for relief, then the economic conditions of the farmers will improve and very few will give up farming. Thus, farmland will not become available for consolidation, and farm productivity will not increase. This is one of the dilemmas of agro-politics. The current paper examines the structural background of this particular dilemma and investigates Korean agriculture compared with that in Japan.

2. Decreasing number of Korean farms

The number of farm households has been decreasing at a rate of about 200,000-400,000 per decade since the 1970s (Table 2). From 1970 to 2010, the total number of farm households fell from 2,487,370 to 1,177,318, dropping by more than half (Table 1).

The farm population dropped in tandem, falling by 3,594,982 people in the 1970s, 4,165,426 in the 1980s, and 2,630,257 in the 1990s (Table 2). From 1970 to 2010, the farm population dropped from about 14 million to about 3 million (Table 1). In the 40 years from 1970 through 2010, farm households and the farm population both fell, but the farm population dropped faster than the number of households, so that the number of persons per household fell to 2.60 people in 2010 from 5.80 people in 1970 (Table 1). In 1970, a typical farm family comprised three generations (grandparents, parents, and children), who lived together in the same house. Forty years later, it consisted of only elderly people.

Table 1 Number of farm households and population

In household, person

	Number of Farm Households	Farm Population	Number of Family Members per Household
1960	2,329,128	14,242,489	6.11
1970	2,487,370	14,421,730	5.80
1980	2,157,555	10,826,748	5.02
1990	1,768,501	6,661,322	3.77
1995	1,502,171	4,851,080	3.23
2000	1,383,468	4,031,065	2.91
2005	1,272,908	3,433,573	2.70
2010	1,177,318	3,062,956	2.60

Source: Agricultural Census

Table 2 Increases and decreases in farm households and farmhouse population by decade

In household, person

	1960-70	1970-80	1980-90	1990-2000	2000-2010
Household	158,242	△ 329,815	△ 389,054	△ 385,033	△ 206,150
Population	179,241	△ 3,594,982	△ 4,165,426	△ 2,630,257	△ 968,109

Source: Agricultural Census

Note: △ indicates a decrease (minus).

The Korean government took measures in the 1990s to decrease the number of farm households and the farm population, advancing its policy in order to encourage farm expansion.[3)] At the same time, it assisted promising farmers who wished to expand the scale of their farms, specifically by giving financial support to them when other farmers who were giving up farming wished to rent or sell their land. In this way, for those who wished to expand their farms, it became easier to purchase or rent farmland than before the government offered this financial support. Consequently, the number of farmers who purchased or rented farmland increased, expanding the scale of farms and increasing the proportion of large farmers. Large farmers can efficiently utilize large agricultural machine on their bigger parcels, and realize a higher productivity than small farmers, thereby increasing the country's overall agricultural productivity. This farm productivity improvement policy was promoted as a measure to prepare for agricultural market opening.

The number of large farmers increased through this policy, but small farmers remained in the majority, and the proportion of small farmers actually increased. Under the farm scale expansion policy, funds such as financing money were concentrated in developing large farms, so the economic condition of most farmers did not improve. However, the majority of small farmers did not give up farming. Instead, their farms shrank as they grew old, but they continued farming. They could grow enough food to be self-sufficient, but they could not offer many products for sale, just enough for the family budget. Looking at the data on small farmers, we see that the proportions of different scale farms changed considerably in the 1990s; see Table 3. As shown in

3) For further information on structural policies in the 1990s, see the author's work: Hiroshi Fukagawa, 2002, *Korean Agriculture under Market Opening,* Kyushu University Press, pp.73-210.

