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研究課題名(和文) Role of Social Reward on Diffusion of Pro-environmental Behaviors in Agriculture: A Field Experiment in Vietnam

研究課題名(英文) Role of Social Reward on Diffusion of Pro-environmental Behaviors in Agriculture: A Field Experiment in Vietnam

研究代表者

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交付決定額(研究期間全体)：(直接経費) 2,100,000円

研究成果の概要(和文)：研究成果としては、「World Development」と「Economic Analysis and Policy」(SSCIジャーナル、Q1 in Economics)にそれぞれ2本の論文を発表することができました。第60回、第62回西部地域科学研究会年会で発表しました。Social Science Japan Data Archive Seminar(SSJDA、東京大学)、Asian Economic Development Seminar(京都大学)、JADE/GRIPS Development Seminarで招待を受け、研究発表を行いました。

研究成果の学術的意義や社会的意義

This research provides original evidence about spillover effect from subsidized farmers to other farmers in the networks. Consequently, it contributes to knowledge of applying insights from social networks in encouraging farmers to adopt new technologies. This research targets ethnic minority women.

研究成果の概要(英文)：The initial objective of this research was to evaluate the impact of rewards on farmers' adoption of organic fertilizer. However, due to the COVID-19 pandemic and the implementation at the study site, the objective was modified to investigate the spillover effects of subsidies on farmers' uptake of crop insurance. To attain the research objective, I conducted a Randomized Controlled Trial (RCT) with farmers in 44 Village Savings and Loan Associations (VSLAs)-a form of autonomous microcredit groups in Vietnam.

Regarding research achievements, I successfully published two papers at "World Development" and "Economic Analysis and Policy" respectively (SSCI journals, Q1 in Economics). I presented at the 60th and 62nd Western Regional Science Association Annual Meeting. I was invited to present the research at Social Science Japan Data Archive Seminar (SSJDA, University of Tokyo), Asian Economic Development Seminar (Kyoto University) and the JADE/GRIPS Development Seminar.

研究分野：Development Economics

キーワード：Spillover effect RCT crop insurance subsidy Vietnam

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## 1 . 研究開始当初の背景 (Research background)

The majority of the poor live in rural areas and engage in agricultural activities. While poor farmers are often exposed to uncertain income due to natural disasters and pests, they have limited savings to self-insure (Casaburi and Willis, 2018). **Crop insurance** is therefore a potential risk management strategy that improves income stability and prevents farmers from falling deep into poverty. However, the uptake of crop insurance has been extremely low at market price in many developing countries (see Cole and Xiong, 2017 for a review).

As with other new agricultural technologies and services, **price subsidy** is a common policy in developing countries to induce initial uptake of crop insurance. Nonetheless, the insured farmers may not necessarily experience that crop insurance is beneficial because they may not receive any payout if the indemnity conditions are not triggered (e.g., there are no natural disasters during the insurance period). Cai et al. (2020) is the only study that show the long-term impacts of a temporary subsidy on crop insurance uptake. Therefore, how the price subsidy would affect the subsequent adoption of crop insurance remains ambiguous in the literature.

Despite the significant roles of social networks in the wider diffusion of new technology, **none of the previous studies rigorously examine the spillover effect from subsidized farmers to others in their networks in the context of crop insurance**. With the high costs of reaching all small farmers, a cost-effective model for agriculture extension in developing countries is to rely on seed farmers who first adopt new technologies and then ask to diffuse them to the other farmers. If such spillover exists through social learning, subsidy provision can be possibly limited only to seed farmers to reduce financial burden, but if not, it may be more effective to subsidize all farmers for wider diffusion.

My research addresses the research **gaps** by **examining the direct and spillover effects** of the subsidy on farmers' uptake of crop insurance. To attain the objective, I conducted an RCT with farmers in 44 Village Savings and Loan Associations (VSLAs) – a form of autonomous microcredit groups – established by ethnic minority women in Lai Chau province of Vietnam.

## 2 . 研究の目的 (Research objective)

My research has the **following two objectives**.

