

**Growth, Structural  
Transformation and Rural  
Change in Viet Nam:  
A Rising Dragon on the Move**

25 July 2015

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## Preface

I arrived in Viet Nam for the first time in August of 2000 to start up a Danida funded programme of research and capacity building at the Central Institute of Economic Management (CIEM) of the Ministry of Planning and Investment (MPI) in Hanoi. At the time I was a mid-career University of Copenhagen associate professor on the brink of entering my fifties. Little did I know that the engagement with CIEM and Viet Nam would lead to 15 years of intense research collaboration, which began with three years of permanent residence in Hanoi, and was followed by some 50 study visits each ranging from one to several weeks over a period of 12 years. My professional field experience in development economics was until 2000 mainly from Sub-Saharan Africa, so I was eager to engage and get to know my new Asian 'home'—seen by many as an emerging tiger. Soon after my arrival I stopped referring to Viet Nam as a tiger.

A well-known Vietnamese colleague (Dr Vo Tri Thanh) laughed when I asked about his view. He added that maybe Viet Nam is a tiger—but at best a tiger that is making the transition from using a bicycle to riding a motorbike! This picture has been sticking in my mind ever since, and I gradually came to think of Viet Nam as a rising dragon. A dragon that somehow moves differently from a tiger. Eager, yet more careful, as another close CIEM colleague (Ms Vu Xuan Nguyet Hong) has argued.

It also became clear early on—as stated in our very first project report—that:

*The process of economic reform in Viet Nam can be compared to travelling a long, winding road through dangerous mountains and huge river valleys. Great achievements have been made since Doi Moi was initiated in 1986, but Viet Nam has only come part of the way to overcoming the dual challenges of poverty and underdevelopment. Major challenges lie ahead....*

This was manifestly the case in relation to the generation, availability, and use of good quality data. Without quality data it is impossible to produce academically sound, yet practical and relevant evidence-based policy advice in an increasingly global and competitive economic environment, and helping fill this gap has over the years been the number one priority in the CIEM-Danida collaborative programme. We were therefore proud to publish the first Vietnamese Social Accounting Matrix (SAM) in 2001 in support of economy-wide policy design and implementation. It provided a much needed macroeconomic map, which has since been updated frequently. Such a map is—as I knew

well from my African experiences—an indispensable tool in any modern economy-wide analysis trying to take account of supply and demand behaviour and the role of market institutions.

The SAM work was highly effective in other important ways. It helped bring in focus an even bigger gap in the available data in Viet Nam, namely the severe need to come to grips with the microeconomic situation and behaviour of households and enterprises, including their access to and interaction with key markets, especially in the poorer rural areas. To illustrate, this gap can be compared to generating the critically important specifics of a bigger macroeconomic map without which studies of growth and structural transformation have little concrete to say about the lives of real people.

Many developing countries—Viet Nam included—continue to struggle to raise incomes per capita, and a large number of them have over the past few decades succeeded in generating significant (albeit not always stable) growth. A common feature of the convergence of these low-income countries is a fundamental change in the pattern of economic activity, as households reallocate labour from traditional agriculture to more productive forms of agriculture and modern industrial and service sectors. The combination of these large-scale shifts in work and labour allocation and the resulting changes in the composition of economic output are collectively referred to as the structural transformation of the economy. A better understanding of what this process means for the welfare and socio-economic characteristics of the rural poor is essential for both the development profession and policy makers at large in coming to grips with the task of promoting equitable and sustainable development and ending poverty. I note that this aspiration is indeed appearing as the key objective in the 2015-30 Sustainable Development Goals, which will shortly be considered by the international community at the UN General Assembly in September of this year; but here I am getting ahead of myself.

The origin of this volume is much more down to earth. It dates back to 2002 when the first pilot Viet Nam Access to Resources Household Survey (VARHS) covering some 930 households was carried out. The results of VARHS02 in turn inspired CIEM and the Centre for Agricultural Policy Consulting of the Institute of Policy and Strategy for Agriculture and Rural Development (CAP-IPSARD) of the Ministry of Agriculture and Rural Development (MARD), the Institute of Labour Science and Social Affairs (ILSSA) of the Ministry of Labour, Invalids and Social Affairs (MOLISA), and the Development Economics Research Group (DERG) of the University of Copenhagen, together with Danida, to plan and carry out a more ambitious VARHS in 2006 to increase coverage and provincial representativeness. Since then the survey of these households has been carried out every

two years, i.e. in 2008, 2010, 2012, and 2014, and it is on this basis the present volume builds.<sup>1</sup>

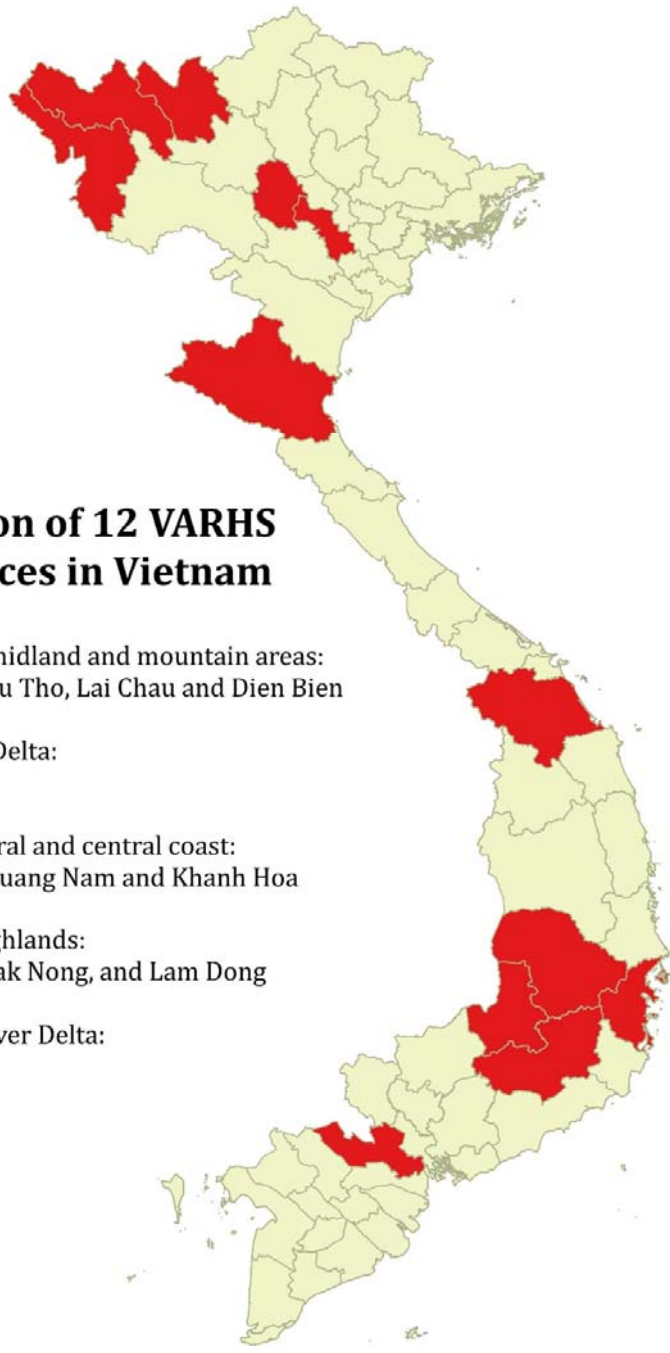
Importantly, since the VARHS has surveyed the same rural households over time, the VARHS is by now a very strong tool for gaining detailed and policy-relevant information about the economy and society of rural Viet Nam. In economic terminology, the VARHS includes a truly unique 2006-14 balanced panel survey of the changing life and work of rural families across Viet Nam. While five detailed descriptive cross-section reports for each of the survey years are available,<sup>2</sup> this volume presents for the first time a comprehensive set of detailed analytical studies where we rely throughout on the coherent data from the 2,162 households from 466 communes that make up the balanced 2006-14 VARHS panel, and attention is focused on the time dimension rather than individual cross-section information. In other words, all chapters—except for the framework setting introduction and to some extent Chapter 11 as already noted—rely extensively on this VARHS panel, and the individuals in the households included in this panel have all lived through and experienced a critical period in Viet Nam’s economic development process while managing their personal and household lives. How they coped and ended up performing in a highly dynamic macroeconomic environment is key in what we try to uncover.

The fieldwork behind the series of VARHS consisted of detailed and demanding interviews carried out under often stressful conditions in the months of June and July in each round in the rural areas of 12 provinces in Viet Nam as follows: (i) four (ex-Ha Tay, Nghe An, Khanh Hoa, and Lam Dong) were supported by Danida under its Business Sector Programme Support (BSPS); (ii) five (Dak Lak, Dak, Nong, Lao Cai, Dien Bien, and Lai Chau) received assistance under the Agriculture and Rural Development Sector Programme Support (ARDSPS); and (iii) three (Phu Tho, Quang Nam, and Long An) were all initially surveyed in 2002 and more recently covered by the BSPS. The location of these 12 provinces and the 466 communes covered are shown on the two maps below.

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<sup>1</sup> More VARHS data and information is available in the total VARHS database than used here where focus is on the balanced 2006-08 panel of 2,162 households. Note for example that in 2008 some 945 households from the five provinces of Lao Cai, Dien Bien, Lai Chua, Dak Lak, and Dan Nong were added for specific research purposes. They are not included in the panel used in this volume. The same goes for household added in 2012 to account for attrition and the ageing of the sample. The one exception to the use of the balanced panel is Chapter 11 on children and the youth where the unbalanced panel is used. This is done to make sure that the younger households, which are more likely to have children, added to the sample in 2012 are also included in the analysis.

<sup>2</sup> They can be downloaded from the CIEM website (see <http://www.ciem.org.vn/>) together with the available questionnaires and data from each round of the survey.



The map shows the geographical outline of Vietnam, divided into its provinces. Twelve provinces are highlighted in red, representing the locations of VARHS. These provinces are: Lao Cai, Phu Tho, Lai Chau, Dien Bien, Ha Tay, Nghe An, Quang Nam, Khanh Hoa, Dak Lak, Dak Nong, Lam Dong, and Long An. The remaining provinces are shown in a light yellow color.

## Location of 12 VARHS provinces in Vietnam

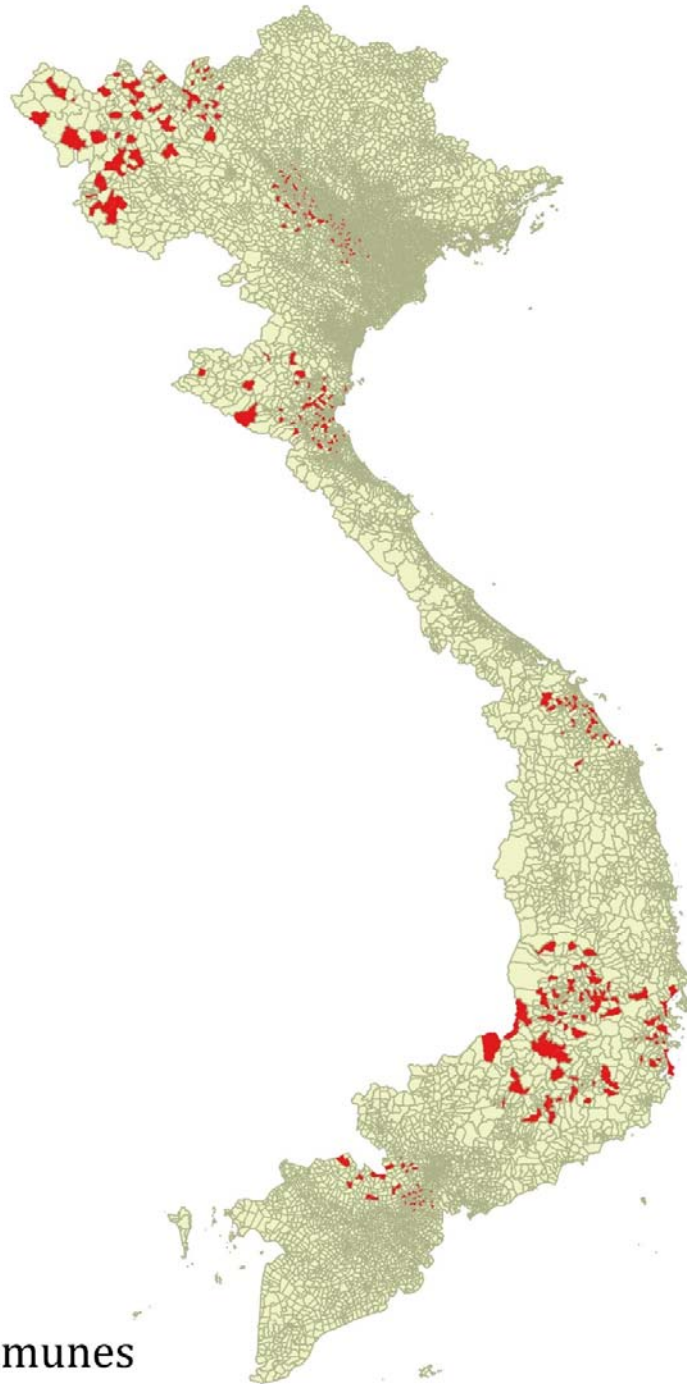
Northern midland and mountain areas:  
Lao Cai, Phu Tho, Lai Chau and Dien Bien

Red River Delta:  
Ha Tay

North central and central coast:  
Nghe An, Quang Nam and Khanh Hoa

Central Highlands:  
Dak Lak, Dak Nong, and Lam Dong

Mekong River Delta:  
Long An



**VARHS communes**

ILSSA carried out the wide range of tasks related to the planning and implementation of the VARHS in the field, and DERG collaborated with CIEM and IPSARD in all aspects of

survey design and data analysis. A full package of capacity building activities by DERG—and later on UNU-WIDER staff—including both formal courses, on-the-job training and a wealth of seminars, were conducted in Viet Nam, in Denmark, and elsewhere throughout this process under ongoing institutional twinning arrangements. The shared aim was to ensure that the VARHS project developed both the data required to deliver policy-relevant research to decision makers and the research capacity within Vietnamese institutions to take advantage of that data.

I wish to highlight in particular that the VARHS surveys were designed from the very beginning as a collaborative research effort, and another explicit objective was to complement the nationally representative Viet Nam Household Living Standards Survey (VHLSS) conducted biennially by the General Statistics Office (GSO). Many households surveyed in the VARHS have also been surveyed in the VHLSS. Importantly, rather than focusing on estimating consumption poverty rates, a key objective of the VHLSS, the VARHS has throughout been targeted at gathering high quality data about issues such as saving, investment, land use, interaction with formal and informal markets, and participation in rural institutions and rural social structure. More specifically, the VARHS includes an extensive number of ethnic and rural poor households that have been relatively excluded from traditional growth processes. This means that the evidence from VARHS can support the identification of policies for inclusive growth that leaves no group or minority behind, closely in line with recent international calls for a data revolution within the context of the post-2015 development agenda referred to above.

To be sure, we did not foresee in 2000 that the report of the UN Secretary General’s High-level Panel of Eminent persons on the Post-2015 Development Agenda (HLP) entitled ‘A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development’, would call some 15 years later for a data revolution for sustainable development post-2015 as follows:

*We also call for a data revolution for sustainable development, with a new international initiative to improve the quality of statistics and information available to citizens. We should actively take advantage of new technology, crowd sourcing, and improved connectivity to empower people with information on the progress towards the targets. (Chapter 4, Implementation, Accountability and Building Consensus, p. 21.)*



As Director of the United Nations University World Institute for Development Economics Research (UNU-WIDER) since 2009 and in this capacity in recent years as a member of the UN Task Team for the formulation of the post-2015 development agenda, I have come to appreciate these demands for international action. The HLP call for a data revolution is most pertinent, and I note that while substantial improvements in statistical systems have been registered in many developing countries over the past two decades, performance remains poor in far too many sectors and countries. The HLP notes, for example, that more than 40 countries lack sufficiently strong systems to properly track trends in poverty; and the panel also notes unsatisfactorily high time lags for reporting MDG (Millennium Development Goals) outcomes.

Recently, large-scale revisions of GDP estimates in Ghana and Nigeria as well as elsewhere serve as reminders of broad-based weaknesses in statistical systems that persist across the developing world, including not only Africa but also the Asia-Pacific region. On this background—and recalling UNU-WIDER’s long-standing expertise in innovation in data collection and analysis—leads me to strongly confirm the view that data will be at the centre of the development action post-2015.

At the same time, while the logic of a concerted push towards a ‘data revolution’ is compelling, these calls are often rather fluffy—and it is indeed not entirely clear from ongoing debates that it is widely understood what such a revolution actually requires and means in concrete practice.

The aims of this volume were formulated with these concerns in mind using Viet Nam as a case due to the concrete and unique, but coincidental, availability of the solid VARHS experience and panel data set. Furthermore, Viet Nam’s contemporary similarities to a large number of developing economies make its experience and policy recommendations, based on analysis of microeconomic data, highly relevant for many regional and extra-regional stakeholders. In fact, Viet Nam provides an exceptionally informative environment in which to observe and consider the economic and social mechanisms underlying:

- A rural economy in transformation,
- The critical importance of key production factors and institutions, and
- The complex set of welfare outcomes and distributional issues.

These dimensions are therefore the three component parts of this volume, identifying throughout the associated policy challenges after setting the scene in the introduction and

laying out a series of policy implications in the concluding chapter. In my assessment the insights from this experience should be taken to heart and considered carefully in other countries and development partnerships when developing post-2015 strategies and actions in search of inclusive development and the aspirational goal of leaving no-one behind.

In sum, the aims of this volume are to:

- Provide an in-depth evaluation of the development of rural life in Viet Nam over the past decade, combining a unique primary source of panel data with the best analytical tools available.
- Generate a comprehensive understanding of the impact of rural household access to markets for land, labour, and capital, on the one hand, and government policies on growth, inequality, and poverty at the village level in Viet Nam, on the other, including the distribution of gains and losses from economic growth.
- Serve as a lens through which other countries and the international development community at large may wish to approach the massive task of pursuing a meaningful data revolution as an integral element of the post-2015 development agenda.
- Make available a comprehensive set of materials and studies of use to academics, students and development practitioners interested in an integrated approach to the study of growth, structural transformation, and the microeconomic analysis of development in a fascinating developing country.

Finally, I hope with this volume to provide a comprehensive analytic contribution to a crucial topic within the discipline of development economics based on 15 years of continued efforts. I also hope this volume can help persuade national and international policy makers (including donors) of the need to take the call for a data revolution seriously, not only in rhetoric, but also in concrete plans and budget allocations, and in the necessary sustained action at country level. This is where inclusive socio-economic development is needed to benefit poor and discriminated people, who are struggling to make ends meet.

Finn Tarp  
Hanoi, 25 July 2015

## Acknowledgements

The intention of putting together this volume developed gradually over a period of more than a decade, and a significant number of people have worked together with me in many capacities during the planning, implementation, and analysis of the VARHS. While I will—in what follows—try to do justice to their many vital contributions, I apologize up-front for any omissions. The list is long and a complete inventory is simply not feasible for reasons of space.<sup>3</sup>

A profound debt is owed to senior colleagues in Viet Nam, including the former Presidents of CIEM, Dr. Le Dang Doanh, Dr. Dinh Van An, and Associate Professor Le Xuan Ba, as well as the current CIEM President Nguyen Dinh Cung. Together with the former Director General of IPSARD, Dr. Dang Kim Son, the present Director, Dr. Nguyen Do Anh Tuan, the former Director and Vice-Director of ILSSA, respectively Dr. Nguyen Huu Dzung and Dr. Dao Quang Vinh, and the present Director, Dr. Nguyen Thi Lan Huong, they worked directly with me in guiding the VARHS effort from beginning to end of the five survey rounds. I have in this way come to appreciate the key leadership qualities that have helped promote effective collaboration between all partners in VARHS. These top-level colleagues also contributed in critical ways to the very many seminars and conferences that have been an integrated part of the VARHS process, and which are fully documented at CIEM's website.

Financial support from Danida under its various programmes over the period in reference is acknowledged with sincere gratitude. A particular thanks is due to the former Danish Ambassador in Viet Nam, H.E. Peter Lysholt-Hansen. Peter was—with his never failing sense of strategic priorities—highly instrumental in the early stages of setting up the VARHS, and without this support the VARHS would never have seen the light of day. Ambassador John Nielsen followed up in his effective ways and supported the research effort throughout its various stages.

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<sup>3</sup> For full details on background and contributions please see the five cross-section reports covering each of the VARHS rounds available at the CIEM website (see <http://www.ciem.org.vn/>). In each of these reports I have for more than the past ten years carefully recorded my acknowledgments to the many colleagues and friends with whom I have worked in pursuing the VARHS. On the CIEM website and in these reports the interested reader can also find all of the many detailed questionnaires and the data available.

Our work would not have been possible without continuous professional and administrative interaction, advice and encouragement from a large number of individuals at CIEM and IPSARD. Among many others I would like to highlight my gratitude to the following:

- From CIEM the former Vice-President, Mrs. Vu Xuan Nguyet Hong, and present Vice-President, Dr. Nguyen Tue Anh, have been close collaborators from the very beginning, and former Director of the Agriculture and Rural Development Policy Research Department, Dr. Chu Tien Quang, and Dr. Dang Thu Hoai provided key inputs in the early stages of our work. The same goes for the present CIEM research partner team including Mr. Luu Duc Khai, the present Director of the Agriculture and Rural Development Department, Mr. Nguyen Huu Tho, Ms. Hoang Xuan Diem, and Mrs. Le Thi Xuan Quynh. Moreover, I am most grateful to Project Assistants Ms. Do Hong Giang and Ms. Bui Phuong Lien. Without their tireless support in the organization of numerous project activities, including the publication of countless reports and studies during a decade of project work, the present volume would have been impossible.
- From IPSARD a particular thanks goes to Dr. Nguyen Ngoc Que, Mrs. Nguyen Le Hoa, Ms. Nguyen Thi Ngoc Linh, Mrs. Pham Thi Phuong Lien, Ms. Do Lien Huong, Ms. Tran Thi Thanh Nhan, Mr. Ngo Quang Thanh, Ms. Hien Pham, and Mr. Do Huy Thiep. They all contributed to our many studies along the way, and were supported by Mrs. Tran Thi Quynh Chi and Mr. Phung Duc Tung on the programming and administrative side.

