

The impact on farm management of Direct Payment Policy on the Rice

Jongin Kim

¹(Korea Rural Economic Institute)

Abstract: This paper analyzes the effect of direct payment policy on the rice in farm management on a range of scale, which might result in structural change in rice industry. In order to analyze the status of farm management, management index such as ROA (Return On Assets), OPM (Operating Profit Margin), DAR (Debt-Asset Ratio) are adopted. The result indicates that the increase in percentage of small-scale rice farm which improved profitability and stability in farm management to a threshold level by obtaining direct payment is higher than large-scale rice farm. In contrast, considerable number of large-scale rice farm also improves farm management by direct payment, which indicates important role of direct payment in large-scale farm.

Keywords: rice policy, direct payment, farm management

1. INTRODUCTION

In South Korea, a direct payment policy on the rice has been introduced since 2005 in order to minimize the impact on the rice market due to the opening of the GATT Uruguay Round. There is a debate about the effect of the direct payment policy on the rice on the structure of the rice industry through its influence on farm management. First of all, it has been pointed out that overcompensation of rice income, especially for small scale rice farmers, assist to survive the farm management of small-scale farmers which has inefficient management and so it hinders the mobilization of farmland to more efficient farmers. Second, it also has been pointed out that direct payments are paid according to the area of cultivation, so direct payments are overpaid to large-scale farmers and lack fairness. In this paper, we will clarify the impact of the direct payment policy on the rice on the structural change of the rice industry by using the data of individual farmers and considering the impact on the farm management by using the data of individual farmers. In brief, the direct payment policy on the rice is as follows. If the market price is lower than the target price set by the government, 85% of the difference between the target price and the market price will be paid to farmers through fixed payment and variable payment. However, since fixed payment is paid according to the cultivated land area include the meaning of consideration for the multifunctional effect of paddy fields, it would be paid even if the market price is higher than the target price.

Several studies have examined the effect of the direct payment policy on the rice policy. Lee (2006) claimed that the policy has positive effects on farmer's income stability. Lee and Yang (2008) also pointed out that the direct payment policy would generate positive result in terms of farmers income as well as budget efficiency.

2. EVALUATION OF KOREAN DIRECT PAYMENT POLICY ON THE RICE

2.1 Structural Model

In this paper, in order to quantitatively grasp the state of farm management, ROA (Return On Assets, Return on Assets), OPM (Operating Profit Margin), and DAR (Debt-Asset Ratio) for the long-term management safety was introduced. Since, the original definition of each index cannot be used as it is due to the nature of the farmer's data, so the data were reconstructed as follows using data that can be used to obtain the calculation formula for each index.

$$\text{ROA} = (\text{Farmer net income} + \text{Transfer Income} - \text{Expense}) * 100 / (\text{Farmer asset at the end of the year}) \quad (1)$$

$$\text{OPM} = (\text{Farmer net income} + \text{Transfer Income} - \text{Expense}) * 100 / (\text{Farmer income}) \quad (2)$$

$$\text{DAR} = (\text{Year-end debt}) * 100 / (\text{Year-end farmer assets}) \quad (3)$$

For each of these indicators, Northwest Farm Credit Service (2008) has established certain criteria such as ROA <1.0%, OPM <10.0%, DAR > 55.0%, and it is dangerous in terms of management for farmers who do not meet those criteria. In this article as well, we decided to judge the status of farm management based on same criteria. In order to understand the impact of the direct payment policy on the rice on farm management, the management situation of the farmer under the current system, that is, the management of the current farm where the direct payment policy on the rice has been introduced. We compared the ratio of the indicator located in the risky section with the ratio of the management index located in the risky section, assuming that there was no direct payment policy on the rice for income compensation.

2.2 Data

For analysis at the individual farm level, the “Farmer Economic Survey”, which is raw data on the management status of individual farms, was the subject of the analysis. As mentioned above, the direct payment policy on the rice consists of fixed payments that are paid in a certain amount according to the area and variable payments that change the payment amount due to fluctuations in market prices. Unfortunately, in the farm economy survey, there is no accurate description of fixed and variable payments.

Instead, we regarded “other public subsidies” in the farmer economic survey representing the amount of public subsidies as fixed payment. For variable payments, the “agricultural damage compensation”, which includes variable payments and compensation received from private insurance companies, etc., is considered as the amount of variable payments received.