- 1) Examine the spillover effects of the subsidies on the crop insurance uptake from subsidized farmers to other farmers in their networks.
- 2) Examine the long-term direct impacts of the subsidies on crop insurance uptake.

## 3 . 研究の方法 (Research methods)

To attain the research objectives, an RCT was conducted and completed with all members of 44 VSLAs in Lai Chau – a province in the northern region of Vietnam. Vietnam has 33.1% of the employed labor force working in the agriculture, forestry, and fishery sector. Although Vietnam is one of the countries that have heavy agricultural losses due to natural disasters and crop diseases, few farmers adopt agricultural insurance. To promote crop insurance, especially for ethnic minority farmers, CARE International has collaborated with the Lai Chau government to introduce a new crop insurance scheme for rice production to all members of 44 VSLAs in the

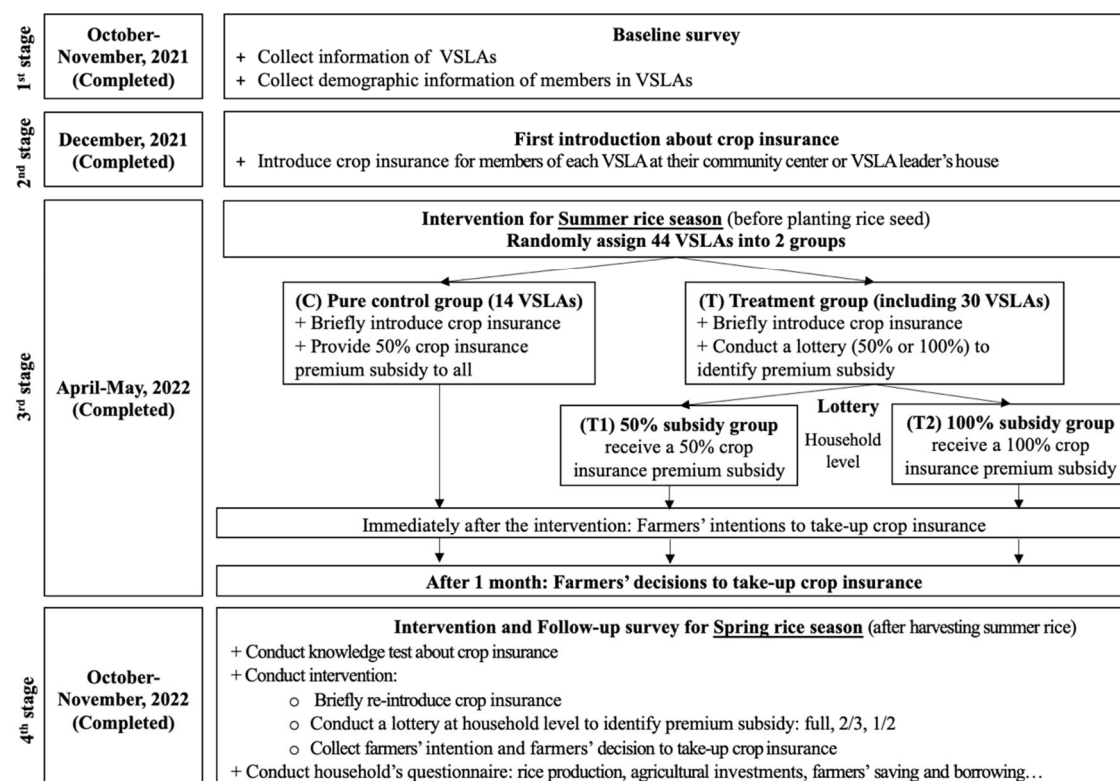
province. This context, therefore, provides a compelling case study to investigate the long-run impacts of price subsidies on the uptake of crop insurance.

The 44 VSLAs were **randomly assigned** to the two following groups.

- 1) **(C) Pure control group** (including 14 VSLAs): all members in these groups received a 50% crop insurance premium subsidy.
- 2) **(T) Treatment group** (including 30 VSLAs): all members in these groups randomly received a 50% crop insurance premium subsidy or a 100% crop insurance premium subsidy by **lottery**.