Turning to the highly productive and stimulating collaboration with the data collection and management teams from ILSSA, they were effectively coordinated by: former Director, Dr. Nguyen Huu Dzung; former Vice Director, Dr. Dao Quang Vinh; Director, Dr. Nguyen Thi Lan Huong; Vice Director, Mr. Le Ngu Binh; and their immediate daily colleagues including Ms. Chu Thi Lan, Ms. Nguyen Hai Ninh, Ms. Nguyen Phuong Tra Mi, Mr. Luu Quang Tuan, Ms. Hoang Thi Minh, Ms. Le Quynh Huong, Mr. Le Hoang Dzung, Mr. Nguyen Tien Quyet, Mr. Nguyen Van Du, and Ms. Tran Thu Hang. ILLSA also managed the coordination with the GSO and Dr. Nguyen Phong, who provided early useful advice on sampling issues. The survey would not have taken off without the efforts of these and many other ILSSA staff too numerous to name here in compiling the questionnaires, training enumerators, implementing the survey in the field, and cleaning the data. A particular thanks is also extended for the effective and most helpful assistance provided by all administrative levels in Viet Nam from the centre in Hanoi and all the way out to the provincial, district, and commune officials and people who helped organizing numerous

field trips and pilots over more than a decade of work. Without these crucial efforts neither I personally nor the international collaborators in general would have been in a position to even begin comprehending the realities and challenges of rural life in Viet Nam. I hope all we learnt comes out clearly.

Importantly, I would like to express my deepest sense of appreciation for the valuable time the several thousand rural households in 12 provinces of Viet Nam made available to us in 2006, 2008, 2010, 2012, and 2014 during the interviews carried out as part of this study. It was a humbling and thought-provoking experience to see the openness and eagerness with which they welcomed and engaged with us all and the many enumerator teams. I sincerely hope that the present volume will prove useful in the shared search for effective policies geared towards improving their daily livelihoods. This is, in the final analysis, the overarching goal of this work, and my own personal ambition.

To the many staff at the Danish Embassy, who have supported us under the guidance of the ambassadors mentioned, I would like to acknowledge the efforts of former Deputy Heads of Mission, Dr. Tove Degnbol and Ms. Lis Rosenholm, alongside Ms. Mimi Groenbech, Henrik Vistisen, Cathrine Dolleris, and Anders Baltzer Jørgensen as well as Danida advisor Ole Sparre Pedersen. A very particular set of thanks goes to Ms. Vu Huong Mai, who together with Ms. Nguyen Thi Thu Hang, Mr. Hoang Van Tu, Mrs. Nguyen Thi Phuong Bac, and Ms. Nguyen Thi Phuong Thao provided much of the essential administrative support and oversight required from the Danish Embassy.

Each VARHS round involved careful preparation, implementation, analysis, and presentation and discussion of results in a wide range of workshops and launching events with a total number of participants of more than 1,000. The present volume benefitted from the specific insights and helpful comments made by Dr. Le Dang Doanh, Dr. Vu Thi Minh, and Ms. Nguyen Thi Kim Dzung at a national workshop held in Hanoi at CIEM on 19 May 2015 where the first draft of this volume was presented.

Furthermore, I would like to mention a few additional international colleagues, who at different stages of the VARHS process provided most helpful advice and support. They include Carl Kalapesi, Adam McCarty, and the staff at Mekong Economics Ltd, who worked with me on VARHS02, Professor Phil Abbott with his wealth of insights into rural development and questionnaire design, and Dr. Sarah Bales and Professor Bob Baulch, who shared their most valuable insights from Viet Nam at critical stages of the work. Dr. Mikkel Barslund and Dr. Katleen Van den Broeck also worked with me in the early stages

of the VARHS (in Viet Nam and in Copenhagen) as did Lotte Isager; and Simon McCoy and Theo Talbot provided essential programme, practical, and many other kinds of support during their respective stays in Hanoi based at CIEM in 'my old office'. Thanks are also due to the administrative and secretarial staffs at the University of Copenhagen and UNU-WIDER too numerous to be listed here. I feel confident they are all aware of how much and how deeply I appreciate their daily efforts in making the VARHS happen.

I now turn to the individual authors, who have contributed so effectively to this edited volume. Their profiles can be found in the list of contributors below, and I wish to state my admiration and gratitude for their analytical work and quantitative research that makes up the very core of this volume. Particular thanks in this group go to six team-mates, who are not only partners in the Viet Nam work but also close friends of mine: Irish Trinity College professor, Carol Newman, with whom I have had a marvellous working relationship for almost a decade, two outstanding University of Copenhagen associates, Thomas Markussen and Ulrik Beck, a very promising UNU-WIDER research colleague Saurabh Singhal, and my co-author in both this volume and other work, professor Andy McKay from the University of Sussex. This group of people was—together with the other contributors—instrumental not only in working relentlessly with me in putting the VARHS data together and making sense of it all, but also in the very many concrete practical and analytical challenges involved in the VARHS process necessary to produce this volume. The productivity of our professional partnership has been proven over and over again by the truly respectable research output that has appeared in some of the best development journals around. I am committed to doing my utmost to ensure that the mutual collaboration we have managed to establish will continue to develop and flourish.

Allow me to add as well a specific note of thanks to Risto Rönkkö and Sinnikka Parviainen, who helped putting together the data and graphs in the introduction, and to Lesley Ellen for timely and effective handling of the draft manuscript; and finally, while advice has been received from all these and many more colleagues and friends, I take full responsibility for any remaining errors or shortcomings in interpretation. All the usual caveats apply.

Finn Tarp  
Hanoi, 25 July 2015

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## **Chapter 1 Introduction**

Finn Tarp

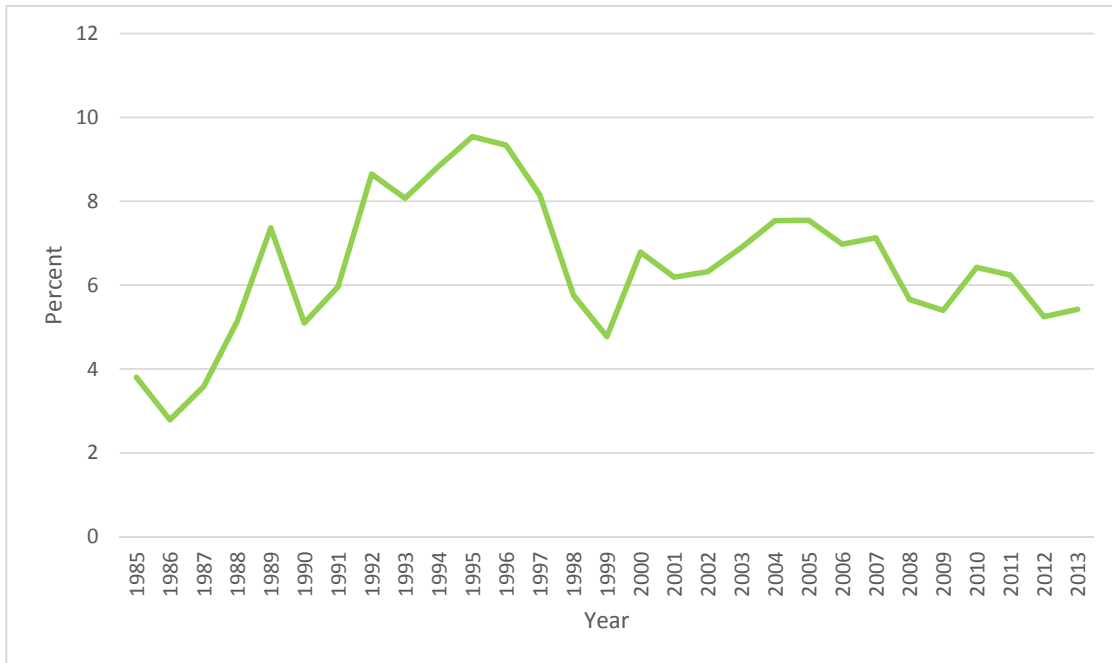
This introductory chapter aims first to provide the reader with an overview of how Viet Nam's general economic and socio-economic performance and characteristics have evolved over the past few decades. To add perspective, Viet Nam is in this chapter compared throughout Sections 1.1 to 1.3 with a group of regional counterparts, commonly China, Thailand, Indonesia, and Cambodia. The general objective is to set the scene for the remaining chapters of this volume where focus is on the household sector in rural areas of Viet Nam. Section 1.4 provides the bridge between the macro-setting and a set of specific background materials regarding the VARHS panel. Section 1.5 is focused on the underlying questionnaires and Section 1.6 reviews the sampling and associated issues. Section 1.7 briefly outlines the remainder of the book.

### **1.1 General macroeconomic and monetary performance**

Following the successful implementation of the 'Doi Moi' reform programme which began in 1986 after years of deep economic crisis, Viet Nam has in many ways been among the most successful East Asian economies. This is certainly so in terms of GDP growth. Yet, progress has by no means been linear, and Viet Nam, which acquired lower middle-income status in 2010, is relatively poor in regional comparison. Figures 1.1, 1.2, and 1.3 illustrate these points vividly. Figure 1.1 shows first of all the significant rebound in GDP growth since 1986 and the excellent performance of the economy in the 1990s. It also demonstrates the significant impact of the Asian financial crisis in 1997, which was a major economic blow. The 2007-08 global financial crisis had much less impact on Viet Nam, in large measure due to

Viet Nam's effective macroeconomic response. In more recent years the annual growth rate would appear to have stabilized robustly at around 5.5 per cent, possibly with a slightly upward tendency.

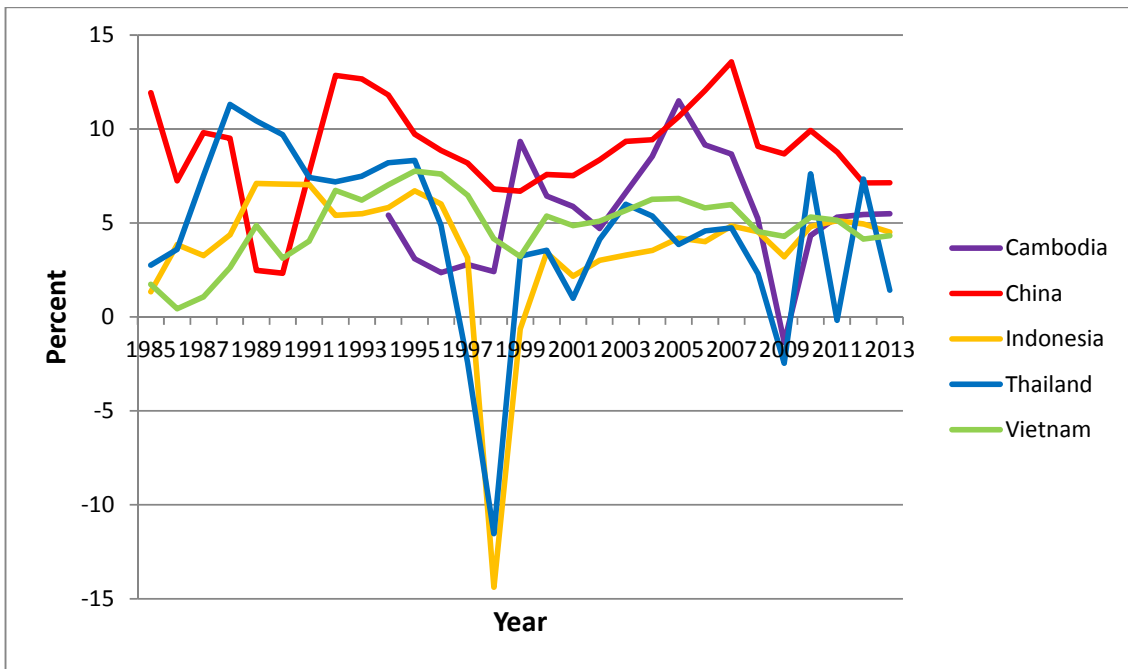
Figure 1.1: Real GDP growth, Viet Nam



Source: World Bank World Development Indicators.

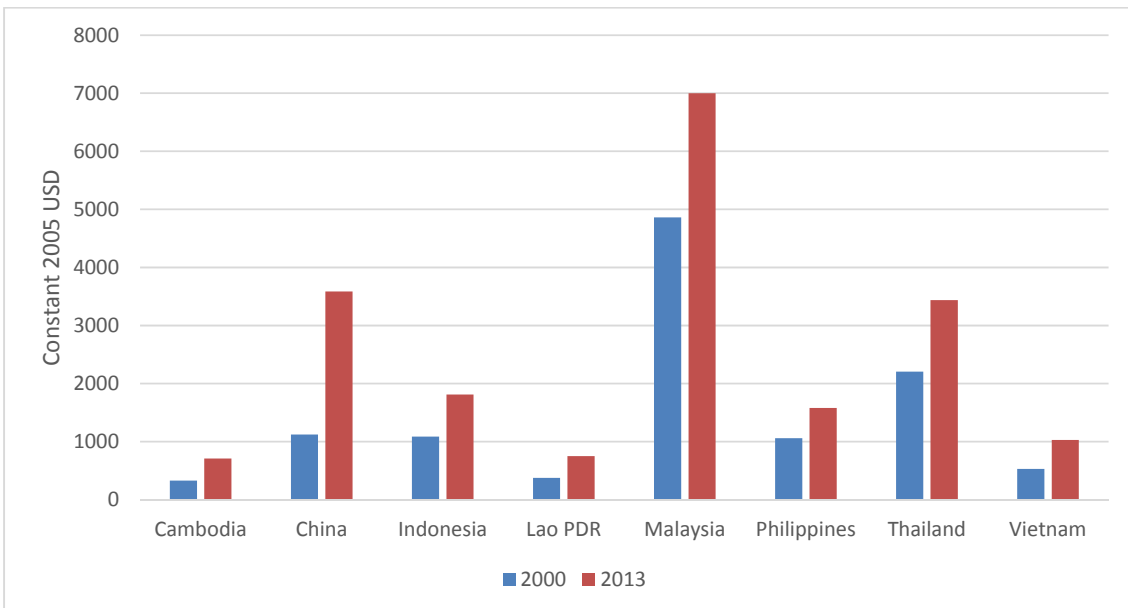
Turning to Figure 1.2 it is evident that Viet Nam has been outperformed by China in terms of GDP growth—as has the rest of the world. It is equally clear that Viet Nam has done much better—and has had a much more stable performance—than Southeast Asian countries such as Thailand, Indonesia, and Cambodia. The former two were particularly badly hit by the Asian financial crisis and have suffered large economic fluctuations in contrast to Viet Nam. There should be no room for complacency though. Figure 1.3 confirms the fact that Viet Nam remains a relatively poor country with a GDP/capita well below that of Malaysia, China, and Thailand, closer to the Philippines, but above that of Cambodia and Laos.

Figure 1.2: Real GDP per capita growth in selected countries, 1985–2013



Source: World Bank World Development Indicators.

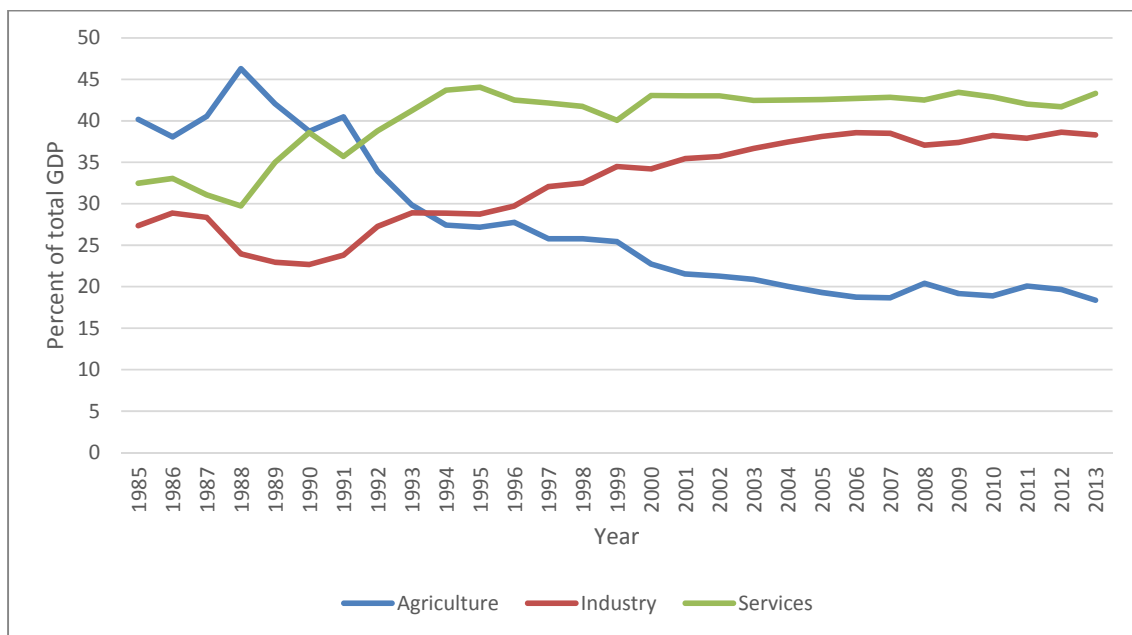
Figure 1.3: Real GDP per capita in Southeast Asian countries



Source: World Bank World Development Indicators.

The solid aggregate economic growth in Viet Nam has over the years been associated with what most observers would characterize as a process of successful structural transformation, involving sectoral reallocation from agriculture to higher productivity sectors. Figure 1.4 and Table 1.1 demonstrates this point. The long run sectoral trends of agriculture, industry, and services in Figure 1.4 are impressive although there seems to be a bit of tapering off in more recent years. Table 1.1 underpins this comparing to a selected group of Southeast Asian counterparts.

Figure 1.4: Sectoral distribution of aggregate Vietnamese output



Source: World Bank World Development Indicators.

Table 1.1: Sectoral distribution of production in selected Southeast Asian countries (share in per cent of agricultural and industrial production of total GDP)

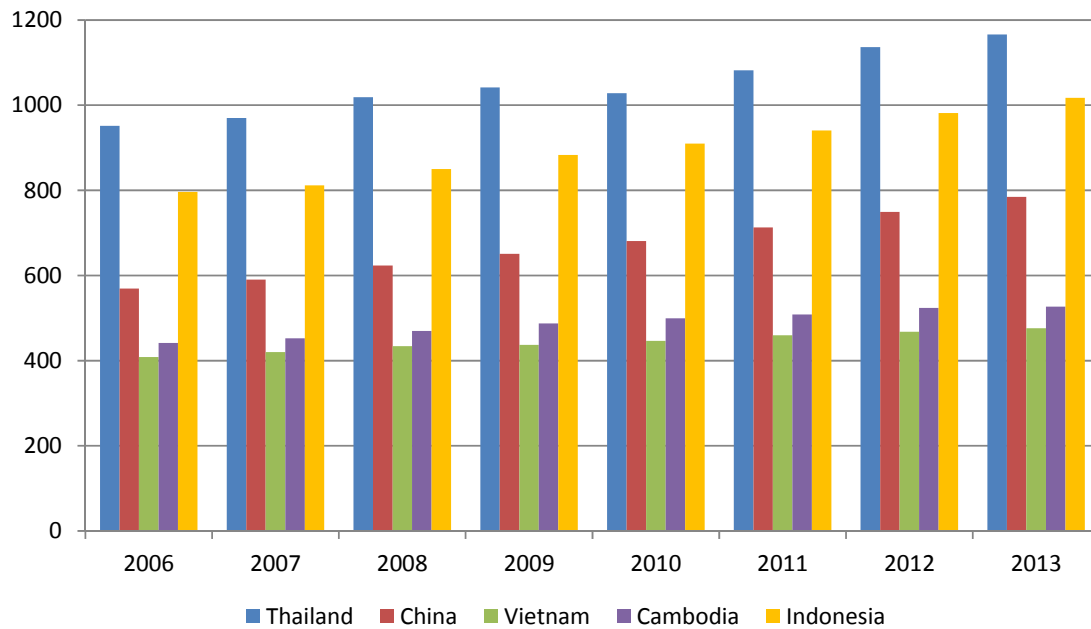
		1985	1995	2005	2013
Cambodia	Agriculture	n/a	49.6	32.4	33.5
	Industry	n/a	14.8	26.4	25.6
China	Agriculture	28.4	20.0	12.1	10.0
	Industry	42.9	47.2	47.4	43.9
Indonesia	Agriculture	23.2	17.1	13.1	14.4
	Industry	35.8	41.8	46.5	45.7
Thailand	Agriculture	15.8	9.5	10.3	12.0
	Industry	31.8	40.7	44.0	42.5
Viet Nam	Agriculture	40.2	27.2	19.3	18.4
	Industry	27.4	28.8	38.1	38.3

Note: Services is the residual category so its share is 100 per cent minus the share of agriculture and industry.

Source: World Bank World Development Indicators.