As a result, the fixed and variable payments received in the analysis are likely to be larger than the actual payments, and so, the impact of the rice direct payment system in this analysis may overestimate the effect of the policy rather than the actual effect. The analysis period was set from 2003 to 2011. The “Farmer Economic Survey” is a government panel survey every five years, with the same panel from 2003 to 2007 and from 2008 to 2012. Therefore, the analysis period was limited to 2003, not 2001, when the rice direct payment policy was introduced. However, data for 2007 was excluded during the analysis period. This is because there is no record of receipt of variable payments in 2007 because variable payments are paid in March of the following year. For the same reason, there is no 2012 variable payment data, so the analysis period was until 2011.

2.3 Results

First, looking at the profitability (ROA, OPM) and safety (DAR) of current management where there is a direct payment policy on the rice, the profitability and safety tend to be worse for farmers with larger management scales. In other words, in the Korean rice industry, it is clear that economy of scale has not yet worked in terms of profitability. As a result of the simulation assuming that there was no direct payment policy on the rice, the profitability and safety on farms of all sizes deteriorated. In other words, it can be reconfirmed that the direct payment system plays a role in improving the profitability and safety of farm management in all farms by scale.

Table1. Changes in the ratio of farmers located in the risky zone due to absence of a direct payment policy.

Unit:%

	Current (with policy, A)			Without policy(B)			Difference(B-A)		
	ROA	OPM	DAR	ROA	OPM	DAR	ROA	OPM	DAR
All	14.62	10.59	3.85	19.48	15.24	3.96	4.86	4.65	0.11
~ 0.5ha	8.91	5.73	4.77	14.58	11.60	5.02	5.68	5.87	0.24
0.5~1.0ha	11.96	7.77	3.67	18.21	13.67	3.81	6.24	5.90	0.14
1.0~1.5ha	12.10	8.60	3.01	17.25	13.02	3.11	5.15	4.42	0.10
1.5~2.0ha	15.27	10.95	2.89	19.69	15.49	2.89	4.43	4.54	-
2.0~3.0ha	17.52	13.04	3.47	21.13	16.64	3.57	3.61	3.61	0.10
3.0~5.0ha	21.82	17.23	3.96	24.73	20.09	4.00	2.90	2.86	0.04
5.0~7.0ha	25.73	21.56	6.68	30.01	24.34	6.81	4.29	2.77	0.13
7.0~10.0ha	21.13	18.31	5.63	25.15	21.93	5.63	4.02	3.62	-
10.0ha~	28.88	20.06	5.78	32.52	24.32	5.78	3.65	4.26	-

Notes: This table is based on the panel data from 2003 to 2011 of the “Farmers Economic Survey”, “Other public subsidies (fixed payments) and “agricultural damage compensation (variable payments)”. Depending on the presence or absence, the management indicators (ROA, OPM, DAR) represent the percentage of farmers located in the risk zone and their difference.

When the effect is divided according to the scale, the ratio of newly falling to the dangerous section is higher in small scale than that of large-scale farmers. This shows that small-scale farmers are able to maintain management profitability and safety by receiving direct payments. This result is contrary to the general idea that the smaller the farmers, the smaller the amount of direct payment they receive, the less the impact on management. The reason for this phenomenon is that the amount of direct payment itself is small, but the absolute scale of management is small, so the existence of direct payment has a relatively large impact on management. In addition, if even large farms of 5 ha or more lose direct payments, there are not a few cases where profitability indicators fall into the risk zone, compared to the case of 2 to 5 ha. It can be suggested that it also plays an important role in the profitability and safety in the case of large-scale farmers.

3. CONCLUSION

By analyzing the impact of the rice income direct payment system on the management of rice farmers by farm's size, it became clear that the smallest farmers under 1.0 ha are able to maintain profitability and safety of management by receiving a direct payment on the rice. This can be said to be similar to the indication that farmers with a small scale continue to cultivate and hinder mobilization of farmland. However, it is hard to be sure that declining direct payment on the rice will facilitate the mobilization of farmland. Since there is a tendency for many elderly farmers who consist most of the small farm, to continue rice farming even if the amount of direct payments is reduced, because they don't have many alternative choices other than rice farming.

Also, it became clear that even in the case of large-scale farmer with more than 5ha, a direct payment on the rice plays an important role in the profitability and safety aspect of management. In other words, it is different from the indication that direct payments are excessively paid to large-scale farmers because a system that increases the amount of direct payment according to the area is provided. In other words, even though it is a large-scale farmer, it is also evidence that management efficiency has not been fully realized, so it can be said that further enhancement of management efficiency is required in Korean rice industry.

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