The following figure illustrates the design and timeline of the field experiment.

Figure 1: the design and timeline of the field experiment



#### 4 . 研究成果 (Research achievements)

I presented this research at the 62nd Western Regional Science Association (WRSA) Annual Meeting. I was invited to present at Asian Economic Development Seminar (Kyoto University) and the JADE/GRIPS Development Seminar. Currently, I am finalizing the manuscript to submit it to SCI/SSCI journal.

#### References

- Cai J, de Janvry A and Sadoulet E (2020) Subsidy policies and insurance demand. *American Economic Review* 110(8): 2422–2453.
- Casaburi L and Willis J (2018) Time versus state in insurance: Experimental evidence from contract farming in Kenya. *American Economic Review* 108(12): 3778–3813.
- Cole SA and Xiong W (2017) Agricultural insurance and economic development. *Annual Review of Economics* 9: 235–262.

5. 主な発表論文等

〔雑誌論文〕 計2件（うち査読付論文 2件/うち国際共著 2件/うちオープンアクセス 0件）

1. 著者名 Tran Duc, Vu Ha Thu, Goto Daisaku	4. 巻 73
2. 論文標題 Agricultural land consolidation, labor allocation and land productivity: A case study of plot exchange policy in Vietnam	5. 発行年 2022年
3. 雑誌名 Economic Analysis and Policy	6. 最初と最後の頁 455 ~ 473
掲載論文のDOI（デジタルオブジェクト識別子） 10.1016/j.eap.2021.11.017	査読の有無 有
オープンアクセス オープンアクセスではない、又はオープンアクセスが困難	国際共著 該当する

1. 著者名 Vu Ha Thu, Tran Duc, Goto Daisaku, Kawata Keisuke	4. 巻 136
2. 論文標題 Does experience sharing affect farmers' pro-environmental behavior? A randomized controlled trial in Vietnam	5. 発行年 2020年
3. 雑誌名 World Development	6. 最初と最後の頁 105062 ~ 105062
掲載論文のDOI（デジタルオブジェクト識別子） 10.1016/j.worlddev.2020.105062	査読の有無 有
オープンアクセス オープンアクセスではない、又はオープンアクセスが困難	国際共著 該当する

〔学会発表〕 計5件（うち招待講演 3件/うち国際学会 2件）

1. 発表者名 Vu Ha Thu
2. 発表標題 Land consolidation and farm production: A difference-in-differences approach with plot exchange in two provinces of Vietnam
3. 学会等名 The 60th Western Regional Science Association (WRSA) Annual Meeting (国際学会)
4. 発表年 2021年

1. 発表者名 Vu Ha Thu
2. 発表標題 Does Experience Sharing Affect Farmers' Pro-environmental Behavior? A Randomized Controlled Trial in Vietnam
3. 学会等名 The Social Science Japan Data Archive (SSJDA) Seminar, The University of Tokyo (招待講演)
4. 発表年 2020年

1. 発表者名 Vu Ha Thu
2. 発表標題 Long-term Direct and Spillover Effects of Subsidies on Crop Insurance Adoption in Vietnam
3. 学会等名 Western Regional Science Association 62nd Annual Meeting (国際学会)
4. 発表年 2023年

1. 発表者名 Vu Ha Thu
2. 発表標題 Subsidy for all ? Spillover effect of subsidy on crop insurance adoption in Vietnam
3. 学会等名 Asian Economic Development Seminar (招待講演)
4. 発表年 2023年

1. 発表者名 Vu Ha Thu
2. 発表標題 Subsidy for all ? Spillover effect of subsidy on crop insurance adoption in Vietnam
3. 学会等名 JADE/GRIPS Development seminar (招待講演)
4. 発表年 2023年

〔図書〕 計0件

〔産業財産権〕

〔その他〕

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6. 研究組織

	氏名 (ローマ字氏名) (研究者番号)	所属研究機関・部局・職 (機関番号)	備考
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7. 科研費を使用して開催した国際研究集会

〔国際研究集会〕 計0件

8. 本研究に関連して実施した国際共同研究の実施状況

共同研究相手国	相手方研究機関
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