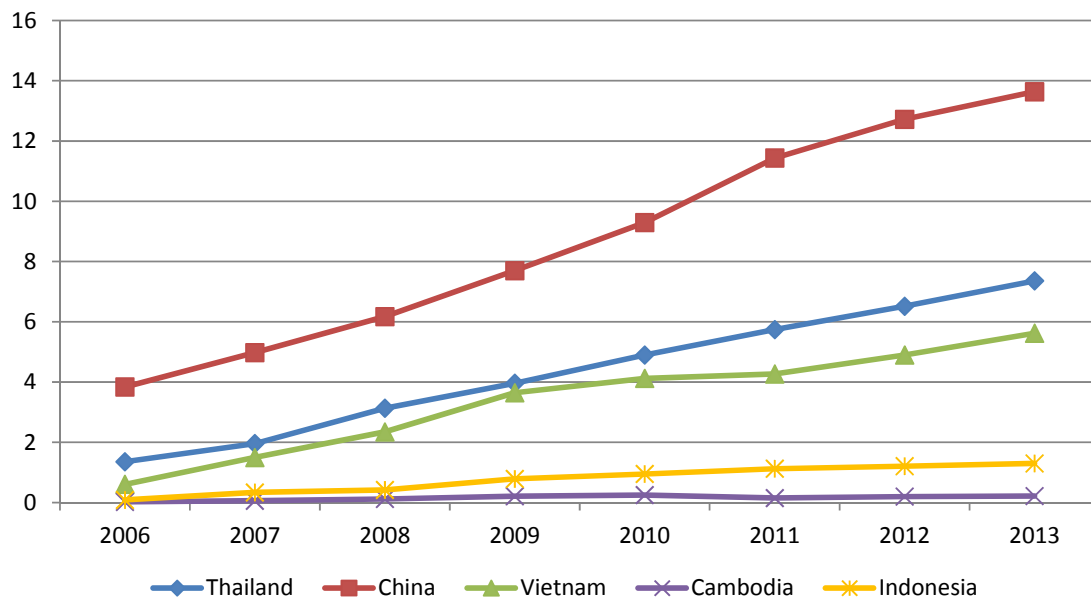
One concern that merits mentioning is that value added per worker in the agriculture sector (measured in constant 2005 US dollars (US\$)) only grew marginally from 2006 to 2013 in Viet Nam as demonstrated in Figure 1.5. China, Indonesia, and Thailand have all done better at significantly higher levels as well. While Indonesia's agricultural output per worker also stagnated in the last decade, it nevertheless has remained above that of Viet Nam. Furthermore, while the technology infrastructure in the form of fixed broadband subscriptions per 100 persons grew from 0.6 to 5.6 per cent between 2006 and 2013, Viet Nam stills lags behind China and Thailand, while Indonesia and Cambodia are even further behind as shown in Figure 1.6.

Figure 1.5: Agriculture value added per worker (constant 2005 US\$)



Source: World Bank World Development Indicators.

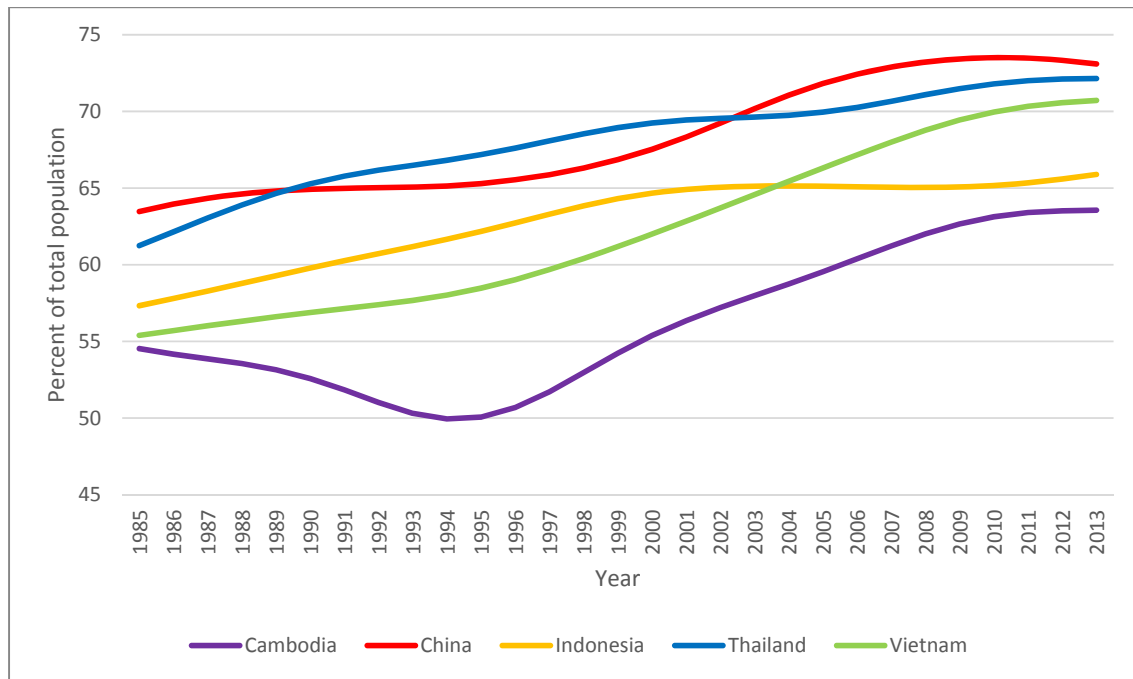
Figure 1.6: Fixed (wired) broadband subscriptions (per 100 people), 2006–13



Source: World Bank World Development Indicators.

Figure 1.7 highlights that Viet Nam has benefitted from a significant demographic dividend, which is high even by Southeast Asian comparison. The share of the 15–64 year old population has increased from 55 per cent in the mid-1980s to over 70 per cent in recent years, almost on par with the shares in China and Thailand. Labour-force participation rates are also high (see Figure 1.8). The International Labour Organization estimates of the labour-force participation of the 15–64 year old population has remained between 81 and 85 per cent since the 1990s, slightly higher than in China and Thailand for most of the period.

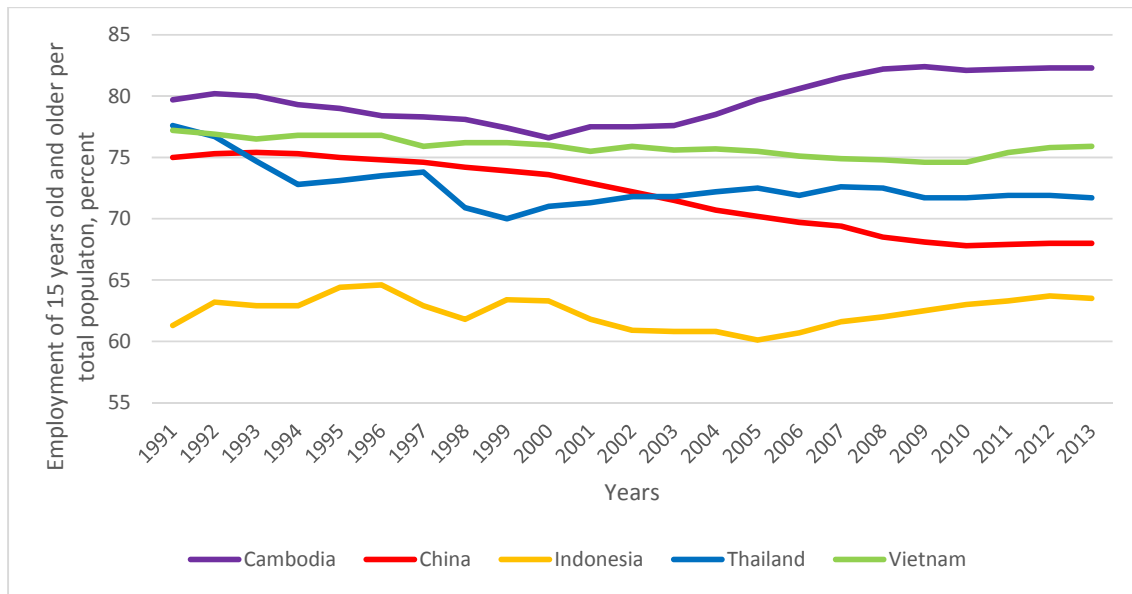
Figure 1.7: Share of population aged 15–64 years (per cent of total population)



Source: World Bank World Development Indicators.



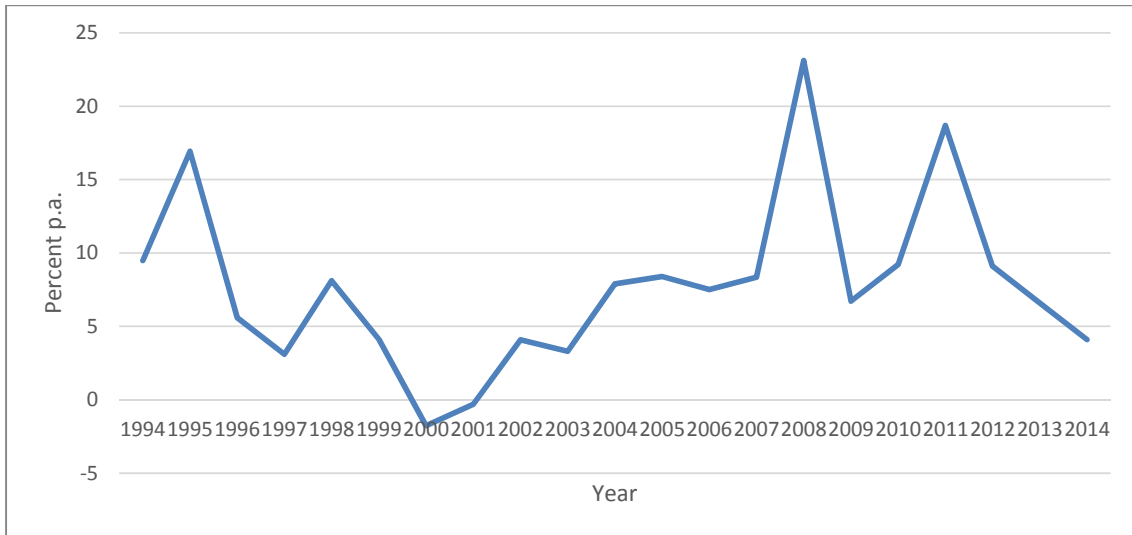
Figure 1.8: Employment of 15 year olds and older to total population (in per cent)



Source: World Bank World Development Indicators.

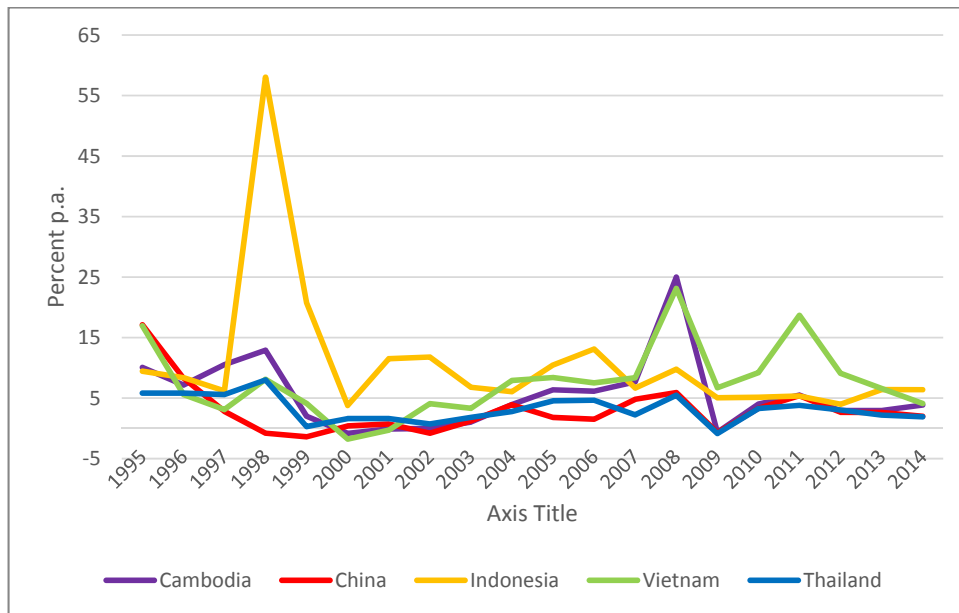
Turning to the monetary sector of the economy, Viet Nam has had its share of high inflation experiences, most dramatically in the middle of the economic crisis in the mid-1980s when inflation as measured by the annual increases in the consumer price index (CPI) exploded to more than 450 per cent and only gradually came down to more modest levels from the mid-1990s onwards. Nevertheless, Figure 1.9 illustrates that domestic prices were significantly affected by the 2007-08 and 2011 price spikes in international food prices before dropping down to about 5 per cent on an annual basis, pretty much in line with the GDP growth rate as discussed above. In Southeast Asian perspective, CPI inflation in Viet Nam was relatively high from 2007 onwards, but from 2012 it is more in line with the experience of other countries in the region (see Figure 1.10). The monetary policy interest rate remains high, though, as is clear from Figure 1.11.

Figure 1.9: Inflation in Viet Nam (annual changes in per cent in the CPI)



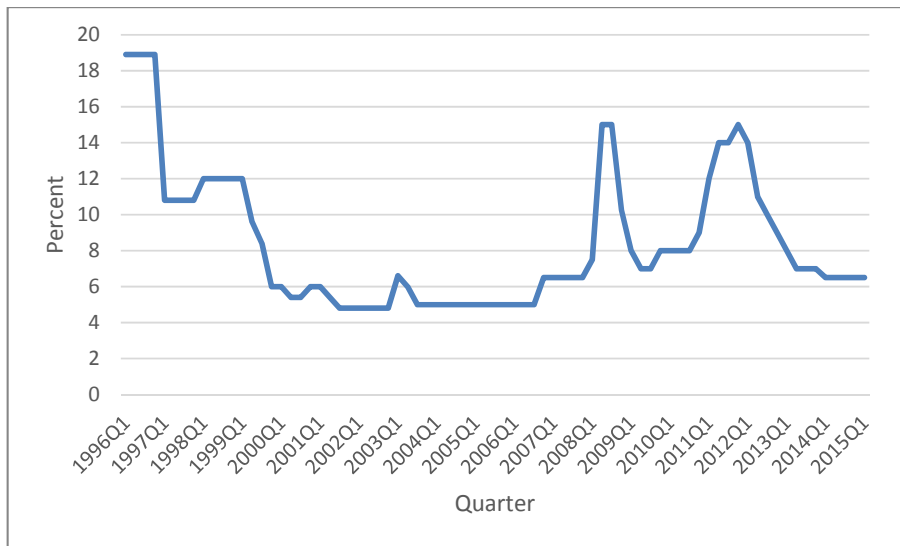
Source: IMF World Economic Outlook.

Figure 1.10: Inflation in selected countries (annual changes in per cent in the CPI)



Source: IMF World Economic Outlook.

Figure 1.11: Monetary policy interest rate (Viet Nam)



Source: IMF International Financial Statistics.

Finally, reflecting the somewhat more expansionary macroeconomic policy line Viet Nam adopted after the turn of the century (especially in more recent years), and which has underpinned the growth performance, government borrowing has gradually edged upwards as shown in Table 1.2. While government debt is higher than in other Southeast Asian countries there would appear to be no major reason for concern at present on this account as the government gross debt ratio as a share of GDP is only slightly above 50 per cent as indicated in Table 1.3. In addition, the external macroeconomic performance to which we turn shortly below is very convincing. It can also be noted here that while domestic credit provided by the banking sector (as a share of GDP) grew substantially in Viet Nam during 2006–13 it has nevertheless declined as a share of GDP since 2010 (see Figure 1.12). A roughly similar development can be seen in Figure 1.13 for domestic credit to the private sector during 2006–13, putting Viet Nam below China and Thailand, and above Indonesia and Cambodia.

Table 1.2: General government net lending or borrowing per GDP (per cent) (averages over the period)

	1995–99	2000–04	2005–09	2010–14
Cambodia	-5.1	-5.2	-1.0	-2.7
China	-1.1	-2.5	-0.9	-0.6
Indonesia	-0.5	-1.1	-0.3	-1.5
Thailand	-2.2	-1.4	0.2	-1.0
Viet Nam	-0.9	-2.1	-1.9	-4.4

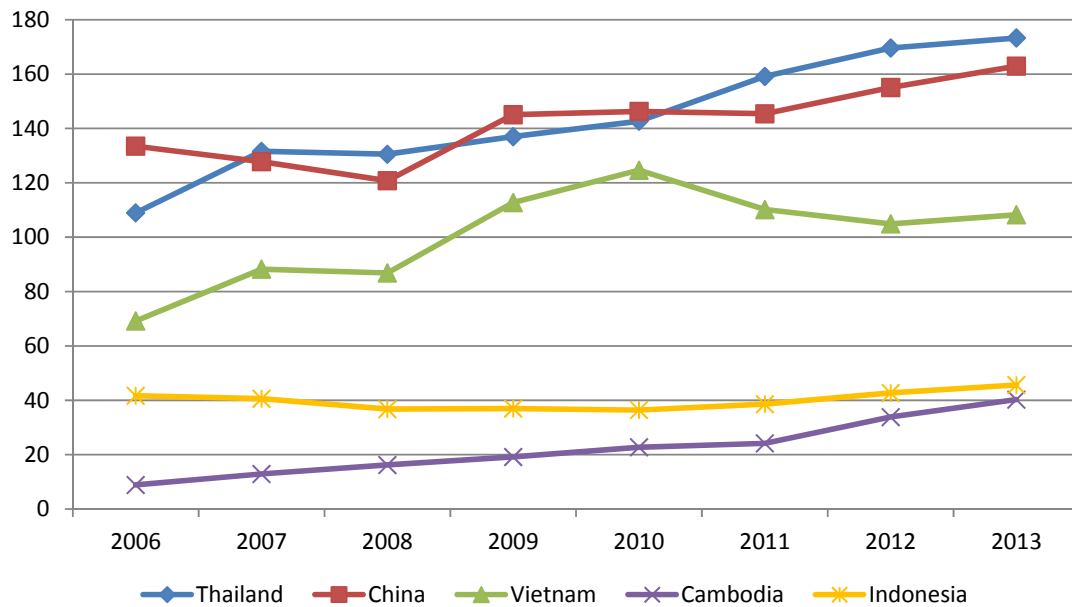
Source: IMF World Economic Outlook.

Table 1.3: General government gross debt (per cent of GDP) (averages over the period)

	2000–04	2005–09	2010–14
Cambodia			
China	38.9	31.2	29.0
Indonesia	37.1	33.5	38.2
Thailand	66.1	33.5	24.1
Thailand	54.1	42.0	44.6
Viet Nam	36.1	40.7	50.9

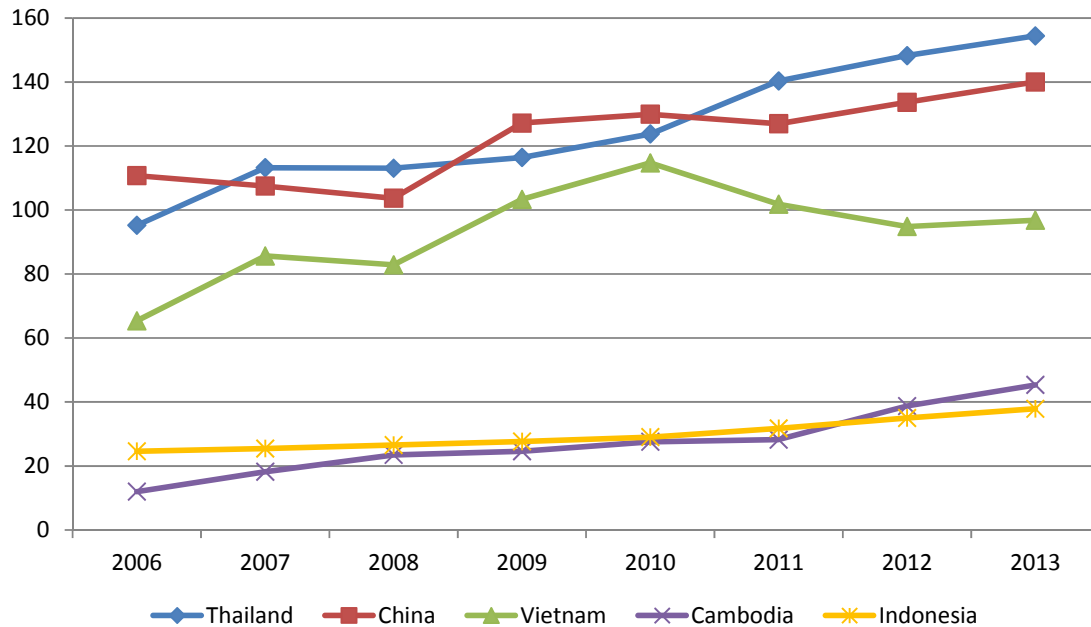
Source: IMF World Economic Outlook.

Figure 1.12: Domestic credit provided by financial sector (per cent of GDP)



Source: World Bank World Development Indicators.

Figure 1.13: Domestic credit to private sector (per cent of GDP)

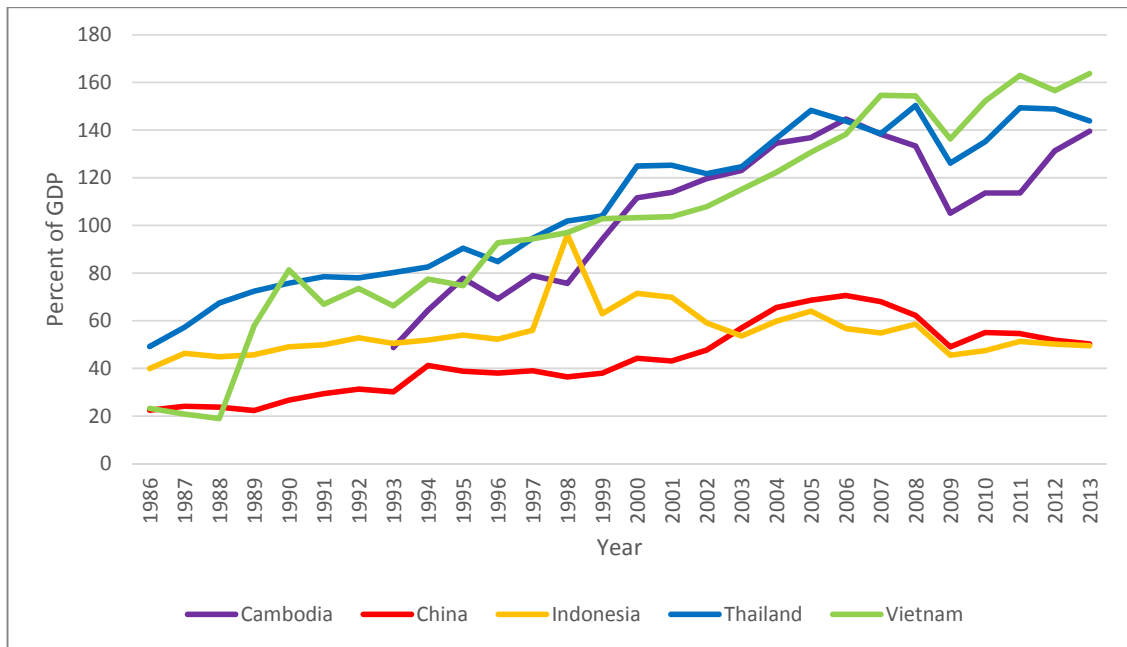


Source: World Bank World Development Indicators.