Table 3 Share of Farm Households by Farm Scale

In household, %

	Less than 0.5 ha	0.5-1.0 ha	1.0-1.5 ha	1.5-2.0 ha	2.0-2.5 ha	2.5-3.0 ha	3.0 ha and over	Non-crop	Total
1990	483,250	544,654	352,113	191,069	88,445	41,145	43,868	23,957	1,768,501
1995	433,384	432,293	265,295	152,837	79,565	43,872	70,839	24,086	1,502,171
2000	440,605	378,655	219,479	132,055	70,234	43,556	84,714	14,170	1,383,468
2005	457,815	330,651	173,939	106,746	55,930	37,365	93,445	17,017	1,272,908
2010	472,657	287,695	141,501	87,039	46,612	31,628	96,630	13,556	1,177,318
1990	27.3	30.8	19.9	10.8	5.0	2.3	2.5	1.4	100.0
1995	28.9	28.8	17.7	10.2	5.3	2.9	4.7	1.6	100.0
2000	31.8	27.4	15.9	9.5	5.1	3.1	6.1	1.0	100.0
2005	36.0	26.0	13.7	8.4	4.4	2.9	7.3	1.3	100.0
2010	40.1	24.4	12.0	7.4	4.0	2.7	8.2	1.2	100.0

Source: Agricultural Census

the table, the proportion of medium-scale farms shrank, while those of both small and large households increased, which we term bipolarization. the proportion of medium-scale farms shrank, while those of both small and large households increased. Here, small-scale farm households is the layer less than 0.5ha, medium scale farm is the layer more than 0.5ha and less than 3.0ha, and large-scale farm is the layer more than 3.0ha. Comparing data for 1990 and 2010, the proportion of farms smaller than 0.5 ha increased from 27.3% to 40.1% and the proportion of those larger than 3.0 ha also increased, from 2.5% to 8.2%. On the other hand, during this period, the proportion of medium-scale farms ranging from 0.5 ha to 3.0 ha decreased (the proportion of 2.5-3.0ha decreased after 2000 census data). In particular, the proportion of farms in the range 1.0 ha to 1.5 ha suffered a sharp decline, from 19.9% to 12.0%, between 1990 and 2010. The number of farms declined to less than half from 352,113 to 141,501 during this period. However, the percentage of the smallest farms, those under 0.5 ha, has increased from 27.3% to 40.1%. With the number of farm households decreasing from 1,768,501 to 1,177,318 between 1990 and 2010, the number of farmers under 0.5ha has remained from 483,250 to 472,657 during this period, and has not changed much. As the result that, the percentage has increased steeply from 27.3% to 40.1%. They have refused to give up farming and have become an impediment to agricultural competitiveness.

3. Retention of small farmers (Compared with Japan)

In Japan as well, the retention of small farmers has become a barrier to promoting large farms. Small farmers hold rather than release their farmland. This prevents promising farmers from consolidating farmland and expanding their farms. In this way, Japan's experience is similar to Korea. However, their backgrounds are quite different. Many small farmers in Japan are relatively young part-time farmers, while in Korea they are elderly full-time farmers. Young Japanese part-time farmers engage in non-farm employment that brings extra income and do not have to give up farming, even though their farms are small. Actually,

although the farm population of Japan has decreased, similar to what is seen in Korea, the number of farm households has not decreased, which is different from Korea's situation. In Japan, many farmers become part-time farmers rather than abandoning farming altogether. In this paper, the term "part-time farmers" means that more than half of the family's income comes from non-farm sources. Thus, part-time farmers support their families using non-farm income. In Japan, about 80% of all farmers are part-time farmers.[4] If the economic conditions of farming were to deteriorate and farming income decrease, then these farmers would be expected to give up farming. However, they continue to farm, even though their farm income has declined, if they can earn income outside of agriculture. Therefore, the number of farm households does not decrease, even though the scale of their farming activities shrinks. They are economically dependent on non-farm income and such income supplements farm income shortfalls so that overall household income is relatively stable and sufficient, even for small farmers. If their non-farm income is high, part-time farmers are actually richer than regular full-time farmers.

Being a typical Japanese part-time farmer has several advantages. One advantage is that it has more economic stability than being a full-time farmer. Because a part-time farmer depends on non-farm income, he or she can continue farming even when farm income declines.

In Japan, cities have spread into suburban farm village areas as urbanization has proceeded, and there are chronic shortages of level land for urban uses. Because farmland can be sold as housing sites or for other purposes, farmland is regarded as an asset having high potential value. Moreover, income from farming is generally low, so the taxes on it are also relatively small. Thus, farmland can be maintained cheaply even though it may potentially be sold at a high price in the future. Therefore, it is in farmer's benefit to maintain their farmland as an asset to potentially be converted to non-farm use in the future. An increase in the number of part-time farmers negatively impacts the agriculture of an entire country. This is because such an increase corresponds to fewer farmers giving up farming, and thus less farmland being sold or rented. Farmland prices rise because the supply of farmland remains less than the demand. Rising farmland prices make it harder for farmers to buy farmland to expand their operations. As a result, farmers who wish to expand their farms cannot buy more farmland, and mechanizing their farms does not become economically viable. This barrier to mechanization hinders increased agricultural productivity, and low productivity over the entire country remains an obstacle to market opening.

