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主 論 文 の 要 旨

論文題目

Agricultural Production Cost Insurance in West Java, Indonesia: A Case of Garut District.
(インドネシアの西ジャワ州における農業生産費保険: ガルット県の事例)

氏 名

Dadang Jainal Mutaqin

論 文 内 容 の 要 旨

The dissertation, which consists of 9 chapters, investigates the factors behind farmers' low participation (as of 2016: 23% of target farmland area) in agricultural production cost insurance in Indonesia that was implemented in 2015. Garut district (one of the most vulnerable areas to natural hazards) in West Java province was chosen as a study area. Respondents, who were sampled from 12 villages randomly selected from 6 sub-districts, were 240 farmers who did not yet purchase the agricultural production cost insurance and 180 farmers who already purchased the agricultural production cost insurance for the interview survey in 2017.

Chapter 1 explains the background, objectives, and significance of the study. Chapter 2 presents an overview of current studies concerning risk coping strategies adopted by farmers. Empirical studies regarding (1) determinants of risk coping strategies adopted by farmers, (2) farmers' willingness to pay, and (3) farmers' satisfaction with the insurance are reviewed to identify the relevant variables for the analysis of these topics. Chapter 3 provides details of the methodology used in the study which includes framework, estimation techniques, survey area, and questionnaires to collect data.

Chapter 4 reviews the current scheme and institutional arrangements of agricultural production cost insurance in Indonesia and seeks its strengths and weaknesses, comparing with the agricultural insurance in India and the Philippines. Weaknesses of the agricultural production cost insurance scheme in Indonesia are found in coverage, basic data estimation, indemnity, guaranteed yield, and

premium. Agricultural production cost insurance covers only the production cost. Even though it has the potential to avoid moral hazards, limiting coverage to the production cost reduces the attractiveness of the insurance, which leads to low farmers' participation. It is also triggered by low guaranteed yield and indemnity. Inaccurate determination of premium, indemnity, and guaranteed yield was induced by the use of nation-wide data as a basis of estimation.

Regarding institutional arrangements, the central government (MoA) dominates activities in agricultural production cost insurance implementation. Although the decision-making process can be accelerated, not all activities can be properly executed by the central government. Currently, the central government provides 100 percent of the premium subsidy. It will not only burden the central government but also lead to a lack of awareness of the insurance program for the local government (particularly district). As a result, they make little effort to encourage farmers to participate in the insurance. The restriction of private companies from selling agricultural production cost insurance for smallholder farmers reduces the competitiveness in the insurance market and might decrease the insurance quality.

Chapter 5 clarifies the feature of farmers' motivation for farming, risk behavior, and risk perception underlying their practical cropping patterns, focusing on risk management. It was found that farmers' motivation in farming influenced their selection of cropping patterns, for which economic motivation is major. It is a tendency that they diversify cropping patterns due to being more risk-averse. There was a relationship between the number of cropping patterns selected and their risk perception. Farmers, who diversified the cropping pattern, had higher risk impact and probability perception on production and price than those practicing single and simple cropping pattern. As a whole, the characteristics of farmers who practice cropping pattern diversification are as follows: (1) high-risk perception (impact and probability); (2) risk-averse; and (3) economic motivations for farming.

Chapter 6 identifies determinants of farmers' decisions on ex-ante and ex-post coping strategies. The majority of farmers adopted multiple types of coping strategies. They combined strategies with being either the same type (on-farm or off-farm) or the across type (on-farm and off-farm) strategies. Most farmers (74.4%) adopted ex-ante coping strategies. These farmers had characteristics such as higher risk aversion, higher per capita living expenditure, and greater experience of disasters, location in downstream and midstream areas, but lower discount rate

and low percentage of damage. Coping appraisal perception (psychological factor) determines the decision on adopting coping strategies. The government should increase farmers' access to financial institutions to increase their adaptive capacity and improve farmers' awareness of ex-ante strategies.

Chapter 7 identifies farmers' WTP and its mean values for agricultural production cost insurance by applying the Contingent Valuation Method (CVM). This is essential to determine an appropriate level of premium for smallholder farmers. The majority of farmers were willing to join in the insurance (194 farmers, 80.8 percent). It was revealed that farmers' WTP (consumer value) for the agricultural production cost insurance was 16 percent lower than the current premium. Moreover, farmers' WTP for the agricultural production cost insurance could be determined by expected production in the next cropping season, farmland size, contact with extension services, and location in the downstream area.

In order to make the premium of the insurance more affordable to farmers, there are two approaches: reducing the premium (supply side) and increasing farmers' WTP (demand side). The former requires the allocation of the government budget to the premium subsidy. However, due to the financial constraints of the government, such further subsidy for the premium cannot be realistic. Therefore, the practical strategy is to increase farmers' WTP. Farmers' WTP for agricultural production cost insurance can be increased through a few amendments. The first is to improve the data used for determining the premium by not nation-wide but regional-wide basis (for example, district level). It would result that each region (district) might have different premiums that could reflect its risk level, including risk characteristics. The second is to improve farmers' access to information by improving the extension service, leading to being aware of the benefit of insurance and removing doubts of the insurance as an ex-ante risk coping strategy. The third is to educate farmers on agricultural production cost insurance.

Chapter 8 investigates farmers' satisfaction with the agricultural production cost insurance and its determinants to improving the quality of the insurance regarding value, services, and outcomes. The majority of farmers (75 percent) were unsatisfied with the agricultural production cost insurance. The current agricultural production cost insurance was perceived as low value (indemnity, premium), low service (information access), and low outcome (feeling of the security). Farmers' satisfaction was

determined by risk behavior, discount rate (time preference), number of enrolment, per capita living expenditure, rent-in-cash farmers, location in the midstream area, percentage of damage, indemnity (value), premium price, information access, indemnity (outcome), and feeling of security.

To sustain the agricultural production cost insurance work, the present study suggests as follows:

(1) First, information access (service) on agricultural production cost insurance should be a priority.

This can be conducted by social media rather than extension service because of the budgetary burden to the government.

(2) Second, the government should revise the indemnity of the agricultural production cost insurance, leading to increasing the insurance value rather than reducing the premium. It means to determine the indemnity reflecting the production cost of rice, based on data at the regional level (such as district).

(3) Third, farmers' feeling of security can be improved by educating farmers to broaden farmers' knowledge about the insurance and accordingly farmers believe that the insurance can reduce the negative impacts of risks (feeling of security).

The present study contributes to studies on farmers' risk behavior, farmers' risk management, and agricultural economics. Though most studies have placed the focus only on a particular aspect like socio-economic characteristics or farmers' affordability, the present study demonstrates that the reasons behind farmers' low participation in agricultural production cost insurance could be investigated at every stage of its implementation: pre-implementation (design of scheme and institutional arrangements and farmers' characteristics), during implementation (farmers' WTP), and post-implementation (farmers' satisfaction).

By integrating all analytical results, farmers' low participation in agricultural production cost insurance could occur in the following situations: (1) outcomes do not meet farmers' expectations, although the design of insurance scheme (insurance value) is well formulated, and the insurance service is good; (2) the insurance service is not good, although outcomes meet farmers' expectations and the design of insurance scheme is well formulated; (3) the design of insurance scheme is not well formulated, although the insurance service is good; and (4) due to personal characteristics, farmers cannot participate in the insurance, even though the design of insurance scheme is well formulated and the insurance service is good.