## 1.2 External economic relations

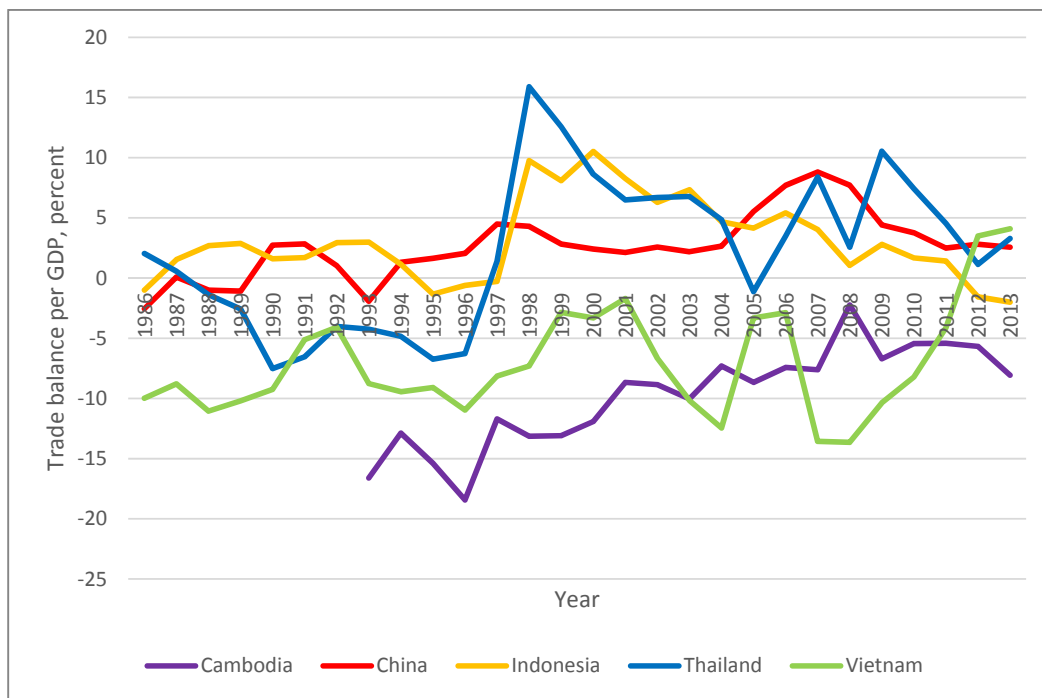
Viet Nam's international economic performance has been strong for many years and the country is a very open economy as measured by standard indicators. Trade as a share of GDP has increased steadily for the past 15 years and is by now higher than that of Thailand (reflecting in part that Viet Nam weathered the 2007-08 crisis much better than Thailand). Furthermore, while China and Viet Nam both started with a trade/GDP ratio of about 20 per cent in 1986 the trade share of Viet Nam was in 2013 much higher than that of China and Indonesia as shown in Figure 1.14. Moreover, while the trade balance fluctuated below zero until around 2007 the trend changed in that year and the balance turned positive in 2011 (see Figure 1.15).

Figure 1.14: Trade (exports plus imports) as a share of GDP per cent



Source: World Bank World Development Indicators.

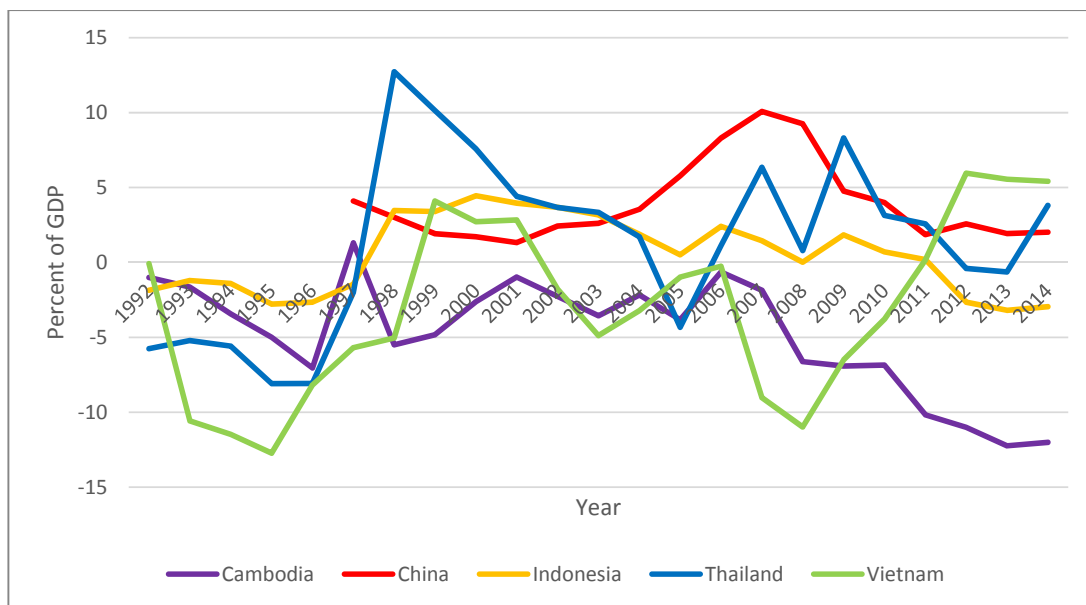
Figure 1.15: Trade balance per GDP, per cent



Source: World Bank World Development Indicators.

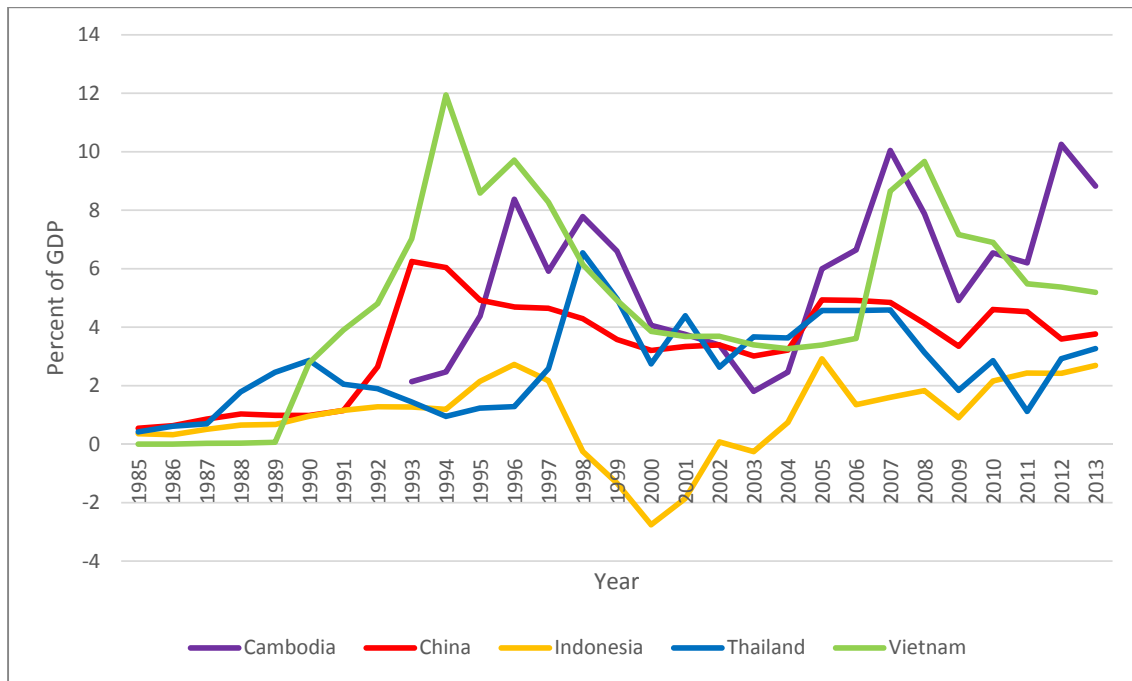
A similar development can be observed in the current account balance, which improved significantly from around 2007, and Viet Nam is by now in a stronger relative position than any of the other countries included in Figure 1.16. The strong external position of Viet Nam is equally clear from the FDI net inflows. Viet Nam has attracted substantial amounts of foreign investment over the past 25 years. In fact, Viet Nam is in this regard a star performer throughout the period from the late 1980s as shown in Figure 1.17 where FDI inflows to Viet Nam as a ratio of GDP have consistently been higher than to China and Thailand. Only Cambodia is on par with Viet Nam as measured by this indicator while Indonesia trails far behind.

Figure 1.16: Current account balance per GDP



Source: IMF World Economic Outlook.

Figure 1.17: Foreign direct investment, net inflows (per cent of GDP)

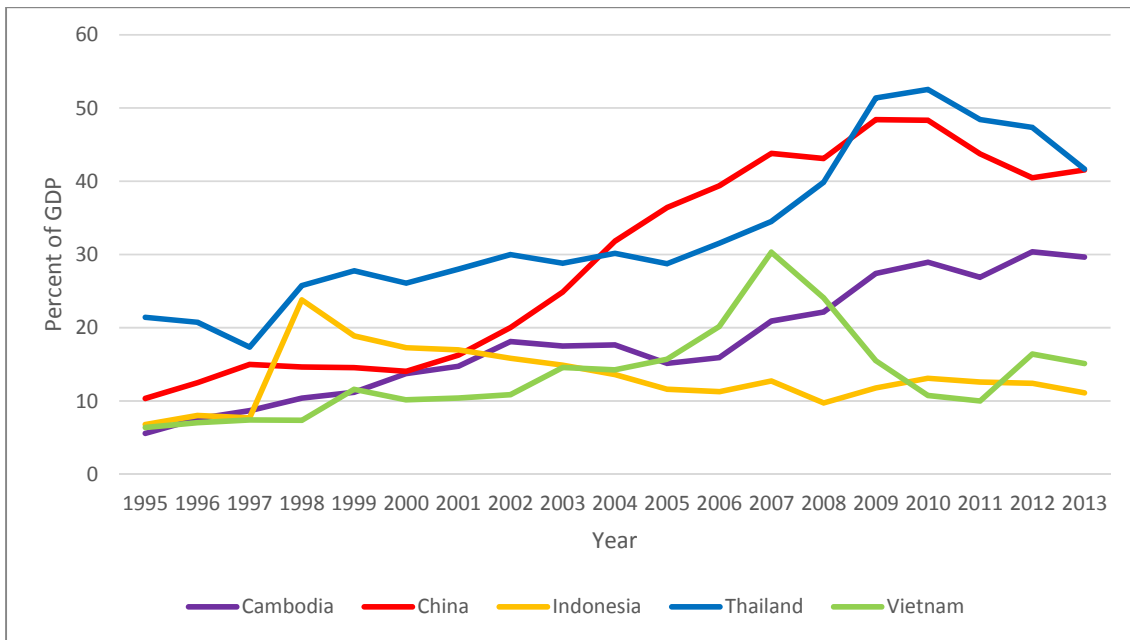


Source: World Bank World Development Indicators.

While total international reserves have dropped somewhat since 2007, and are relatively low in Viet Nam (see Figure 1.18) there would appear to be little reason for concern. This is also reflected in the downward sloping, but nevertheless very stable exchange rate development vis-à-vis the US dollar after the massive external adjustments in 1986-88 (see Figure 1.19). In international comparative perspective this performance is quite impressive.

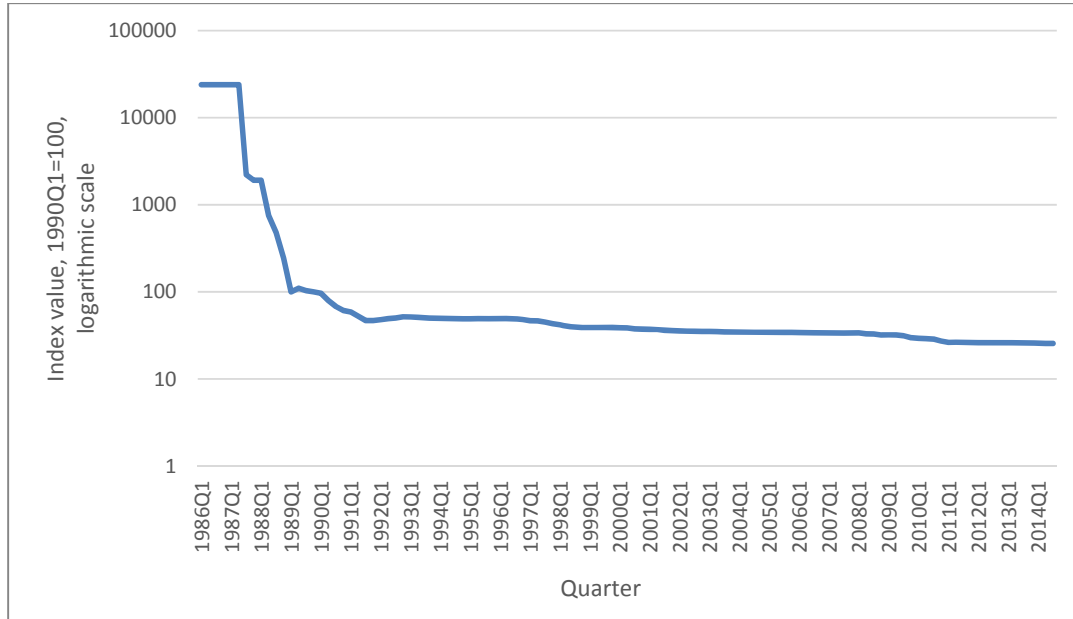


Figure 1.18: Total reserves excluding gold as a share of GDP, per cent



Source: World Bank World Development Indicators.

Figure 1.19: The US dollar/ Vietnamese Dong exchange rate



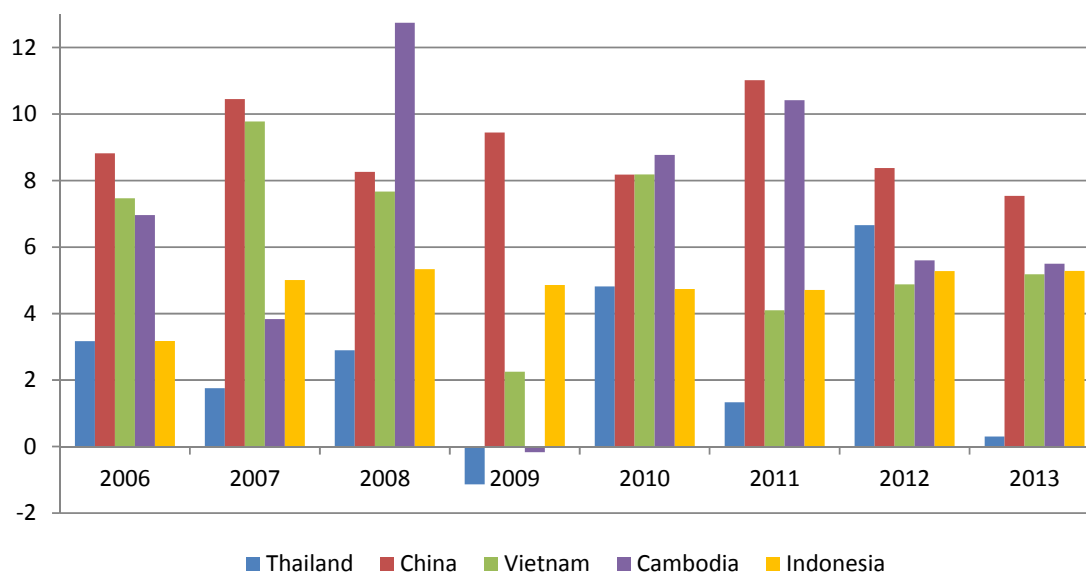
Note: Quarterly data with period averages. Index value with 1990Q1=100. Lower value indicates depreciation of the Dong.

Source: IMF International Financial Statistics.

### 1.3 Household consumption and socio-economic indicators

The significant economic growth in GDP in Viet Nam has been accompanied by growth in household final consumption at about the same rate. This is shown in Figure 1.20, which reflects an average annual rate of increase of 6 per cent in household consumption from 2006-13. To compare, household consumption in Thailand only grew by 2.5 per cent per year in this period whereas consumption in most years grew faster in China, especially from 2009 with the exception of 2010.

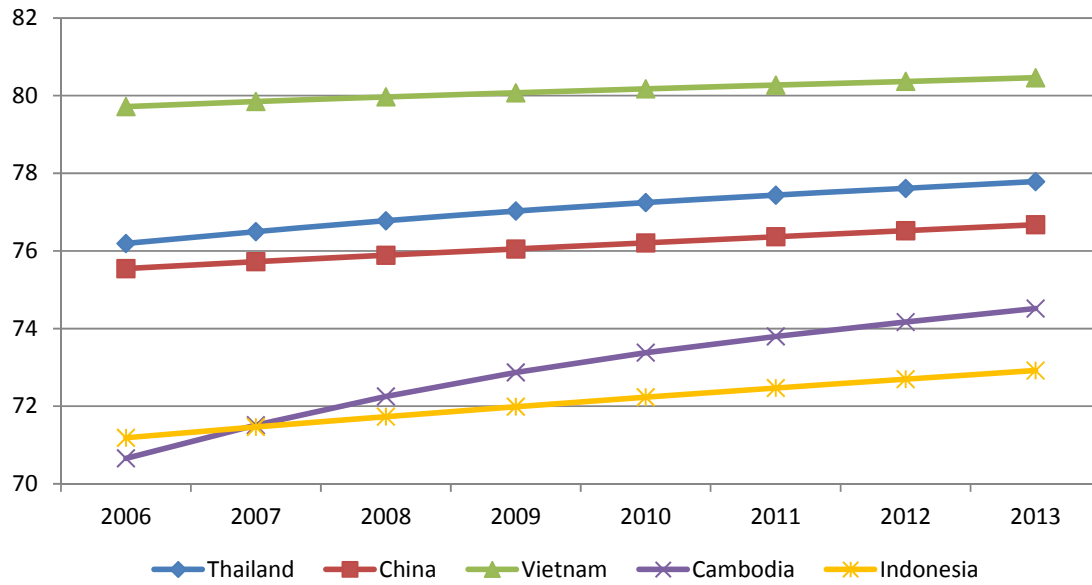
Figure 1.20: Household final consumption expenditure (per cent annual growth)



Source: World Bank World Development Indicators.

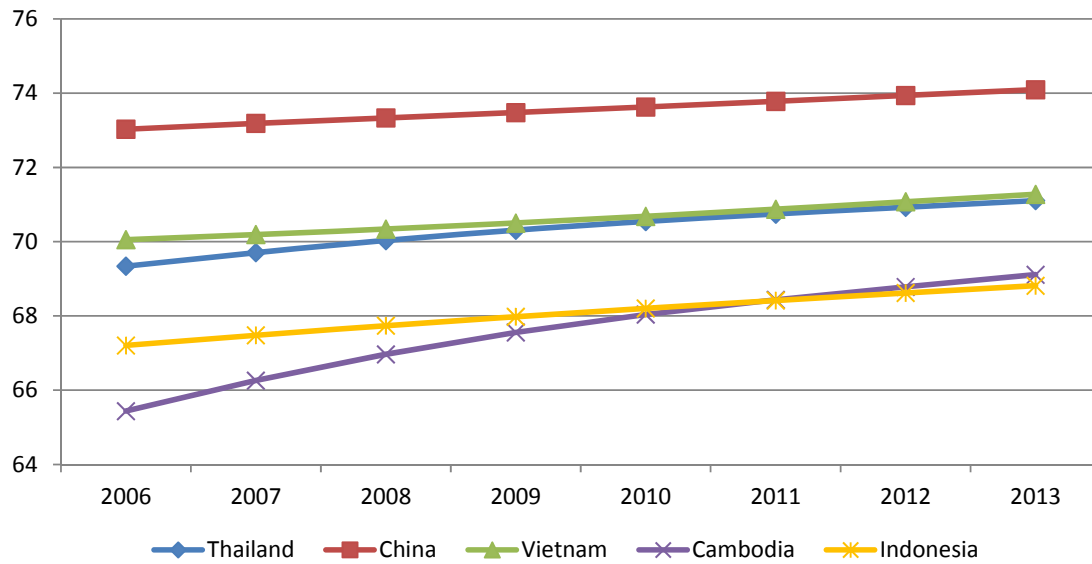
A truly impressive socio-economic characteristic of Viet Nam is life expectancy at birth. Female life expectancy has consistently outperformed all comparator countries as shown in Figure 1.21, and is remarkably high (80 years on average) between 2006 and 2013. This is almost 10 years more than Indonesia and on par with many developed countries. Male life expectancy is also relatively high (see Figure 1.22) on par with Thailand and better than Indonesia and Cambodia but trailing behind China.

Figure 1.21: Life expectancy at birth, female (years), 2006-13



Source: World Bank World Development Indicators.

Figure 1.22: Life expectancy at birth, male (years), 2006-13



Source: World Bank World Development Indicators.

In terms of under-five mortality rates Viet Nam performs much less convincingly as is clear from Table 1.4. While significant progress has been made since 2000 for both girls and boys, Viet Nam only occupies a middle ground—better than Indonesia and Cambodia and below the performance of China and Thailand.