That part-timers make up almost 80% of all Japanese farmers is a structural problem in Japan's agriculture. If most part-time farmers gave up farming and released their farmland, promising farmers could expand their farms, and agricultural productivity could rise. High agricultural productivity would make it possible to open agricultural markets, promoting free trade and increasing exports of Japan's manufactured products, such as automobiles. Raising agricultural productivity is not easy, however, because the farmers will not release their farmland. As the farmland is private property, even the government cannot force them to sell it,

4）For data on part-time Japanese farmers, see: Ministry of Agriculture, Forestry and Fisheries, 2012, *Pocketbook of Agriculture Forestry and Fisheries Statistics 2010*, p. 101.

and so this remains a difficult problem to solve.

4. Retention of small farmers in Korean rural area

The disadvantage to agriculture in Japan described in Section 3 might be an advantage in Korea. Compared to Japan, there are fewer part-time farmers in Korea, where the majority of farmers farm full-time. If full-time farmers were to face declining farm income, they would be more likely to give up farming before long because they cannot rely on non-farm income to make up deficits. However, actually, many of Korea's full time farmers have remained in their villages without giving up farming. Because they are aging, and not able to leave their farms and find other work, they continue farming at a subsistence level to eke out a small livelihood. They can do this even on tiny parcels of farmland. Thus, they farm for food self-sufficiency rather than to produce income. The existence of many such small farmers is an obstacle to the consolidation of farmland into large-scale farms in Korea.

In Korea, there are fewer part-time farmers than in Japan, and the proportion of small full-time farmers remains high. As shown in Table 4, although the proportion of full-time farmers decreased from the 80.6% level in 1975, it was still 53.3% in 2010, which is much higher than the 20% for Japanese farmers who work full-time on their farms. The proportion of part-time farmers is gradually increasing in Korea, but it is still only 46.7%. Elderly farmers cannot get non-farm work and must continue to farm for their livelihood, and they cannot enlarge their farms due to their limited labor force. As they age, their number of farm labor hours decreases, and the acreage that they can work shrinks to that of subsistence-level farming, so that they become small full-time farmers.

The historical background of Korea's characteristic farming structure has previously been investigated.[5] Before WW II, in Korea, agriculture development policy was carried out under Japanese colonial rule. Korean agriculture was developed as a food supply base for Japan. At its peak, approximately 10% of rice consumed on the Japanese mainland was supplied from the Korean Peninsula. As colonial policy concentrated

Table 4 Full-time and part-time farming households

In thousand housholds, %

	Farm Households			Component Percentage		
	Full-time Farmers	Part-time Farmers	Total	Full-time Farmers	Part-time Farmers	Total
1975	1,842	443	2,285	80.6	19.4	100.0
1980	1,642	513	2,155	76.2	23.8	100.0
1985	1,518	408	1,926	78.8	21.2	100.0
1990	1,053	714	1,767	59.6	40.4	100.0
1995	850	651	1,501	56.6	43.4	100.0
2000	902	481	1,383	65.2	34.8	100.0
2005	797	476	1,273	62.6	37.4	100.0
2010	627	550	1,177	53.3	46.7	100.0

Source: Agricultural Census

on the agricultural sector, industrialization was delayed, especially in the south of the Korean Peninsula. After Korean independence, this influence of this delay in industrialization continued for a long time. In particular, rural areas remained isolated from urban areas socio-economically. If, after independence, industries had been distributed in a decentralized manner, that is, including in rural areas, farmers could have commuted to rural factories from nearby villages. Instead, industrial growth was concentrated in the limited region that had the appropriate industrial infrastructure in the early stages of the high-growth period. Therefore, it was difficult for rural farmers to commute to industrial areas because these were far from their rural homes.[6)]

In contrast, since the Meiji period, industrial development in Japan had been decentralized, and so farmers could earn non-farm income even in rural areas. In addition, urban areas expanded into rural areas, and rural factories created side income opportunities for farmers.

