

論文の内容の要旨

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論文題目 **Evaluating the Economic Impacts of Agricultural Policy Interventions in the Thai Jasmine Rice Markets**

(タイのジャスミン米市場における農業政策介入の経済的影響評価)

Chapter 1: General introduction

One of the chief concerns of agricultural policymakers in developing countries is the low-income levels of smallholder farmers. This concern is reflected in a global agenda on sustainable development that has set to double the income of smallholder farmers by 2030. This dissertation aims to deepen our understanding of the impact of policy interventions that aim to solve farmers' low-income problems by examining agricultural policy interventions in Thailand. As farmers generate most of their income from farming in developing countries, they may have low income due to low productivity or low price, or both. Since competition in the agricultural market plays a central role in determining prices, farmers may receive a low price because of low market competition. Apart from the competition issue, farmers may receive a low price because they cannot optimize selling time using on-farm storage. This dissertation evaluates the economic impacts of three policy interventions that may increase market competition and may allow farmers to store crops at harvest. The Thai Jasmine rice markets are used as a testing ground because they provide appropriate settings. In brief, Jasmine is a premium quality rice variety in Thailand. This rice variety is grown mostly by the poor farmers in Northeast Thailand.

Chapter 2: Does oligopsony power matter in price support policy design? Empirical evidence from the Thai Jasmine rice market (*Published in **Agriculture Economics***)

In the oligopsony market, farmers may receive low prices and policy analysis assuming perfect competition can yield serious bias results. In this article, I estimate oligopsony power

between processors and farmers and evaluate the welfare impact of the paddy pledging program (PPP), a generous price support program in the Thai Jasmine rice market, with an imperfect competition model. I develop a model that consists of rice supply equation and derived demand equation. I then simultaneously estimate these equations using system estimation methods to recover oligopsony power parameters. Lastly, I use these parameters to assess the welfare impact of the price support program. Using annual panel data running from crop marketing year 2001/02 to 2015/16 and exploiting the institutional feature of the PPP, I find strong evidence of some oligopsony power, a moderate level of oligopsony price distortion, and a negative relationship between price support and oligopsony power. I also find that the PPP is inefficient but effective in income redistribution. Moreover, the program benefits both farmers and consumers. With better policymaking decisions, the PPP can be efficient by setting a suitable support price. Therefore, my results show that in the case of the Thai Jasmine rice market, the generally accepted “wisdom” about agricultural price support policy does not necessarily hold, and price support can be designed to improve the efficiency of the market.

Chapter 3: The spillover effect of direct competition between marketing cooperatives and private intermediaries: Evidence from the Thai rice value chains (*Revised and Resubmitted for publication in **Food Policy***)

Despite the widespread belief that marketing cooperatives’ benefits may extend beyond participating farmers, little is known about the cooperative’s effect on nonparticipating farmers. This paper exploits exogenous variation in language spoken at home in Thailand to obtain the instrumental variable estimates of the spillover effect of marketing cooperatives. I hypothesize that farmers who sell rice to private intermediaries in the area where there is direct competition between marketing cooperatives and private intermediaries (treated areas) are likely to receive a higher price than those who sell rice in other areas. Using household-level data of rice farmers in Thailand in the marketing year 2018/19, I find strong evidence that farmers in treated areas receive 10.9% higher prices from private intermediaries than those in comparison areas. My results provide crucial implications for food policy debates regarding the role of marketing cooperatives in agri-food value chains. In particular, evaluating the inclusiveness of marketing cooperatives toward poor farmers should not be limited to sampling and analyzing its members only. Failure to consider

the spillover effect could lead to substantial underestimation of the impact of marketing cooperatives on societal welfare.

Chapter 4: The market-level effect of large-scale on-farm storage intervention: Evidence from Thailand (*Submitted for publication in **Journal of Development Economics***)

Despite the desire to store grain to ensure household food supplies and future income, many farmers in developing countries are forced to sell their crops immediately after harvest because of technology constraints and credit constraints. This paper evaluates the effect of the change in local supply caused by relaxing credit constraints or on-farm storage intervention on local market prices. Because the change in local supply or on-farm storage under the intervention is not random, I employ two econometric strategies. First, I convert my variables to first differences. I then instrument the differenced on-farm storage quantity under the intervention using 4-year, and 5-year lagged on-farm storage. Using 18 years panel data from 19 provinces in Thailand, my instrumental variable estimates indicate that the decrease in local supply caused by on-farm storage intervention has a significant effect on local rice market price. For example, 20,000 tons decrease in local supply induced by the intervention causes the farm gate price of rice in the main harvesting month to increase by 1.31%. In contrast, I find that the change in local supply caused by the intervention cannot stabilize price inter-seasonally in my setting. My findings provide crucial evidence for policy debates regarding the welfare implications of on-farm storage interventions when delivered on a massive scale.

Chapter 5: General conclusion

My doctoral research aims to deepen our understanding about the effect of policy interventions that aim to solve farmers' low-income problems on the functioning of agricultural markets. Specifically, I evaluate three agricultural policy interventions in Thailand, including price support policy, promoting farmer organizations, and supporting on-farm storage. Overall, I find that it is possible to raise farmers' income through existing interventions to some degree, and the impact assessments of these interventions need to include their spillover effects and market-level effects.