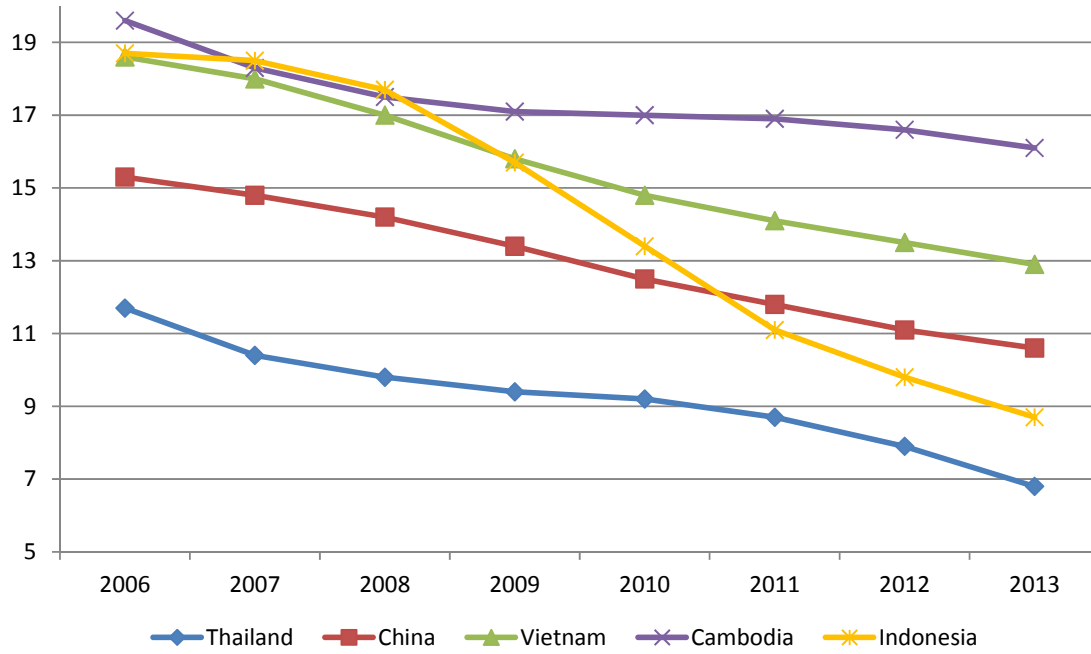
Table 1.4: Mortality rate, under-5, female and male (per 1,000)

	Mortality rate, under-5, female (per 1,000)			Mortality rate, under-5, male (per 1,000)		
	2000	2010	2013	2000	2010	2013
China	34.7	14.7	11.8	38.9	16.9	13.5
Thailand	19.2	12.5	11.3	25.6	16.3	14.7
Viet Nam	30.3	22.3	20.5	39.6	29.4	26.9
Indonesia	46.9	29.1	25.6	57.2	37.1	32.9
Cambodia	102.5	38.9	33.5	118.1	48.4	42.2

Source: World Bank World Development Indicators.

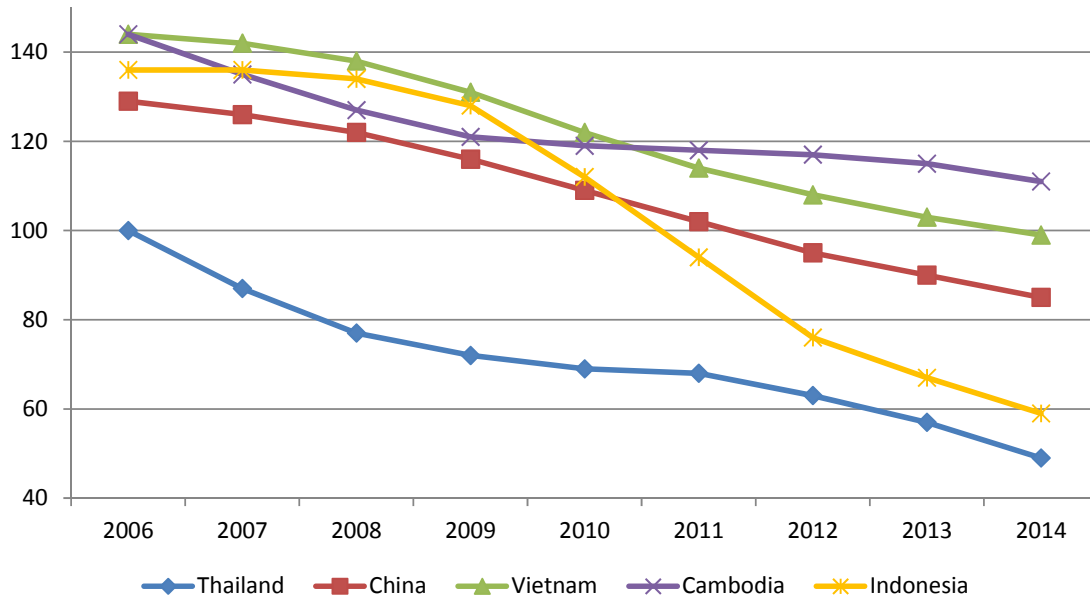
The prevalence of undernourishment as a share of the Vietnamese population dropped from close to 19 per cent in 2006 to 13 per cent in 2013 as shown in Figure 1.23, pretty much in line with the general drop in the poverty headcount rate. While this improvement is clearly better than the experience of Cambodia, it is not significantly different from what was seen in China and Thailand. This means that Viet Nam has relatively fewer undernourished people than Cambodia, more than China and Indonesia, and many more than Thailand in particular. A roughly similar picture emerges when focus is on the food deficit as in Figure 1.24, reflecting Indonesia’s relative effectiveness in eradicating malnourishment and the food deficit during 2006-13.

Figure 1.23: Prevalence of undernourishment (per cent of population)



Source: World Bank World Development Indicators.

Figure 1.24: Depth of the food deficit (kilocalories per person per day)



Note: The depth of the food deficit indicates how many calories would be needed to lift the undernourished from their status, everything else being constant. The average intensity of food deprivation of the undernourished, estimated as the difference between the average dietary energy requirement and the average dietary energy consumption of the undernourished population (food-deprived), is multiplied by the number of undernourished to provide an estimate of the total food deficit in the country, which is then normalized by the total population.

Source: World Bank World Development Indicators.

Turning finally to the level of education, there is not much difference between the countries in focus in this introduction when it comes to primary and secondary education. However, when focus is on university education Thailand is far ahead of both Viet Nam and the other countries in the comparison group (Table 1.5). The share of tertiary school enrolment grew by about 8 percentage points in Viet Nam from 2006 to 2011 for both females and males; at a much lower level than Thailand. In comparison to the other countries the only noticeable difference is that Cambodia stands out as being very far behind.

Table 1.5: Tertiary school enrolment in 2006 and 2011, females and males (per cent gross)

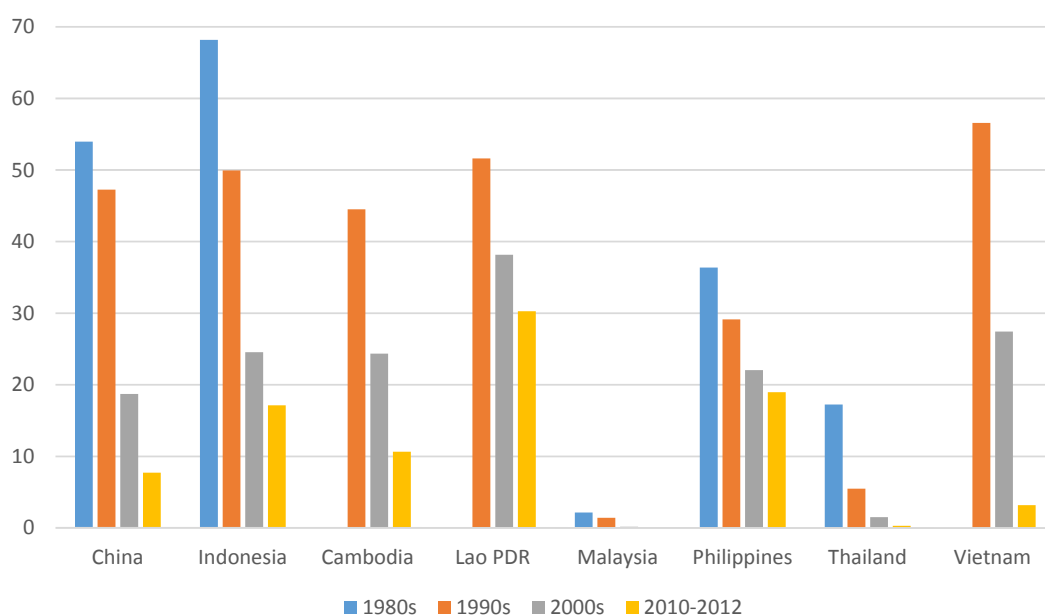
	School enrolment, tertiary, female (per cent gross)		School enrolment, tertiary, male (per cent gross)	
	2006	2011	2006	2011
China	19.0	25.7	20.0	23.1
Thailand	45.8	58.8	42.6	46.4
Viet Nam	16.1	24.6	16.8	24.2
Indonesia	17.0	25.0	18.8	29.4
Cambodia	3.6	12.0	7.6	19.6

Source: World Bank World Development Indicators.

#### 1.4 Summing up so far and moving on to VARHS

The general macroeconomic and socio-economic framework set out above sets the general scene within which developments at the household level in rural areas of Viet Nam have evolved over the past decades; and there is no doubt that aggregate progress has in general trickled down to poor people. This is reflected in Figure 1.25 and Table 1.6, which provide a comparison (based on the World Bank poverty line of US\$1.25 (PPP)) with regional counterpart countries of the development of their poverty headcount ratios. Such comparison has to be taken very cautiously given the inherent data issues. Nevertheless, Viet Nam stands out remarkably by this measure. While data are not available for Viet Nam in the 1980s, widespread progress can be seen in all countries included. Moreover, and relevant for present purposes, Viet Nam started out with the highest poverty rate in the 1990s (57 per cent) and in 2010–12 had the lowest poverty rate (3 per cent), except for Thailand (and Malaysia). Yet, these two countries had poverty rates of 0.2 and 2 per cent respectively in the 2000s when Viet Nam was still at 27 per cent. One can also compare to, for example, Indonesia and the Philippines, which from 2010–12 had poverty rates of 17–19 per cent even if they are at much higher real GDP/capita levels (see Figure 1.3) than Viet Nam.

Figure 1.25: Poverty headcount ratio at US\$1.25 a day (PPP) (per cent of population)



Note: The poverty headcount ratio is based on World Bank estimates and obtained from the World Bank Development Indicators database. The estimates are not available for consecutive years but measured on average every two years for each country and not for the same countries in the same years. Therefore, the time categories are based on simple averages except for the 1980s when there is only one observation per country excluding the Philippines that has two estimates in 1985 and 1988. There is missing information for Cambodia, Lao PDR, and Viet Nam for the 1980s and Malaysia for 2010–12.

Source: World Bank World Development Indicators.

Table 1.6: Poverty headcount ratio at US\$1.25 a day (PPP) (per cent of population)

	1980s	1990s	2000s	2010-12
China	54	47	19	8
Indonesia	68	50	25	17
Cambodia	...	45	24	11
Lao PDR	...	52	38	30
Malaysia	2	1	0.2	...
Philippines	36	29	22	19
Thailand	17	5	2	0.3
Viet Nam	...	57	27	3

Note: As in Figure 1.15.

Source: World Bank World Development Indicators



At the same time, while this general picture and the underlying trend are illustrative and encouraging as well as in line<sup>1</sup> with the bi-annual nationally representative Viet Nam Household Living Standard Survey (VHLSS) carried out by the General Statistical Office (GSO) it does not provide useful insights into a host of the many policy-relevant issues Vietnamese policy makers face. The basic idea behind the original VARHS02 was that existing surveys (including the VHLSS) did not provide the data and information needed for coming to grips with a series of intricate and pressing issues related to land, credit, and labour. Only scant information was for example available on the way in which households in rural areas access resources in these markets. This lack of knowledge appeared as a particularly critical constraint to evidence-based policy-making. After all, Viet Nam had in 1986 embarked on a gradual process of liberating and transforming its economy from a centrally planned command-type system to a more market-oriented-based allocation of resources. In such a context the appropriate development of market institutions is an essential challenge.

The VARHS set out to help fill the above information gap, and this rationale remained unchanged as the VARHS06, VARHS08, VARHS10, VARHS12, and VARHS14 were launched and on which basis this study was prepared. For example, making land and credit markets more efficient today is no less key to sustaining private sector development than in 2002. VARHS was also meant to help in better understanding the role land markets play in the allocation of resources within the agricultural sector, including the possible influence of tenure security. Similarly, it was agreed from the very beginning that it was necessary to dig deep into the extent of land market transactions and whether land rental or land sale transactions were active.

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<sup>1</sup> While the level of the poverty rate based on VHLSS data is higher than indicated by the US\$1.25 (PPP) per day poverty line the underlying trend over time is about the same.

Other land issues relate to, for example, the impact of contract terms on efficiency and equity.

Another illustration of the need for additional data and information concerns the functioning of rural credit markets and the extent to which credit rationing impedes agricultural development. Further insights into these issues (with a view to improved policy-making) presume first of all availability of data on the amounts of credit, which farmers have actually taken. In addition, data are needed on the investment projects they could not undertake for lack of credit facilities and on the consumption expenditures they could not finance. If consumption credit is not readily available under distress conditions, it is evident that farmers will have to resort to costly alternative survival strategies such as sale of productive assets. And, if credit markets do not work properly, farmers will not be able to repurchase their lost assets later, thereby driving them into chronic poverty, suggesting that imperfect credit markets may have serious impacts on consumption and human welfare. There are in other words interrelated issues of market development, of institutions and of poverty which—it was agreed—merit attention.

As a third example, it was accepted in the VARHS design process that there is a continuing need to help bring out data and information on issues related to the fragmentation of the land. For this to be possible, it is, however, necessary to collect data at individual plot level. The VARHS was specifically designed to illicit such information, providing a basis for a much more detailed understanding of agricultural production than so far possible. It was also established that this understanding should be extended to cover cross-cutting issues such as the role of gender and poverty in labour market participation, agricultural production and marketing, access to credit, risk, and to information; and the data base was also designed to explore further issues related to the role of ethnicity and eventually to a variety of other issues such as political connections, migration, and happiness. The core

issues of VARHS have, however, remained the same throughout and while the associated questionnaires have over the years been developed and refined, the basic structure and content have been prepared, always ensuring comparability to be able to exploit the panel nature of the data to the maximum.

Accordingly, and to sum up this section, the purpose of the VARHS survey has throughout been to deepen our understanding of household access, and lack of access, to productive resources in rural Viet Nam. The intention has been to come to grips with why some households have restricted access to resources, and how these restrictions affect the household economy. 'Productive resources' have been broadly defined to include physical, financial, human, and social capital, as well as land, and the survey has collected information on a broad range of topics, such as rural employment, on- and off-farm income-generating activities, rural enterprises, property rights, savings, investment, insurance, and participation in formal and informal social networks.

Importantly, given that the same set of households was interviewed over the years, as discussed further in Section 1.6, such detailed data allows for an illuminating analysis of structural change and its impacts at the micro levels. It was also agreed from the very beginning of the VARHS process that this effort was targeted to serve as a valuable input into the ongoing policy reform debates that will ultimately contribute to sharpening the policy tools used to achieve equitable and sustainable economic development in rural Viet Nam.

### **1.5 The VARHS questionnaires**

The VARHS survey instrument used in all years included both a commune and a household questionnaire. The following types of detailed information were collected with minor modifications as the process went on. For example, the 2012 survey introduced new sections on migration and

remittances, social problems, happiness, and constraints to the expansion of household enterprises. The questionnaires from specific years can be downloaded from the CIEM website: <http://www.ciem.org.vn/>

***a. Commune questionnaire***

Information on interviewées

Section 1: Demographic information and general information on the commune

Section 2: Migration

Section 3: Development programmes

Section 4: Agriculture: crops cultivated, land sales, land rental agreements, types, and amount of land

Section 5: Income and employment: main sources of income/employment, and enterprise activity

Section 6: Infrastructure: roads, waterways, electricity, markets, and schools

Section 7: Shocks

Section 8: Irrigation management: public/cooperative irrigation facilities

Section 9: Credit and savings: possibilities for credit and saving: banks, funds, unions, moneylenders

Section 10: Commune problems

Section 11: Access to services

Section 12: General information on interviewed persons

Plus various conversion tables.

## ***b. Main household questionnaire***

Cover page: Surveyor, date, and ethnicity/language

Section 1: Household roster, general characteristics of household members and housing

Section 2: Agricultural land (plot level!) (including information on disasters)

Section 3: Crop agriculture

Section 4: Livestock, forestry, aquaculture, agricultural services, access to markets, and common property resources

Section 5: Employment, occupation, time use, and other sources of income

Section 6: Extension services

Section 7: Food expenditures, other expenses, savings, household durable goods

Section 8: Credit

Section 9: Shocks and risk coping

Section 10: Social capital and networks

Section 11: Migration

Section 12: Trust, political connections, sources of information, and rural society

### **1.6 Sampling**

Following the original VARHS pilot survey of four provinces in 2002 (Ha Tay, Phu Tho, Quang Nam, and Long An) originally covering 931 households, the VARHS survey, as already noted, has been carried out every second year in five waves between 2006 and 2014 in 12 provinces: Ha Tay, Lao

Cai, Phu Tho, Dien Bien, Lai Chau, Nghe An, Quang Nam, Khanh Hoa, Dak Lak, Dak Nong, Lam Dong, and Long An. These are all provinces where Danida's Business Sector Programme Support and/or the Agricultural and Rural Development Sector Programme Support (ARD-SPS) programmes have been active.

Starting in 2006, the main sampling strategy was to resurvey all rural households interviewed for the 2004 VHLSS income and expenditure sample to correspond exactly to the rural VHLSS sample in the 12 provinces studied by VARHS. A total of 1,312 such households were included in the VARHS06 sample and interviewed. However, sample challenges were experienced for three reasons: (i) GSO sampling was changed in 2004; (ii) several rural areas were reclassified as urban and administratively split from 2004 to 2006; and (iii) standard attrition. For these reasons 126 randomly selected replacements households were added alongside 886 'surviving' rural households also surveyed in VARHS02 (and the 2002 VHLSS) in Ha Tay, Phu Tho, Quang Nam, and Long An provinces. This adds up to the 2,324 households VARHS started with in 2006. Accounting for attrition the final number of households in 2014 is 2,162 and this is the number of households which is used in this study (except in Chapter 11),<sup>2</sup> noting that in some cases the number of observations can vary slightly due to missing data.

It is noted that the VHLSS is the nationally representative, socio-economic survey, carried out biennially by the GSO. The benefits of resurveying the above VHLSS households were two-fold. First, it was a cheap and reliable method for obtaining a sample which is statistically representative of rural

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<sup>2</sup> The one exception to the use of the balanced panel is Chapter 11 on children and the youth. In this case, an unbalanced panel, also including 544 new younger households sampled from the 2009 census to account for ageing of the original VARHS panel, is used. Adjusting the sample for younger households that are more likely to have children was considered important in this case to capture a complete picture of the evolution of children's welfare over the sample period.

areas in each of the 12 provinces. Second, in analytical work the analyst is able to combine information with data not only with the VARHS but also with the VHLSS.

One minor drawback from this methodology was that only households that existed in 2004 were surveyed. Therefore, households in the VARHS sample are slightly older than the average household in the population.<sup>3</sup> On the other hand, the benefits from having panel data are substantial. Not only can aggregate changes over time be estimated more precisely than is possible with 'repeated cross sections' (i.e. surveys of different households at different points in time), but one can also control for unobserved, time invariant household characteristics in analytical work, and it is possible to investigate individual level changes over time. For example, the analyst can go beyond aggregate, net changes in, say, landlessness, and ask who gained land, who lost land, and so on. This is critical in the present synthesis context.

In sum, the VARHS06 sample included the 2,324 households mentioned above. Taking account of 162 attritions over the 2006-14 period the balanced panel used in this study consists of 2,162 households. These households are distributed as shown in Table 1.7.

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<sup>3</sup> This was, as just noted, adjusted in the 2012 VARHS through the inclusion of 544 new households sampled from the 2009 census.

Table 1.7: The 2006–14 balanced sample of households

Province	No. of households	Per cent of sample	No. of communes	Per cent of sample
Ha Tay	470	21.74	68	14.59
Lao Cai	85	3.93	24	5.15
Phu Tho	297	13.74	44	9.44
Lai Chau	109	5.04	30	6.44
Dien Bien	99	4.58	28	6.01
Nghe An	188	8.7	68	14.59
Quang Nam	278	12.86	44	9.44
Khanh Hoa	72	3.33	27	5.79
Dak Lak	131	6.06	37	7.94
Dak Nong	92	4.26	30	6.44
Lam Dong	64	2.96	24	5.15
Long An	277	12.81	42	9.01
Total	2,162	100	466	100

Source: VARHS data files.

## 1.7 Book outline

The structure of the present volume consists, in addition to the scene-setting introduction above and the final concluding chapter, of three main parts. They focus on: (i) the ongoing transformation in the rural economy of Viet Nam; (ii) key production factors and institutions; and (iii) welfare and distributional issues.

Part I on the transformation of the rural sector is presented and analysed from three different, complementary perspectives. They include a local commune level analysis in addition to two chapters on respectively the agriculture sector (addressing issues such as diversification, commercialization and transformation) and the non-farm rural economy. Part II first reviews the land and land markets and then discusses labour and migration, before digging into the role of technology and innovation and finishing by addressing the complex issue of social capital and political connections. Part III is concerned with the critically important topics of welfare impacts and distributional issues. To begin, a rural household-level perspective is adopted to assess who the winners and losers are from



economic development in Viet Nam. Three chapters on gender, children and youth, and ethnicity perspective complete this part of the volume.

To the extent feasible a common structure has been followed in the 11 chapters that make up Parts I, II, and III. The authors proceed first to present descriptive statistics to describe the main observations and correlations of interest using statistical tests to check for differences between the variables of interest. This is followed by regression analysis as appropriate that allows the key correlations to be identified once controls (including, for example, household fixed effects) are included. One exception to this is the chapter on ethnicity. Given that ethnicity is referenced in almost all other chapters the authors in this chapter have not repeated empirical models presented elsewhere in the book.

Statistics are presented in general by individual province when spatial comparisons are made as the VARHS data are representative at that level. This is not, however, always possible/relevant and sometimes a grouping of provinces has been preferred as an easier and more communicative way to present the data. The groupings of the 12 provinces in the VARHS used follow the following regional denominations:

- Red River Delta: Ha Tay
- North: Lao Cai, Phu Tho, Lai Chau and Dien Bien
- Central Coast: Nghe An, Quang Nam and Khanh Ho
- Central Highlands: Dak Lak, Dak Nong and Lam Dong
- Mekong River Delta: Long An.