The differences in agricultural structures between Japan and Korea came about due to differences in their historical backgrounds. In Korea in recent years, the number of part-time farmers has increased through urban expansion and rural urbanization. However, in most rural areas, the farmers are aging, cannot engage in non-farm jobs, and continue farming full-time.

5. Increase in the proportion of elderly farmers in Korea

For this study, we examined agriculture census data on the aging of Korean farmers.

As previously stated, Table 3 shows that the proportion of small-scale farms increased between 1990 and 2010. The proportion of farms smaller than 0.5 ha increased from 27.3% to 40.1% during that time. The number of farm households corresponding to those small farms decreased only slightly, from 483,250 to 472,657, while the total number of farm households decreased significantly.

See Table 5, which shows farm household population by 10-year age group, as obtained from census data. The largest age groups were 10–19-year-olds (21.5%) in 1990, 50–59-year-olds (17.9%) in 1995, and 60–69-year-olds in 2000 (21.0%), 2005 (22.1%), and 2010 (20.3%). Thus, the core of Korea's farm household population changed from young farmers in 1990 to elderly ones in 2010. At the same time, the 10–19-year-old farm household population decreased as a proportion by more than half, from 21.5% to 8.5%. The proportion of the young farm population, including all 0–29-year-olds, also decreased by more than half, from 43.8% to 20.0%, over these two decades. Over the same period, those over 60 years old, including the three census age ranges 60–69, 70–79, and ≥80 years old, more than doubled, to 41.8% from 17.8%.

Farm household family composition is shown in Table 6. In many farm households, elderly farmers live either alone or as couples. In either case, there are only elderly people in the household. Of those 80 or more

5）For historical background on part-time farming in Korea, see: Hiroshi Fukagawa, "Trend and Direction of Korean Agriculture under the WTO Regime," *Special Research for Foreign Policy; FTA and WTO Project, No. 1, 2004*, Chapter 1. Policy Research Institute, Ministry of Agriculture, Forestry and Fisheries, pp. 109–110.

6）Hiroshi Fukagawa, *Korean Agriculture under Market Opening,* p. 77.

Table 5 Farmhouse population by age group

In person, %

	1990	1995	2000	2005	2010	1990	1995	2000	2005	2010
Under 9 years	670,489	319,156	258,405	182,058	142,023	10.1	6.6	6.4	5.3	4.6
10-19	1,434,037	784,168	462,396	310,819	261,454	21.5	16.2	11.5	9.1	8.5
20-29	809,717	574,247	417,183	292,335	212,579	12.2	11.8	10.3	8.5	6.9
30-39	661,909	464,728	352,122	247,850	217,221	9.9	9.6	8.7	7.2	7.1
40-49	787,039	586,890	531,597	448,595	363,689	11.8	12.1	13.2	13.1	11.9
50-59	1,110,983	867,002	676,367	600,863	586,871	16.7	17.9	16.8	17.5	19.2
60-69	735,600	790,480	845,945	760,268	621,620	11.0	16.3	21.0	22.1	20.3
70-79	337,517	348,658	374,551	468,221	520,582	5.1	7.2	9.3	13.6	17.0
80 years and over	114,031	115,751	112,499	122,564	136,917	1.7	2.4	2.8	3.6	4.5
Total	6,661,322	4,851,080	4,031,065	3,433,573	3,062,956	100.0	100.0	100.0	100.0	100.0

