2021 年 9 月 8 日

博士論文審査結果報告
Report on Ph.D. / Doctoral Dissertation Defense

National Graduate Institute for Policy Studies (GRIPS)

Professor MUNRO, Alistair

審査委員会を代表し、以下のとおり審査結果を報告します。

On behalf of the Doctoral Thesis Review Committee, I would like to report the result of the Doctoral Dissertation

Defense as follows.

学位申請者氏名 Ph.D. Candidate	Trinh Thi Tra	
学籍番号 ID Number	PHD15105	
プログラム名 Program	Policy Analysis Program	
審査委員会 Doctoral Thesis Review Committee	主査 Main referee　　MUNRO, Alistair	主指導教員 Main Advisor
	審査委員 Referee　　田中　誠 　　　　　　TANAKA, Makoto	副指導教員 Sub Advisor
	審査委員 Referee　　髙橋　和志 　　　　　　TAKAHASHI, Kazushi	副指導教員 Sub Advisor
	審査委員 Referee　　隅藏　康一 　　　　　　SUMIKURA, Koichi	博士課程委員会委員長代理 Acting Chairperson of the Doctoral Programs Committee
	審査委員 Referee　　FEENY, Simon (Professor, School of Economics, Finance and Marketing, RMIT University)	外部審査委員 External Referee
論文タイトル Dissertation Title (タイトル和訳)※ Title in Japanese	The Effects of Climate Change on Rural-Urban Migration in the Mekong Delta, Vietnam 気候変動によるベトナム・メコンデルタの農村・都市間移住への影響	
学位名 Degree Title	博士（開発経済学）Ph.D. in Development Economics	

論文提出日 Submission Date of the Draft Dissertation	2021 年 8 月 2 日	論文審査会開催日 Date of the Doctoral Thesis Review Committee	2021 年 9 月 2 日	
論文発表会開催日 Date of the Defense	2021 年 9 月 2 日	論文最終版提出日 Submission Date of the Final Dissertation	2021 年 9 月 8 日	
審査結果 Result	合格 Pass	不合格 Failure		

※ タイトルが英文の場合、文部科学省に報告するため、和訳を付してください

Please add a Japanese title that will be reported to MEXT.

1.　論文要旨　Thesis overview and summary of the presentation.

The aim of this PhD is to examine the drivers behind climate-change induced migration and to simulate the volume of future rural-urban migration in the Vietnamese Mekong Delta (VMD) in response to the impact of climate change.

Forecasting the future impact of climate change on human behaviour is difficult, given our necessary reliance on historical data and globally, the currently limited exposure to actual climate changes. Nevertheless, good modelling is essential for effective policy-making, especially in the context of areas of the world, such as the Vietnamese Mekong Delta that are facing rapid changes in the environment even in the next 20-30 years. Rather than projecting forward current trends or using regression models to link past changes in climate and migration, Chapter 2 of this dissertation takes a new route by employing the choice experiment (CE) method. This method is widely used in environmental and health economics to investigate decision-making in response to realistic but hypothetical changes. Individuals taking part in a choice experiment are faced with vignettes of the future and asked about their likely decisions, which in this context means migration to the city. Key aspects of the vignette such as flood frequency or the rural-urban income gap are then systematically varied between questions and between subjects in order to build a statistical picture of the important drivers of migration behaviour. This dissertation is the first study to use CE to examine the influence of climate change on rural-urban migration in this manner. The candidate designed and organized the choice experiment and accompanying survey and in 2019, conducted field work in two provinces of the Mekong River Delta. Altogether 350 farmers were interviewed over the course of two months.

As well as climate change drivers such as drought intensity and flood frequency the C.E. also investigated the role of social factors in migration, such as the network at potential destinations, neighbors' migration choices, and crop choice restrictions. The last item is important because

historically the Vietnamese government has required farmers to stick to rice farming in most circumstances and this makes it harder for farmers to adapt to climate change. The results confirm that increasing intensity and frequency of climate change phenomena raise the likelihood of choosing to migrate, with severe drought standing out as the factor most strongly affecting people's choice. Second, people who are relatively young, poor, have small household size, or have current migrant(s) in their families are more likely to choose to migrate. Third, prior experiences of climate change significantly influence people's valuing of drought and flood attributes while the contribution of network attributes is gendered and dependent on migration experiences. Crop choice restrictions are also a significant driver of intentions to migrate.

The second main research chapter of this dissertation builds on the previous one and uses a novel agent-based model (ABM) to simulate future migration out of the rural VMD in response to varying future climate scenarios and other migration stimuli. ABMs are computer models widely-used for simulating future scenarios in which the decision makers are heterogeneous and where the actions of one person potentially influence the actions of others. A key limitation of such models is that often the decision-making process of the actors is rather mechanical and imposed without clear empirical foundations. One novelty of this dissertation is that it uses the choice experiment data from Chapter Two to underpin the decision-making models of the actors in Chapter Three. At the same time, demographic data from the 13 provinces of the Mekong River Delta is used along with IPCC scenarios (RPC 4.5 and 8.5) for macro climate change along with other studies that seek to link global climate change to local variations in drought, salination and flood frequency. The model projects that by 2050 about 1.8 to 2 million people could migrate under the impact of standard climate change scenarios. The current crop choice restriction in the VMD may contribute to nearly 350,000 migrants out of the VMD coastal provinces under the severe climate change scenario by 2050. It also find large positive feedback

from social effects on migration for the case of VMD, a consequence of which is that the difference in the effects of RCP 4.5 and 8.5 is relatively small. Overall, the study contributes a novel method for simulating environmentally induced migration and provides a flexible computer model for examining policy interventions to control the rate of migration.

The defense took place via zoom. After a brief introduction, the candidate provided an overview of her work in 45 minutes using powerpoint slides. Thereafter, for 45 minutes, the examiners asked her detailed questions and made comments about the dissertation.

2. 審査報告 Notes from the Doctoral Thesis Review Committee (including changes required to the thesis by the referees)

The five members of the committee met via Zoom immediately after the defence. They unanimously voted '5' for the dissertation. In the discussion that followed and in the written comments they suggested a number of changes to the dissertation to improve the exposition, clarify the exposition and make it more acceptable for publication in academic journals. Among the many suggestions for improvement were:

1. A request for a clearer summary of the economic theories of migration, particularly the distinction between models where migration is an individual decision and models where the household is the key actor.

2. A more detailed comparison of the results in chapters 2 and 3 with the results from other, published papers that use regression-based models of migration.

3. A discussion of the impact of changes in river management (sand dredging and upstream dams) on floods, salination and subsequent migration was suggested for inclusion.

4. A clearer discussion on causation should be included.

5. Some discussion of the possible impact of mega-irrigation projects should be included.

6. There should be greater explanation of the choice of interaction terms in the econometric

models and also more discussion of the results shown in some tables in Chapter Two.

7. Some choice experiment terminology should be explained more clearly.

The Main Referee undertook to supervise the corrections.

3. 最終提出論文確認結果 Confirmation by the Main Referee that changes have been done to the satisfaction of the referees

Under the rules of the defence, the confirmation of satisfaction was delegated to the Main Referee. He drew up a complete list of the written comments from the examiners and the candidate went through and amended the dissertation in line with the comments. The Main Referee read the revised thesis and held a zoom meeting with the candidate to go through the changes, point by point. After a further round of revisions, the Main Referee was satisfied.

4. 最終審査結果 Final recommendation

On the basis of the defence outcome and the changes made by the candidate to the dissertation, we recommend that the candidate be awarded the degree.