It is noted that while the VARHS is representative at provincial level the provinces are not representative, in a statistical sense, of the regions to which they have been assigned. The same can be said at national level, noting that VARHS does have an attractive spread and composition of provinces that covers the whole country. And, importantly, the VARHS 2006-14 panel covers the same 2,162 households (from 12 provinces and

466 communes) throughout the period and therefore provides a unique opportunity to capture what happened to them.

To ensure consistency in welfare indicators across chapters, food expenditure and household income are provided in real terms on a monthly per capita basis. The current food expenditure variable has been deflated by the national food price index and inflated to reflect a standard month of 30.4 days (the questionnaire asks about expenditures in the last four weeks, i.e. 28 days). Household income, which was collected in annual nominal figures, was deflated by the national CPI and was further divided by 12 to get from yearly to monthly figures.

The concluding chapter sums up key findings from the previous 11 chapters, addresses their policy implications, and discusses a number of wider perspectives, including a variety of points referred to in the introduction such as the impact of the international economic crises where Viet Nam was benchmarked against the performance of other countries in the region.

## **Part I**

# **A Rural Economy in Transformation**

## **Chapter 2 Local transformation in rural Viet Nam—a commune level analysis**

Ulrik Beck

### **2.1 Introduction**

The process of structural transformation takes place at many levels. At one end of the spectrum it is the result of decision-making of individual households or even household members. At the other end of the spectrum, government policies can affect the direction and speed of transformation. The commune, the lowest administrative division in Viet Nam, is a natural level of analysis for providing a high-level yet local view of changing economic conditions and structural transformation. Vietnamese communes typically consist of a few separate villages; in 2014, the average number of households of the communes of the VARHS households was 2,079 households. This size, combined with the fact that long-distance travel in rural Viet Nam still requires a significant commitment of both time and money, means that the conditions of the commune of residence are informative about the everyday conditions faced by rural Vietnamese households.

The VARHS includes a commune level survey. Interviews with commune administrators were performed in all communes where the VARHS households reside. This chapter utilizes the resulting commune level panel database to provide an overview of economic conditions and transformation in the years 2006–14. The purpose of this chapter is to paint a picture of communal life in rural Viet Nam which cannot be obtained at the more disaggregated household level. This can provide insights about the part of structural change over the period which is not a result of individual

household decisions. Instead, commune conditions are an important part of the framework within which households make economic decisions. In this sense, the chapter will help set the scene for the analyses in the following chapters. The final section of the chapter looks ahead by pointing to some potential future challenges for the VARHS communes and for the people living in them.

The commune panel includes 390 communes which we were able to follow from 2006 to 2014. The five rounds of the VARHS from 2006 to 2014 took place in 12 provinces. These 12 provinces are aggregated into five regions. These region names will be used to describe the communes of the VARHS, even though there are of course other communes and other provinces not included in the VARHS which would also fit into these regional categorizations. Indeed, while the VARHS survey is representative at the province level, we make no claim about the representativeness at the level of the five aggregated regions. However, we do believe that the regional aggregations are reasonable as the provinces within each category share important geographical and economic conditions. The five regions are:

- Red River Delta: Includes VARHS communes from the province of Ha Tay. In 2008, Ha Tay was subsumed into the metropolitan area of Hanoi. The close proximity to Hanoi means that urban-related activities, such as handicrafts, contribute substantially to livelihoods. The location in the Red River Delta means that agriculture is focused on high-yield rice production.
- North: Includes VARHS communes from the provinces of Lao Cai, Phu Tho, Lai Chau, and Dien Bien. These provinces, located in the more mountainous and remote areas of Northern Viet Nam on the borders to China and Laos, are relatively poor. They also exhibit low population densities of between 50–100 persons per km<sup>2</sup>, except Phu Tho where the

population density is above 300 (General Statistics Office of Viet Nam (GSO) 2015).<sup>1</sup>

- **Central Coast:** Includes VAHRS communes from the provinces of Nghe An, Quang Nam, and Khanh Hoa. This set of mountainous provinces on the coast has a complex geography including large areas covered in forest. They are dependent on agriculture, primarily rice and a range of cash crops such as rubber, cinnamon, peanuts, cashews, and coconuts. In later years, some of these provinces have experienced high rates of industrial and tourism growth. Population densities vary from between 140 persons per km<sup>2</sup> in Quang Nam to 229 in Khanh Hoa.
- **Central Highlands:** Includes VAHRS communes from the provinces of Dak Lak, Dak Nong, and Lam Dong. Placed on a series of contiguous plateaus which are surrounded by higher mountain ranges, households in these communes are dependent on upland rice activities as well as a range of cash crops which are well suited to the higher altitudes and sub-tropical climate. Chief among these is coffee but there is also a non-negligible production of other products such as tea, cocoa, and rubber. Population densities vary from 85 persons per km<sup>2</sup> in Dak Nong to 139 in Dak Lak.
- **Mekong River Delta:** Includes communes from the province of Long An. Long An is located just west of the metropolitan area of Ho Chi Minh City. While not nearly as industrialized as the South East region immediately north of Ho Chi Minh City (not included in the VAHRS survey), the Mekong River Delta has the third-highest industrial output of any region in Viet Nam after the South East region and the Red River Delta region. The Mekong River Delta, a low-lying coastal region, is considered the rice bowl of Viet Nam: even though the risk of flooding is severe, it has one

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<sup>1</sup> Population density information is from 2013.

of the highest outputs of cereals per capita in Viet Nam.<sup>2</sup> This also means the area supports a high population density of 327 persons per km<sup>2</sup>.

Table 2.1 shows how the VARHS communes are distributed within the five regions. These regions will be used in the remainder of this chapter. It also shows how communes are distributed within three income tertiles. It is immediately clear that there are differences both within and between these five regions. In the provinces of Red River Delta and Mekong River Delta, which are close to the large population centres of Hanoi and Ho Chi Minh City respectively, many communes are doing quite well. This is especially the case for the only province in the sample which belongs to the Mekong River Delta, namely the province of Long An. Here, more than two-thirds of communes belong to the highest (third) income tertile and this region has the highest average income per capita of the five regions.

Conversely, in the more remote and mountainous North region, more than two-thirds of communes belong to the lowest (first) income tertile. The Central Coast region is doing markedly better, but not quite as well as the Central Highlands where most communes are in the highest income tertile. Interestingly, the Central Highlands are on average doing better than the Red River Delta communes in terms of per capita income. It should be kept in mind that income is not necessarily equivalent to consumption if there is substantial consumption of own production.

The high prevalence of cash crop agriculture in the Central Highlands will decrease the wedge between income and consumption. This can partly explain why the Central Highlands appear to be doing so well in this table. Indeed, in 2010, only the Northern Mountains regions and the North Central Coast had higher poverty rates than the Central Highlands region (World Bank 2012).

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<sup>2</sup> Authors' calculations based on 2012 population and output statistics from GSO (2015).

Table 2.2: Communes in commune panel sample, by 2014 income tertile and region

	Red River Delta	North	Central Coast	Central Highlands	Mekong River Delta	Total
1	12 (18.5)	69 (69.)	37 (33.9)	12 (15.6)	5 (12.8)	135 (34.6)
2	29 (44.6)	21 (21.)	48 (44.)	20 (26.)	7 (18.)	125 (32.1)
3	24 (36.9)	10 (10.)	24 (22.)	45 (58.4)	27 (69.2)	130 (33.3)
Total	65	100	109	77	39	390
Average monthly income per capita in 2014, '000 VND <sup>1</sup>	2,782	2,043	2,651	3,320	3,551	2,739

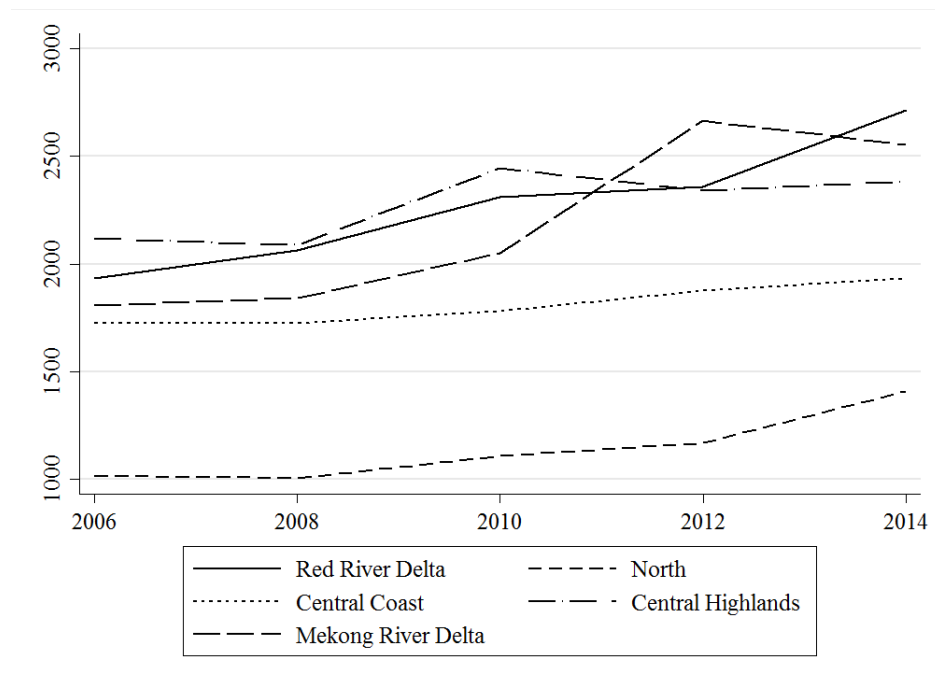
Note: The following provinces are included in the five regions: Red River Delta: Ha Tay; North: Lao Cai, Phu Tho, Lai Chau, Dien Bien; Central Coast: Nghe An, Quang Nam, Khanh Hoa; Central Highlands: Dak Lak, Dak Nong, Lam Dong; Mekong River Delta: Long An. Column frequencies are displayed in parentheses. Income tertiles are based on stated average commune income. Due to bunching of answers, there is not exactly 1/3 of communes in each of the three tertiles. The former Ha Tay province is now a part of Hanoi province but the old name is kept to ensure consistency with other chapters. Column frequencies in per cent are reported in parentheses.

<sup>1</sup> Income is calculated as an unweighted mean of the average per capita income in each commune. Values are in real June 2014 VND.

Figure 2.1 documents the evolution of the number of households in the average commune in the sample. Communes in the North tend to be smaller than elsewhere but in all regions, communes have been growing in terms of number of households over the period. This reflects the general population increase in Viet Nam over the period. Even though there has been a tendency of migration towards the urban areas in the last decade, an increase in the number of rural households is still apparent in the rural communes of the VARHS sample.



Figure 2.24: Average number of households in VARHS communes, by region

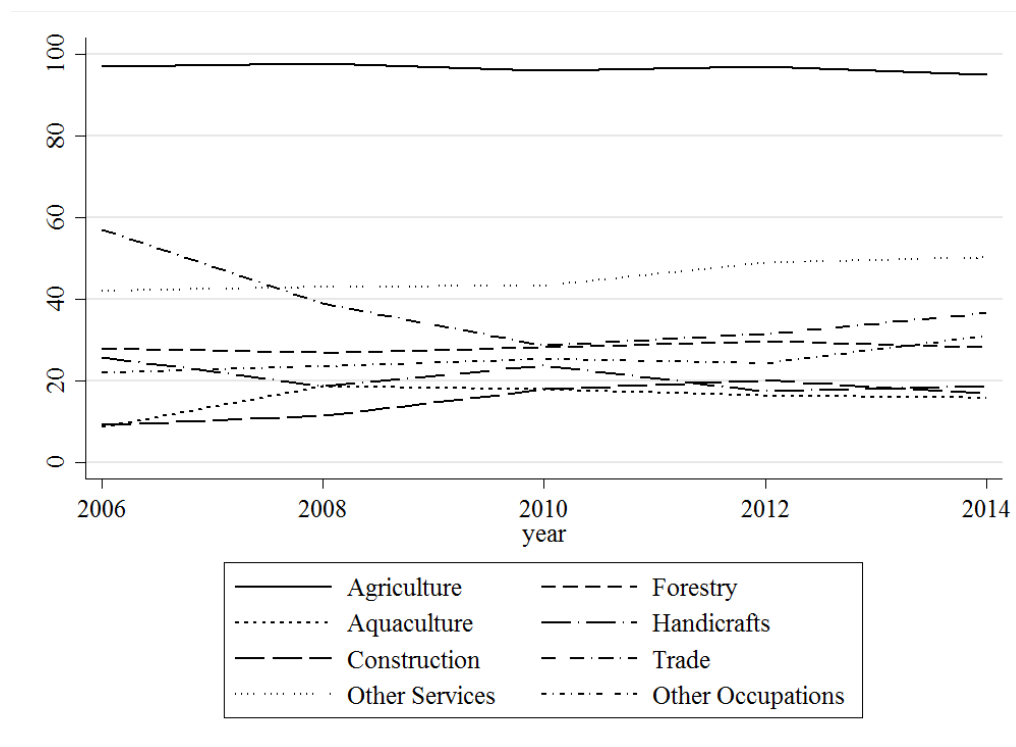


## 2.2 Occupational and agricultural choice

This section aims to provide an overview of what the households in the VARHS communes are doing for a living. Figure 2.2 shows the evolution of the most important occupations in the communes. Agriculture continues to be very important: in almost all communes, agriculture is one of the three most important occupations. In the vast majority of communes, almost 90 per cent, and throughout the period, agriculture is the most important occupation. Trade was the second most important occupation in 2006 but the importance of this occupation fell drastically up to 2010 and has only recovered slightly since then. There are two potential reasons for this. First, the financial crisis of 2008, which coincided with rising oil prices, increased costs and reduced opportunities for long-distance trading. This can also explain why the sector experienced a slight resurgence after 2010 as the crisis abated and oil prices returned to a lower level. Second, it may be that petty trade became less important as an absorbing sector of surplus labour with the development of non-agricultural sectors. To support this argument, aquaculture, other services, construction activity, and other

occupations have all gained importance over the period.<sup>3</sup> The increase in aquaculture as an important occupation corresponds well to the known increase in aquaculture production in Viet Nam. (See for instance the Food and Agriculture Organization of the United Nation (FAO) fisheries and aquaculture statistics database.) The increase in construction activity reflects the high levels of growth experienced in Viet Nam over the period. While the occupational shifts mentioned above are substantial and certainly point towards structural transformation, the occupation structure has not changed radically. The picture which emerges is instead one of diversification at the commune level into a wider range of activities, and especially out of trade, without leaving the main occupation of agriculture entirely behind.

Figure 2.25: Most important occupations, by year in per cent

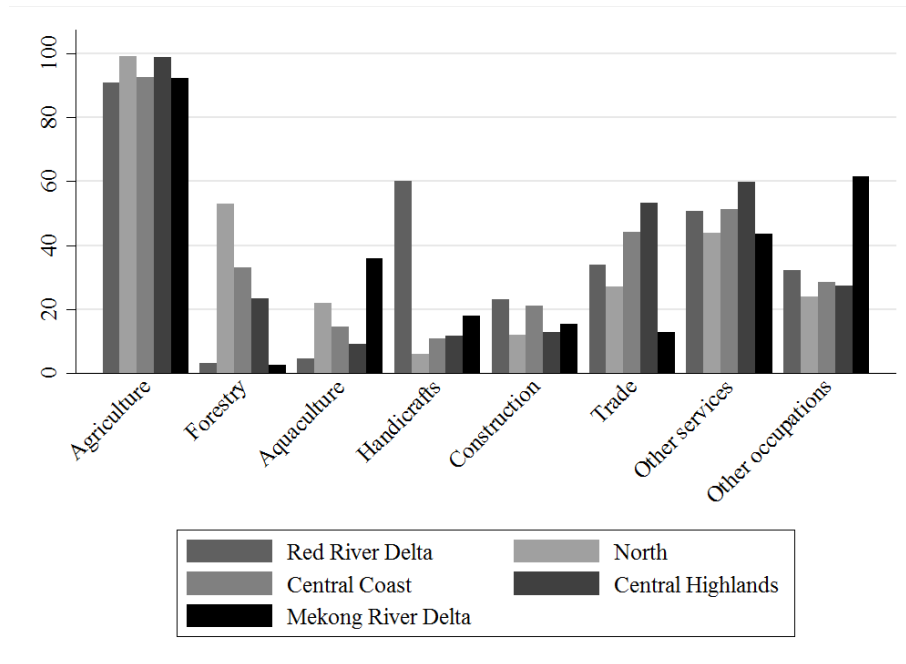


Note: The graph shows the share in per cent of communes where different occupations were among the three most important occupations. Commune officials were asked to mention the three most important occupations. Officials had the option to list fewer than three if there were not three relevant occupations. Other occupations include everything not included in the other categories, including transport and manufacturing.

<sup>3</sup> The changes in these occupations are all statistically significant at the five per cent level using a two-sided t-test comparing 2006 and 2014 occupations at the commune level.

The country-level averages can hide interesting geographical variation. In order to explore this, Figure 2.3 shows the most important occupations in 2014 by region. While agriculture is important in all regions, it is slightly more important in the more remote and poorer northern provinces as well as the Central Highlands. In these two regions, almost 100 per cent of communes report that agriculture is one of the most important occupations. In the more sparsely populated Northern Region, more than 50 per cent of communes engage in forestry while almost no communes in the more densely populated provinces in the Red River Delta and Mekong River Delta regions do so. Handicrafts and other occupations are more common occupations around the big population centres as well, and in the specific provinces of the VARHS survey, handicrafts are particularly common in the Red River Delta area of ex-Ha Tay. Many communes in the Mekong River Delta province of Long An engage in activities which fall under the category of other occupations which includes transport and manufacturing, which are typical of rural areas in close proximity to large urban population centres.

Figure 2.26: Most important occupations, by region in 2014 in per cent



Note: The graph shows the share in per cent of communes where different occupations were among the three most important occupations. Commune officials were asked to mention the three most important occupations. Officials had the option to list fewer than three if there were not three relevant occupations. Other occupations include everything not included in the other categories, including transport and manufacturing.

Since agriculture is the most important occupation throughout the period and in all regions, it is worth digging deeper into the structure of agriculture. Figure 2.27 shows how the allocation of land for different uses varies between regions as well as over time. In the Red River Delta, the majority of land is used for rice cultivation. This share has steadily declined over time, however. Instead, more and more land is used for non-rice annuals as well as for residential purposes.

In the North, there has been a steady decline in forested land while the shares of all other land use purposes have increased. Deforestation has also taken place in the Central Coast region. This land has mostly been converted into residential land. The North and Central Coast regions had high initial forestation rates (over 50 per cent and 30 per cent in 2006 respectively). As population density and income levels rise, some of this

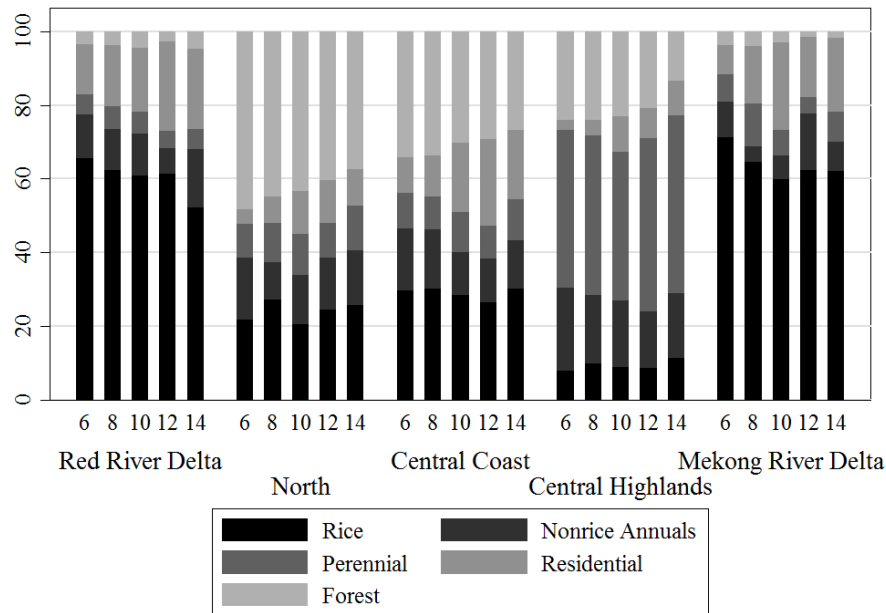
land is converted into agricultural and residential land. In the North, which is still very focused on agriculture as shown in Figure 2.3, much of the land is converted into agricultural land. As shown above, construction, trade, and other activities such as tourism have become increasingly important in the Central Coast provinces. It is therefore not surprising that a larger share of the deforested land is converted into residential land in these provinces.

The agricultural focus on cash crops in the Central Highlands is evident from Figure 2.27. A larger share of land—around 50 per cent in 2014—is devoted to perennial crops while only about 30 per cent was used for rice and other annual crops in 2014. There is also a minor trend of deforestation in this region. The newly cleared land has been converted into both agricultural and residential land.

Consistent with its label as the rice bowl of Viet Nam, the majority of land in the Mekong River Delta is used for rice production. In 2014, more than 60 per cent of land was used for this purpose. There is no clear trend in land-use shares over time in this region. This, combined with the possibility of measurement errors, means that the year-to-year differences in this region will not be explored further.

In conclusion, both the structure of land use and the evolution of this over time varies between regions. Most land in the two delta regions are used for rice cultivation. In the two poorest regions, the North and the Central Coast, a trend towards deforestation is clearly observed. The structure of land use is very different in the Central Highlands due to its high intensity of cash crop agriculture. In general, the share of land used for residential purposes has increased. This reflects both rising incomes and rising population densities.

Figure 2.27: Land use, by year and region



Note: The shares are calculated as simple averages of commune shares. The five categories always sum to 100%. Other types of land such as water surfaces, mountains etc. are not included in the calculations.

### 2.3 Provision of public goods and infrastructure

The set of services offered at the commune level establishes the framework conditions under which households work, earn income, and make decisions. Public investment in infrastructure has been estimated to have been above ten per cent of GDP per year between 1997 and 2009 (Thanh and Dapice 2009). This very high level has changed conditions on the ground: between 2000 and 2010, rural connections to the electricity grid increased from 14 per cent to almost 100 per cent, the length of paved roads in the country almost quadrupled, while the number of households with access to piped water rose from 12 per cent in 2002 to 76 per cent in 2009 (Viet Nam Development Report 2012). While these figures document a high level of growth, they are also indicative of a low initial level of infrastructural services.