Source: Agricultural Census

Table 6 Farm households by age of farm manager and number of family members

In household, %

	1	2	3	4	5	6 and over	Total
20-29	248	442	513	328	118	49	1,698
30-39	2,025	4,259	5,436	11,126	6,063	2,538	31,447
40-49	8,401	22,415	26,950	44,806	26,710	11,197	140,479
50-59	24,497	108,064	76,210	48,997	20,785	8,586	287,139
60-69	56,415	189,846	63,329	21,892	11,364	9,581	352,427
70-79	76,642	180,927	29,081	10,333	8,633	8,787	314,403
80 years and over	15,274	26,780	3,755	1,623	1,173	1,122	49,727
Total	183,502	532,733	205,274	139,105	74,846	41,858	1,177,318
20-29	14.6	26.0	30.2	19.3	6.9	2.9	100.0
30-39	6.4	13.5	17.3	35.4	19.3	8.1	100.0
40-49	6.0	16.0	19.2	31.9	19.0	8.0	100.0
50-59	8.5	37.6	26.5	17.1	7.2	3.0	100.0
60-69	16.0	53.9	18.0	6.2	3.2	2.7	100.0
70-79	24.4	57.5	9.2	3.3	2.7	2.8	100.0
80 years and over	**30.7**	53.9	7.6	3.3	2.4	2.3	100.0
Total	15.6	45.2	17.4	11.8	6.4	3.6	100.0

Source: Agricultural Census

years old, about 30% live alone, and more than 50% are elderly couples. Of farmers in their 70s, 25% live alone, and about 60% are elderly couples. Table 7 shows the relationship between farmer manager age and farm size. As shown, the smaller the farm scale is, the higher the proportion of aged farmers. Of those working farms smaller than 0.5 ha, 35.3% are 70 or more years old. The core groups for different sizes are those 70 or more years old for farms smaller than 1.0 ha, those in their 60s for the farms-scale ranging from 1.0 ha to 3.0 ha, and those in their 50s for large farms (≥3.0 ha). Thus current data suggest that elderly singles or couples make up the majority of households with farms smaller than 1.0 ha.

Table 7 Farm households by farm manager age and farm scale

In household, %

	Less than 0.5 ha	0.5-1.0 ha	1.0-1.5 ha	1.5-2.0 ha	2.0-2.5 ha	2.5-3.0 ha	3.0-10.0 ha	10.0 ha and over	Non-crop	Total
Less than 50 years	73,166	36,917	16,501	11,319	6,245	4,780	17,590	2,937	4,167	173,622
50-60	103,995	61,700	31,668	22,890	13,609	10,301	33,831	4,215	4,930	287,139
60-70	128,775	86,711	47,700	30,407	16,811	11,108	26,198	1,689	3,028	352,427
70 years and over	166,721	102,367	45,632	22,423	9,947	5,439	9,626	544	1,431	364,130
Total	472,657	287,695	141,501	87,039	46,612	31,628	87,245	9,385	13,556	1,177,318
Less than 50 years	15.5	12.8	11.7	13.0	13.4	15.1	20.2	31.3	30.7	14.7
50-60	22.0	21.4	22.4	26.3	29.2	32.6	**38.8**	**44.9**	**36.4**	24.4
60-70	27.2	30.1	**33.7**	**34.9**	**36.1**	**35.1**	30.0	18.0	22.3	29.9
70 years and over	**35.3**	**35.6**	32.2	25.8	21.3	17.2	11.0	5.8	10.6	30.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Agricultural Census

Conclusion

As described above, one characteristic of Korean agriculture is small-scale full-time farming by elderly farmers. This contrasts with Japanese farmers, who mainly work their farms part-time. Despite this difference, small-scale farming in both countries prevents agricultural productivity from increasing, and agricultural competitiveness is stagnating. In Japan, the obstacle to increasing agricultural productivity is the existence of part-time farmers, whereas, in Korea, the obstacle is the prevalence of elderly farmers. Both groups will not give up farming and release their land. This prevents land consolidation and prevents promising farmers from enlarging their farms by buying or renting additional farmland from the small farmers. As a result, farm productivity is stagnant, and opening agricultural markets remains difficult.

One of the problems is that farmland is private property and even the government cannot deny this property right. The private property system is at the core of the capitalist economic system, and renouncing it would cause societal confusion. However, governments do have the power to give incentives to farmers to release their farmland. Farmers might release their land if enticed by subsidies, but such an incentive policy would carry a heavy fiscal burden. It has not been easy for either country to come to a national consensus on this financial burden, since they both face fiscal deficits. It takes time in a democratic society to arrive at a national consensus, even for a policy under intense discussion. Thus, the considerations raised in this study indicate that it will take time to increase farm productivity, and therefore market opening will be delayed.

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