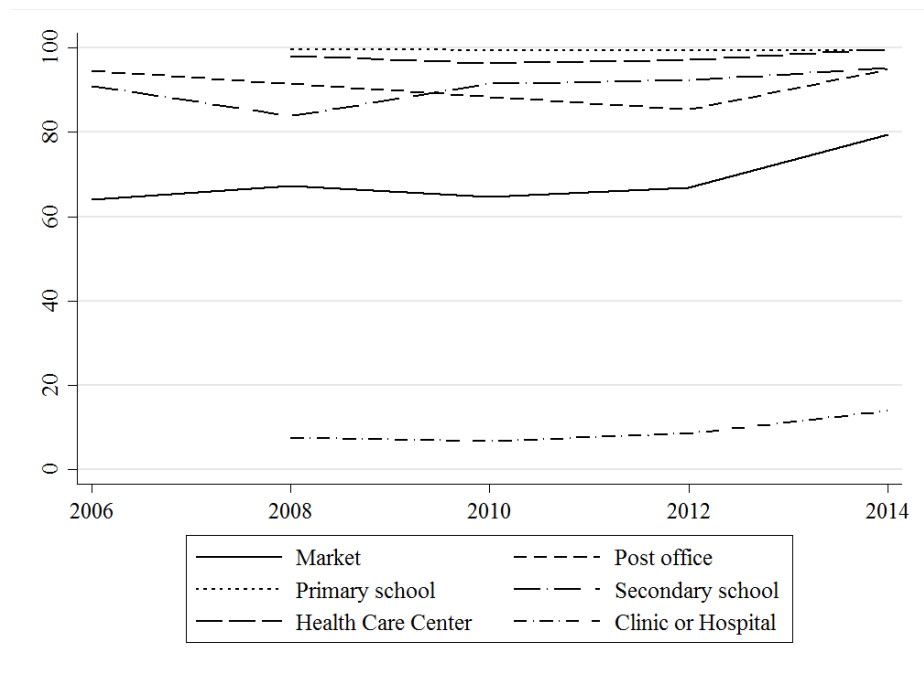
While the expansion of infrastructure is well documented, less has been said about the expansion of other public goods. This section investigates to what extent the high level of public investments and the expected expansion of infrastructure and basic services can be observed in the communes of the VARHS. The section also investigates the heterogeneity of the expansion across regions.

We note that even though the level of the commune is a natural level of analysis for this, since it encompasses the daily surroundings of the households, the decisions to provide the types of infrastructure analysed in this section are not made solely by the commune administrators. Some facilities such as public primary and secondary schools and health care centres are managed at the district level (the second-lowest administrative level) but funded at the provincial level. Commune authorities can request provision of these facilities but they do not make the final decision. For other types of facilities such as roads and street lighting, the funding and decision process differs depending on the type of road. A third type of facilities such as extension shops and centres can also be funded at the provincial level, but private non-profit and for-profit agents also operate in this market. Similarly, some communes will have private primary and secondary schools. The results should therefore be interpreted as the conditions of households living in these communes and not as a view into the decisions of commune authorities on which facilities and services to provide to the community.

Figure 2.28 shows the presence in the communes of six types of facilities from 2006 to 2014. There is evidence of some improvement: the share of communes which had markets and which had secondary schools is significantly higher in 2014 than it was in 2006. Likewise, the share of communes which had health care centres and a clinic or hospital was significantly higher in 2014 than in 2008, the first year in which these variables were recorded. There is no significant change in the share of communes which had primary schools, but this is because almost all communes already had one in 2008. Likewise, there has been no improvement overall in the share of communes with a post office. In fact, this share declined slightly in the sub-period 2006 to 2012. In general, improved provision of these types of public facilities did not take place evenly throughout the period. The presence of post offices, clinics or hospitals, and health care centres all declined at some point from 2006 to 2014. This shows that transformation, even at the more aggregated commune level, is a complex process where setbacks can occur in some aspects in some years while others are improving. It also highlights the importance of not over-interpreting short-term changes. A slightly longer time horizon such as the one in this chapter, which covers eight years, is needed in order to conduct meaningful inference.



Figure 2.28: Presence of six commune facilities, over time



Note: Information on primary schools, health care centres, and clinics or hospitals is only available from 2008.

Figure 2.29 shows the presence of the same six types of facilities in 2014 by region. Perhaps surprisingly, the Mekong River Delta region is not doing as well on this set of indicators as one might expect, considering how relatively well off the households of these communes were, based on Table 2.1. The communes of the Mekong River Delta region have the lowest presence of clinics or hospitals, markets, and secondary schools of all five regions. One potential explanation is that the communes of Long An, given their close proximity to the massive population centre of Ho Chi Minh City, tend not to have their own markets, secondary schools, and clinics, but instead rely on facilities provided in other nearby communes and in the urban areas. However, this is not what is observed in the Red River Delta communes located in ex-Ha Tay: this region has the highest prevalence of markets, secondary schools, and clinics of all regions. The North region has the highest prevalence of clinics but the lowest prevalence of markets. The lack of markets can be at least partially explained by the lower population density and lower agricultural productivity in this region which means that

the carrying capacity of local markets is reduced. This can also explain the lower prevalence rates of markets in the Central Coast and Central Highlands regions. The high rates of clinics is surprising, given that communes in the North region are generally poor. These high rates are not found in the Central Coast and Central Highlands regions.

In summation, the figure shows some degree of consistency in the sense that regions that are doing well in one indicator are also more likely to do well in others. There is less consistency between the relative income level of the regions as reported in Table 2.1 and the prevalence of the commune facilities explored here. This is not necessarily a bad thing: the mobility of poorer households in poorer provinces is more restricted and they are therefore more dependent on facilities such as markets and clinics to be located nearby—even though the best case of course would be country-wide high rates of these types of facilities.

Figure 2.29: Presence of six commune facilities in 2014, by region

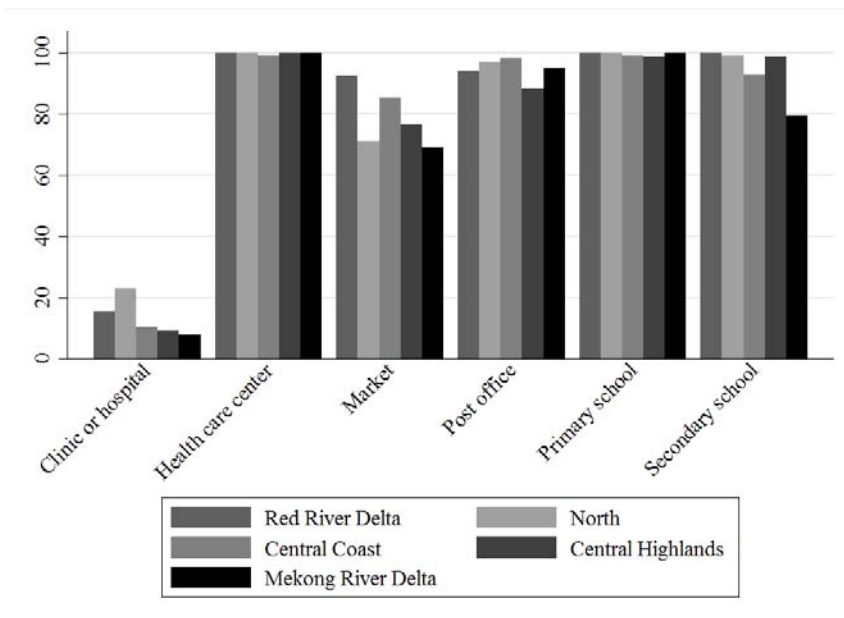
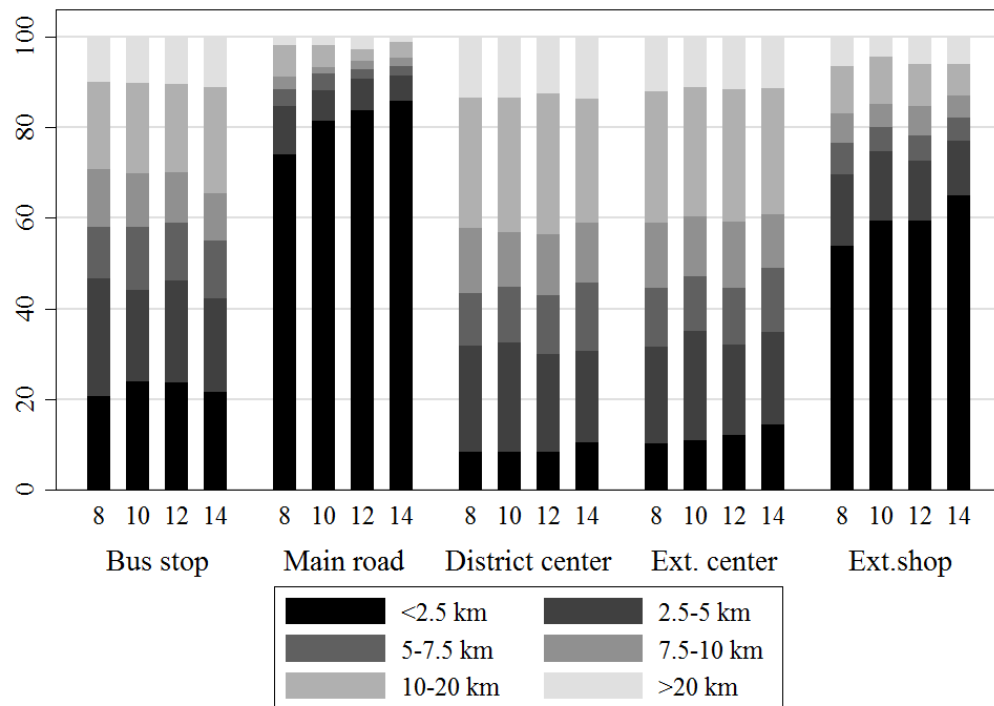


Figure 2.30 investigates how the distances to the nearest bus stop, the nearest main road, the district centre, as well as to the nearest extension centre and shop, have evolved. For all distances except the distance to a

bus stop, there are indications of improvement over the period. The share of communes which are less than 2.5 km to these locations has increased. However, there is less improvement in the other tail of the distribution: the share of communes which have very long distances to these facilities, i.e. more than 20 km, is largely unchanged over the period for all indicators. This is worrisome since it indicates increasing heterogeneity. For a large group of households, distances are being reduced. But the most remote households are not becoming more integrated. Additional measures should be taken in the future to reverse this trend.

Figure 2.30: Distances to transportation and other facilities, by year

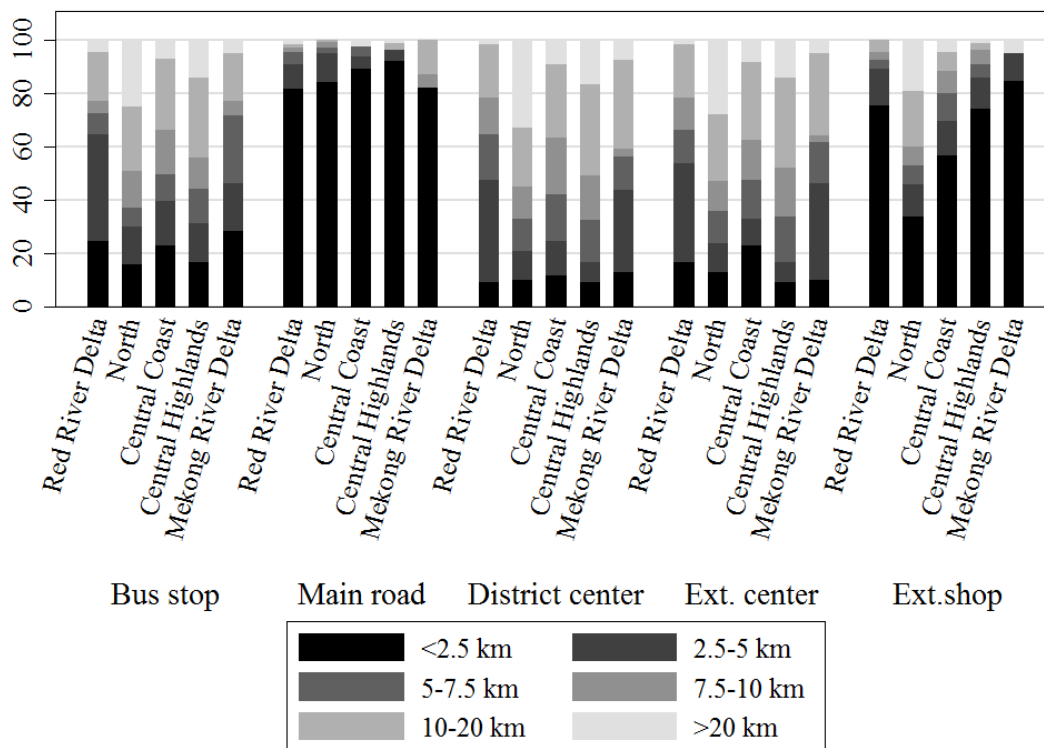


Note: Distance to bus stop is measured from the People’s Committee office. All other distances are measured from the centre of the commune. Often, the People’s Committee office is located at the commune centre.

Figure 2.31 shows how these distances varied in 2014 by region. The close proximity to urban centres of Hanoi and Ho Chi Minh City are apparent in the distances for the Red River and Mekong River Delta regions. Here, infrastructure tends to be more developed and distances are shorter. The

North region with its mountainous terrain and low population density is the clear loser on all distance measures except distance to main road. In the North, more than 20 per cent of communes have more than 20 km to the nearest bus stop. This should be compared to less than five per cent in the Red River Delta communes. Likewise, more than 30 per cent of communes have more than 20 km to the district centre whereas this is the case for only a few per cent of communes in the Red River Delta. On most indicators, the less densely populated Central Highlands communes have the second-longest distances.

Figure 2.31: Distances to transportation and other facilities in 2014, by region

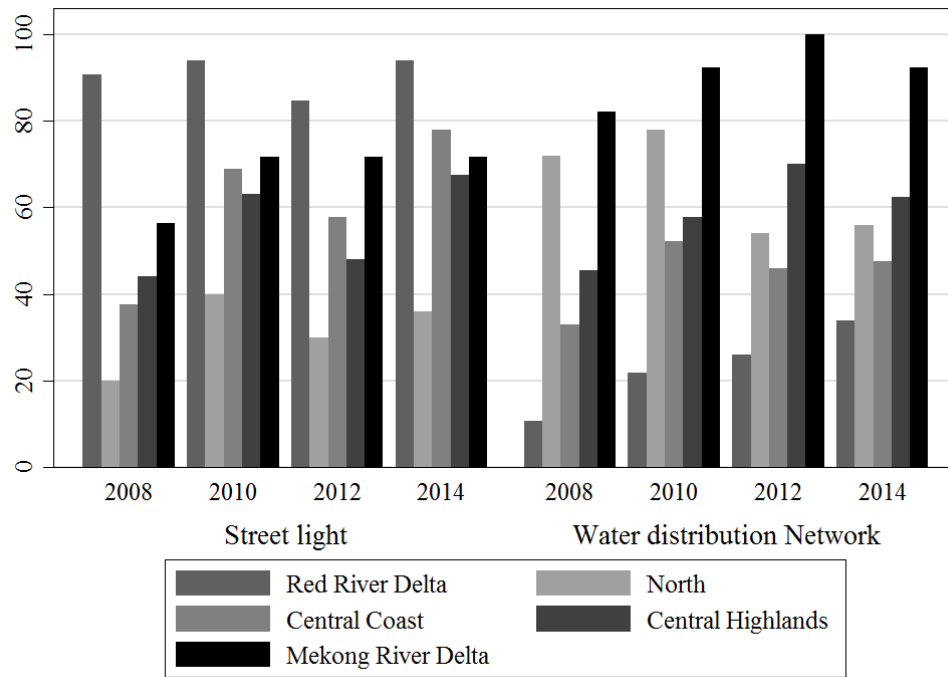


Note: Distance to bus stop is measured from the People's Committee office. All other distances are measured from the centre of the commune. Often, the People's Committee office is located at the commune centre.

Figure 2.32 shows the prevalence of street lighting and drinking water distribution networks in the communes by region and over time. The figure shows the presence of these two types of networks but not the coverage.

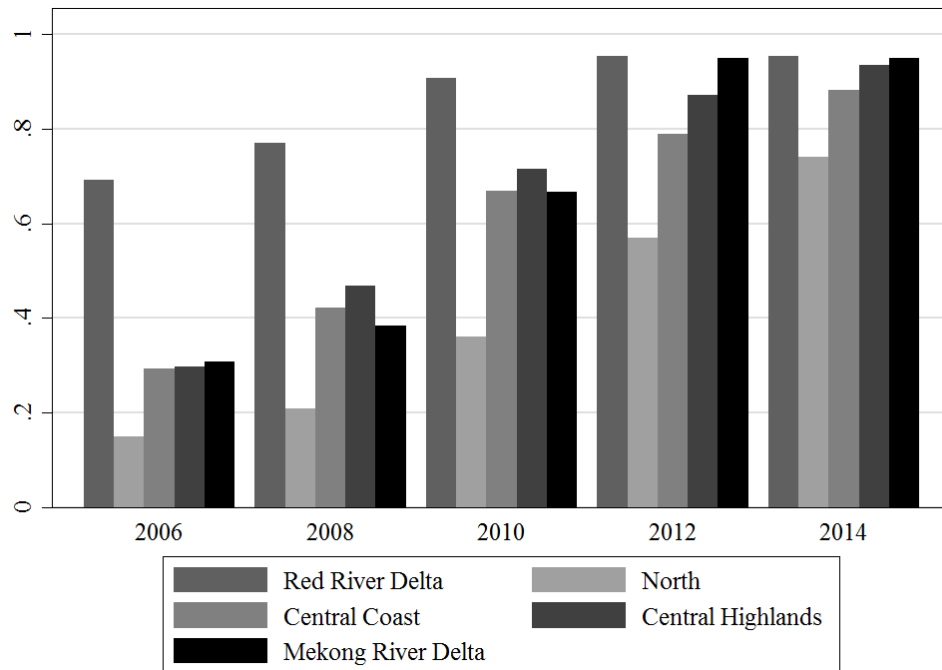
Coverage is less precisely measured in the data, but the available information indicates that in most communes, which have street lighting and water distribution, less than 50 per cent of households are placed directly on street lighting and water distribution grids. Both indicators show steady progression over time in most regions. The Red River Delta communes are the clear leaders in terms of street lighting. In 2014, more than 90 per cent of communes had at least some street lighting. However, the other regions with the possible exception of the North region have been catching up over the period. A similar picture emerges from the water distribution network information. Here, the Mekong River Delta communes are the best off. In 2014, more than 90 per cent of communes had at least a limited water distribution network. Some catch-up has happened over time except for in the North region where rates appear to have fallen. Communes in the Red River Delta region have the lowest prevalence of water distribution networks among the five regions which may be explained by the close proximity to surface water from the delta—even though this is likely to be polluted. Less than 40 per cent of Red River Delta communes reported the presence of a water distribution network in 2014.

Figure 2.32: Share of communes with street light and drinking water distribution network, by region and over time



A third type of infrastructural network is internet access (Figure 2.10). Even though mobile phone technology and wireless data speeds have improved at a rapid pace over the period, wired internet access is still of importance since wireless coverage can be patchy or non-existent in some rural areas. Many aspects of internet usage are also easier using an internet-connected computer rather than a mobile device. Finally, high-speed wireless access requires a nearby antenna connected to an internet cable. In this sense, commune internet access points can also be considered a proxy measure for high-speed wireless internet access. There has been substantial progress in internet access over the period in all regions. In 2006, 33 per cent of communes had at least one internet access point. This had increased to 87 per cent in 2014. The communes in the Red River Delta region were early adopters. Already in 2006, 69 per cent of communes had a connection to the internet. Again, the North region lags behind. In 2014, only around 75 per cent of communes there had access.

Figure 2.33: Share of communes with at least one internet access point, by region and over time



In conclusion, it is possible to observe real improvements across a multitude of indicators at the commune level in the period 2006–14. The prevalence of commune facilities such as markets, secondary schools, health care centres, and clinics has increased. The high level of infrastructural investments comes through in the sense that distances to roads and extension shops are reduced and the existence of water distribution networks and internet access points have become more widespread. While progress is observable in all the regions of the country which VARHS covers, stark intra-regional differences are also observable. On a few indicators such as internet access, the poorest regions of the North and the Central Coast are doing as well in 2014 as the richest provinces of the Red River and Mekong River Delta were in 2006. On many others, for example distance to crucial pieces of infrastructure such as main roads, extension shops, and bus stops as well as infrastructural indicators such as street lighting and water distribution, the poorest regions were in 2014 still very far from 2006 levels of best-off regions.

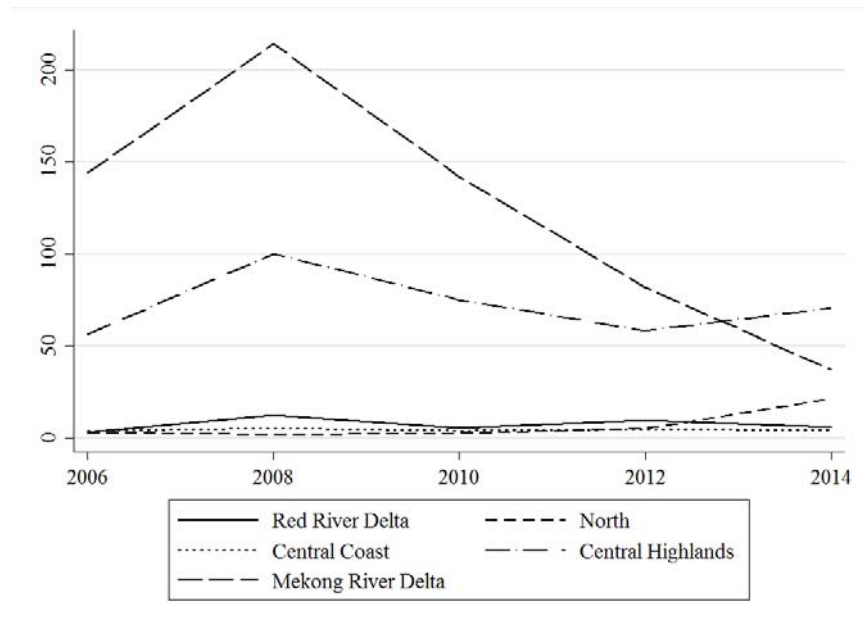
## 2.4 Land markets

As shown in the introduction, agriculture is still the main occupation in the rural areas of Viet Nam covered by VARHS. A major input into agricultural activities is land. This chapter has shown how forested areas are being transformed into agricultural land as well as being used for residential purposes. Another aspect of land transformation is that land rights can be transferred between people with relative ease. If land markets work well, more land can be bought and cultivated by relatively efficient farmers, and households that wish to leave agriculture can do so by selling their land. These issues are of special importance in a densely populated country such as Viet Nam with a movement of population from rural to urban areas in progress. This section will provide an overview of land markets using the commune level information. Chapter 5 will dig deeper into these issues using the household-level information. This section focuses on land sales even though land rentals can fulfil a similar role. Previous studies have found land markets to be active in some parts of Viet Nam (Khai et al. 2013).

Figure 2.34 shows the number of agricultural land by region. A clear geographical divide emerges: while land markets are quite active in the southern regions of the Central Highlands and the Mekong River Delta, few transactions took place in the three Northern regions. This is not a new finding; Khai et al. (2013) similarly found land markets to be more active in the South using the 2008 round of VARHS. Also of interest is the apparent decline in land sales since 2008 in the previously very active southern regions. This finding is unexpected. As the development process continues, it could instead be expected that land markets would become increasingly dense and well-functioning. This finding warrants further investigation using the household-level information of the VARHS as well as other data sources.



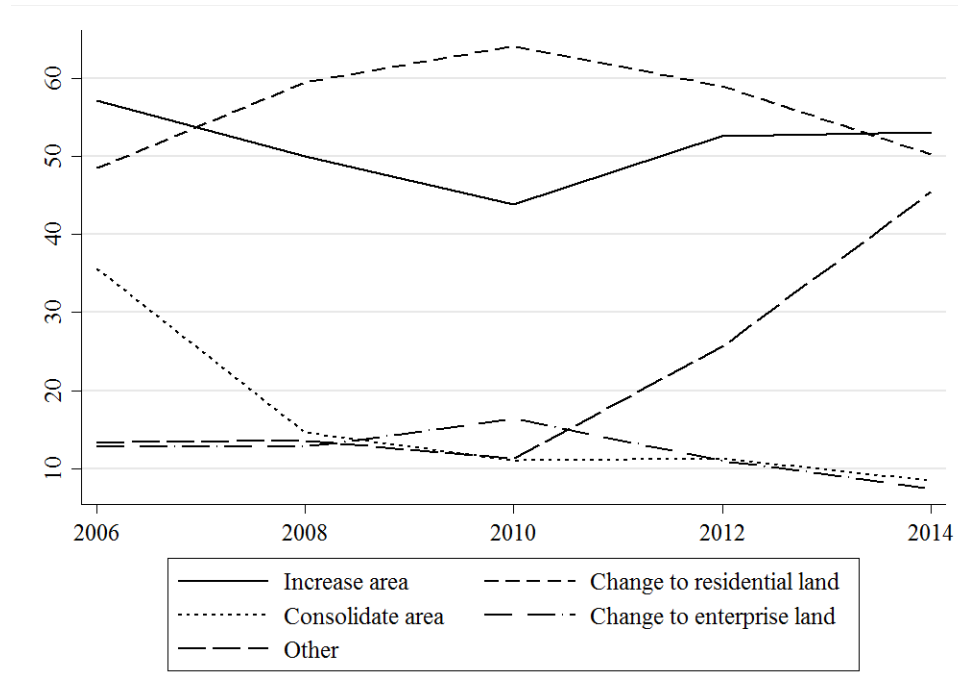
Figure 2.34: Agricultural land sales per commune, by year and region



Why did households buy agricultural land? Figure 2.12 shows that motivations have changed over time. Commune administrators were asked to list the two most important reasons for households to buy land in their commune. In the beginning and at the end of the period, the most important motivation to buy land was to increase the scale of production by increasing the agricultural area. This was listed as one of the most important reasons in more than half of the communes. The second most important motivation was to change agricultural land to residential land. This lines up with the previous finding that increasing areas of land in the communes are used for residential purposes. In the years of 2008, 2010, and 2012 this was the most commonly listed reason for buying land. Consolidation of land area was quite important in 2006 when over 35 per cent of communes listed this as one of most important reasons for buying land. However, this decreased to around 15 per cent in 2008 and has decreased slightly over the remaining period as well. From this data, it is unclear if the slow-down in the consolidation process occurred because the lowest-hanging fruits of land consolidation had been harvested by the end of the period, or if other political, or economic factors slowed the land

consolidation process. Finally, many more communes are reporting 'other' motives as important: more than 40 per cent of communes listed this motive in 2014 whereas this was true for less than 15 per cent of households in 2006.

Figure 2.35: Reasons for buying land, over time

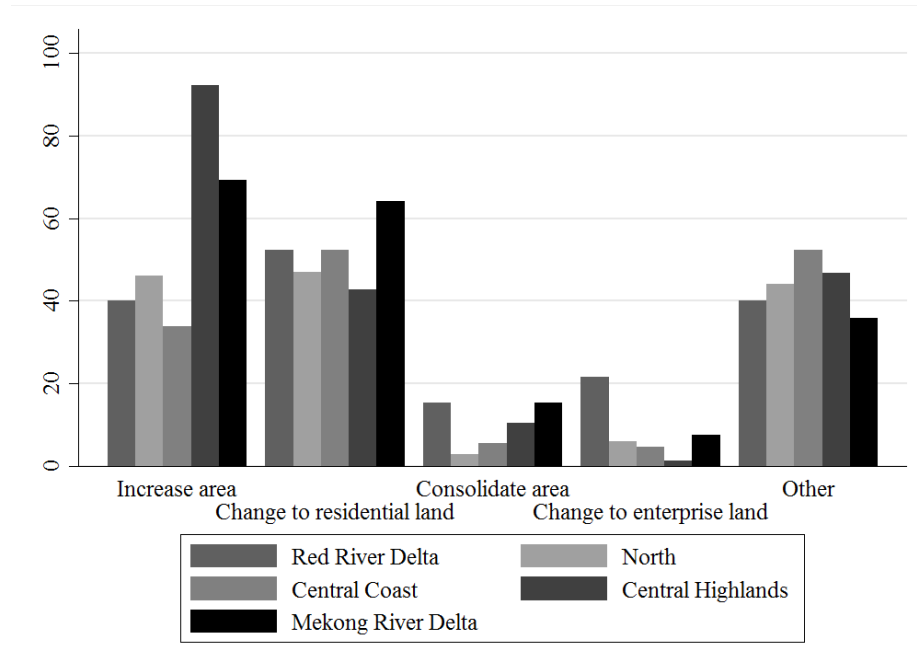


Note: Respondents were asked about the two most important reasons but could name less than two.

Given the discussion above, it is no surprise that the relative importance of the different motives varies across regions. This is evident from Figure 2.13 which breaks down the reasons for buying land in 2014 by region. In the Central Highlands, the motive of increasing land area is listed as an important motive in more than 90 per cent of communes. One potential explanation is that cash crop production, which is particularly prevalent in the Central Highlands, may scale better to large farm sizes. This can also help explain why the land markets are relatively more active in this region than the other regions. In the Red River Delta, the North, and the Central Coast regions, the most important motive was to change land into

residential land. Consolidation of area is most important in the two delta regions where population densities are highest and plots more scattered.

Figure 2.36: Reasons for buying agricultural land in 2014, by region



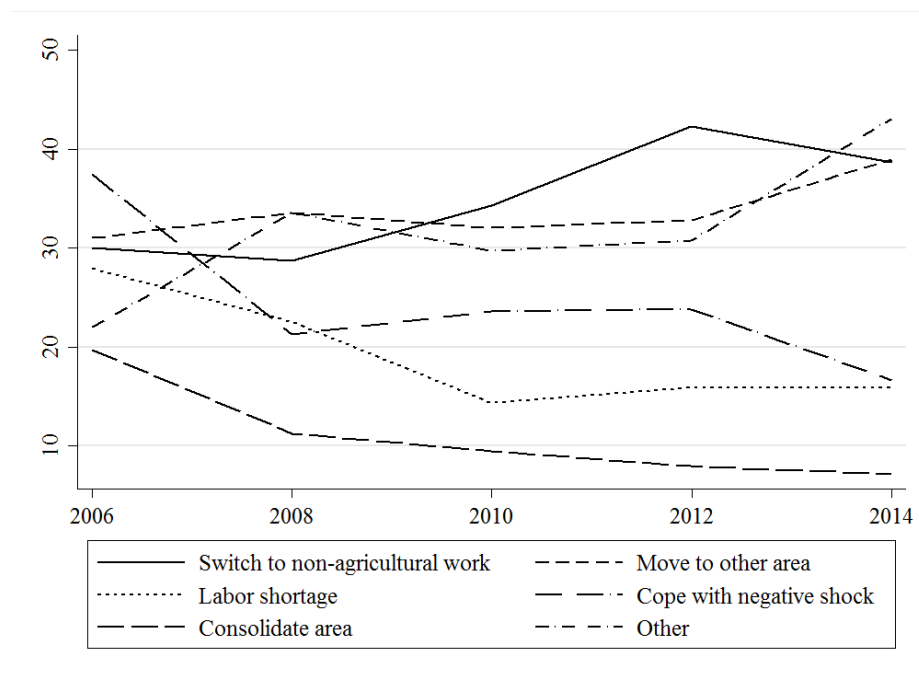
Note: Respondents were asked about the two most important reasons but could name less than two.

The reasons for buying land is only one-half the equation. The other half consists of the reasons for selling land.

Figure 2.37 looks at which reasons households in the VARHS communes had for selling land. In 2006, the most important reason for selling land was to cope with a negative shock. More than 35 per cent of communes listed this as one of the three most important reasons for households to sell land. A negative shock, such as a bad harvest or a family member dying, are typically unforeseen and can be hard to insure against. If credit is not available, households can be forced to sell off land to manage hard times. This can have negative long-term consequences. The loss of land makes it hard to recover completely. It is therefore a positive development that this reason has since declined in importance. In 2014 it was only the fourth most important, listed in less than 20 per cent of communes. Which reasons

have then increased in importance over the period? Three stand out. First, in 2014, almost 40 per cent of communes listed the desire to switch to non-agricultural work as one of the three most important. Second, just over 40 per cent mentioned the wish to move to another area. These two reasons show again transformation in action: as agriculture becomes increasingly mechanized and as population density increases, parts of the rural population leave agriculture and may even leave their home commune. This process is facilitated by well-functioning land markets. Finally the 'other' category has gained importance. This category covers a variety of reasons, switching of crops, freeing up money for investments, or construction activities.

Figure 2.37: Reasons for selling agricultural land, over time



Note: Respondents were asked about the two most important reasons but could name less than two.

## 2.5 Past, present, and future commune problems

The previous sections have considered a series of objective indicators of the transformation process observed at the local level. This final section

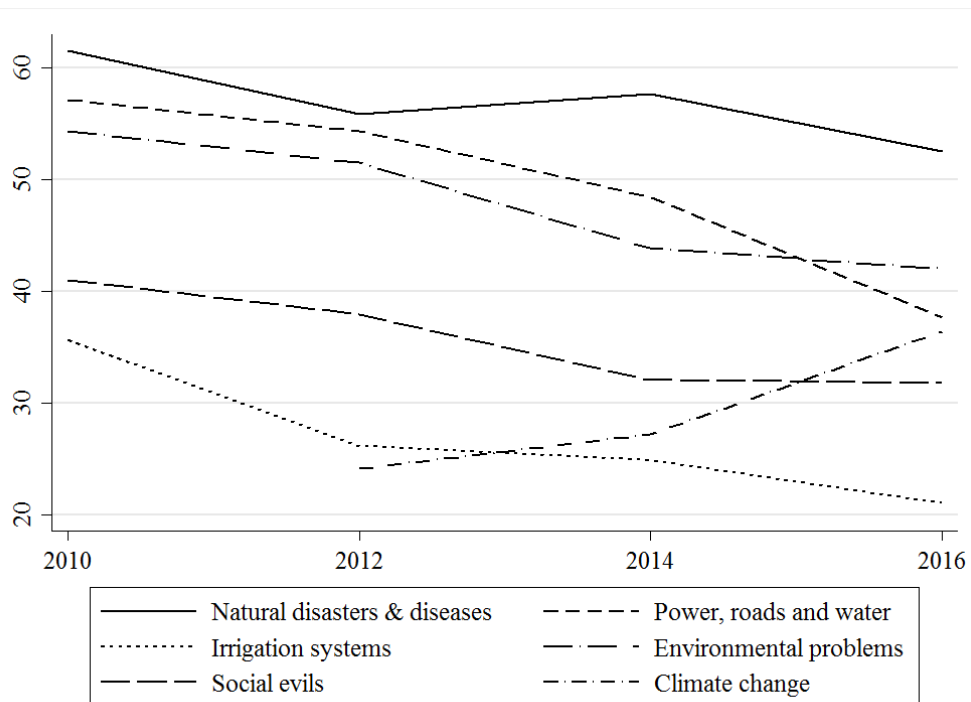
instead considers the subjective answers of commune administrators about which problems are the most important affecting their commune.

Figure 2.38 shows which problems commune administrators listed as having affected the commune in the last year, starting in 2010 when these questions were first asked. The questionnaire also includes questions on which problems commune administrators thought would affect the commune in the next two years. The answers given in 2014 to this question are also included in the figure to give an insight into which problems may become more important in the future. This section of the questionnaire was expanded in 2012 to include climate change.

The overall message is quite positive: all the problems listed in the figure, except climate change, are affecting a smaller share of communes over time. The problems affecting the most communes since 2010 have been natural disasters and diseases. In 2010, over 60 per cent of communes were affected by this. The importance of natural disasters and diseases has declined slightly since then. This can either be due to changes in the resilience of communes or simply due to fewer or less severe incidents in 2012 and 2014 than in 2010. In 2014, the share of commune administrators who believe natural disasters and shocks will be a problem in the next two years is even lower, which lends support to the first explanation. The second most widespread problem in 2010 was power, roads, and water. The share of communes that were affected by this also fell in both 2012 and 2014. Even fewer administrators expected this to be an important problem in the coming two years. This lines up with the results shown in Figure 2.30 and Figure 2.32 which found improvements in both distances to roads as well as improvements in power and water distribution networks. As mentioned earlier, the only problem which appears to be affecting more and more communes is climate change. In 2012, 24 per cent reported that their commune was affected by climate change. In 2014, this share increased to 27 per cent; 36 per cent expected this to be

important in the coming two years. Climate change can result in changing as well as more extreme weather patterns. Using just observations from one's own commune, climate change can be hard to observe in the sense that adverse weather events such as floods, storms, and year-on-year temperature changes happen even in the absence of climate change. Instead, the frequency and magnitude of such events can change under climate change. However, this does not mean that one should discount the fact that in more than a quarter of communes in the VARHS database, administrators feel they are already experiencing the negative impacts of climate change—and an additional 10 per cent expect to experience such effects in the coming two years.

Figure 2.38: Share of communes affected by different commune problems in the past, present, and future

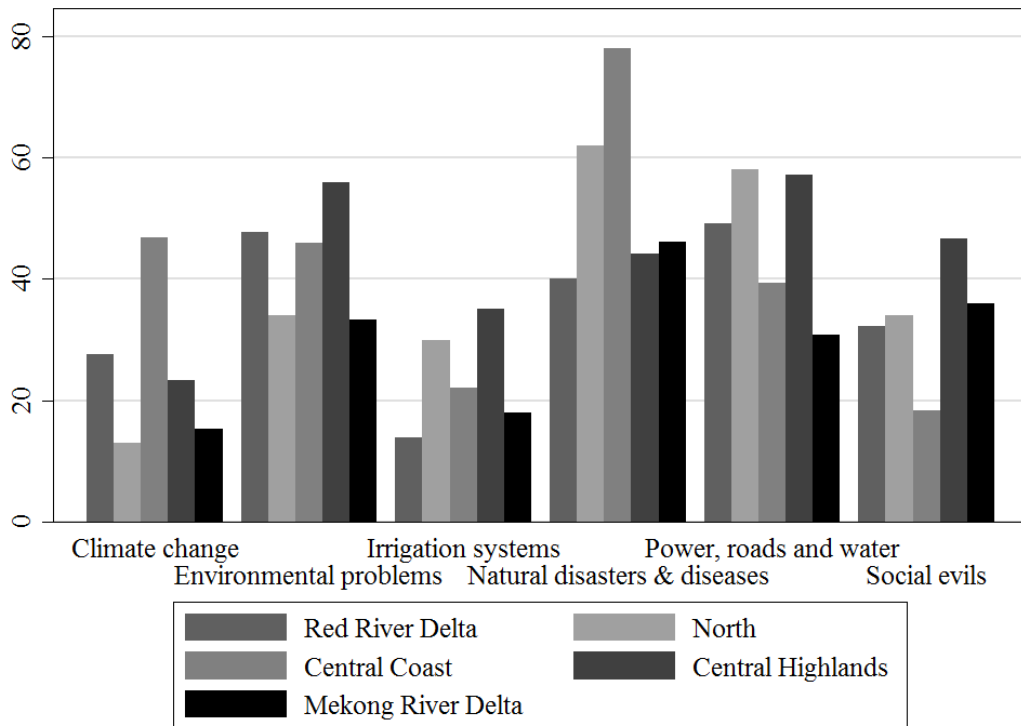


Note: Respondents were asked to list all problems affecting the commune. The list of problems also included: health and education, access to health and education, quality of health and education, gender discrimination, and family and ethnic discrimination. These were left out of the figure since only few communes chose these options. Climate change was not included as an option in 2010. In 2014, respondents were asked which problems they expected to be important in the coming two years. These answers are included in the figure as 2016 responses.

Figure 2.39 breaks down the 2014 answers by regions. There are differences across regions both in the share of communes which experience problems as well as which problems are most prevalent. Less than 40 per cent of communes in the Red River Delta experienced natural disasters and diseases in 2014. This is lower than in all other regions. The Central Coast region was hit the hardest: almost 80 per cent of communes were affected by such a shock in 2014. More than 40 per cent were so affected in 2014 compared to 27 per cent at the national level. Power, roads, and water were less important in the Mekong River Delta where around 30 per cent of communes experienced these issues as a problem. They are, however, quite important in the more mountainous regions of the North and the Central Highlands where population densities are lower and more complicated topographies.

The Central Highlands is also the region where the highest share, more than 35 per cent, of communes report that irrigation systems are problematic. This is most likely due to the combination of the need for proper irrigation for many of the cash crops grown in these areas and more complicated access to water compared to the lowland and delta regions. The Central Highlands is also the region where problems of social evils are most prevalent. Social evils include, but are not necessarily limited to, drug and alcohol abuse, such as alcohol and tobacco usage, prostitution, and gambling. More than 45 per cent of communes in the Central Highlands have problems with this compared to 32 per cent at the national level. As with natural disasters and diseases, and possibly related to that, the Central Coast is also the region where most communes experienced adverse effects of climate change: more than 45 per cent of communes experienced problems related to climate change here. In the regions of the North and Mekong River Delta, this share was less than 20 per cent.

Figure 2.39: Share of communes affected by different problems in 2014, by region



Note: Respondents were asked to list all problems affecting the commune. The list of problems also included: health and education, access to health and education, quality of health and education, gender discrimination, and family and ethnic discrimination. These were left out of the figure since only few communes chose these options. Climate change was not included as an option in 2010.

## 2.6 Conclusion

This chapter has documented the structural transformation process as it has taken place at the commune level in rural Viet Nam over the period 2006 to 2014. Significant change and improvements were found in many types of indicators. However, the pace of transformation varies greatly between different regions. This is partly due to varying initial conditions in 2006 and partly due to substantial differences in occupational and agricultural structures, which are at least partly determined by geographical conditions.



While the changes and improvements in living conditions, which have taken place over the period are substantial, the observed changes should not be overstated. Many things were the same in 2014 as they were in 2006. Agriculture is still by far the most important occupation, and rice is still the most important agricultural crop. Instead, the picture which emerges is one of steady and gradual progress in many different dimensions. The occupational structure was more diversified in 2014 than in 2006 with more communes reporting occupations such as construction, other services, and aquaculture to be of importance. Likewise, land-use diversity has increased with more land being used for residential purposes at the end of the period.

The chapter also documents steady improvements in the provision of public goods and the access to basic infrastructure in the communes. Here, however, the regional differences are stark: the poorer and less populated regions of the North and Central Coast, and to some degree the Central Highlands, are worse off on a wide range of distance indicators as well as on connection to the internet and to a water distribution network. However, on some of the indicators of commune facilities, the poorer regions are doing relatively better than the richer regions located in the deltas near the population centres of Hanoi and Ho Chi Minh City.

The evidence on land markets is more mixed. First, land markets are more active in the two southernmost regions of the Mekong River Delta and the Central Highlands compared to the Northern regions. Second, since 2008 there has been a declining trend in the number of communes who report land sales to have taken place in the South. This finding warrants further investigation. Chapter 5 digs deeper into the evidence on land markets in the VARHS communes using information from the household-level questionnaire.

The final section of the chapter shows how commune problems, as experienced by commune officials, have changed over time. This piece of evidence is quite positive: most problems affected less communes in 2014

than in 2006. However, there has been an increase in the number of communes that see climate change as a problem—and the number of communes that expect this to be a problem in 2016 is even higher. Climate change is a problem which is unsolvable at the commune level and even at the national level. What can be done at the commune and at the national level is to help farmers and other people to adapt to climate changes. This should be a policy priority for moving forward.

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## **Chapter 3 Commercialization in agriculture in rural Viet Nam, 2006 to 2014**

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### **3.1 Introduction**

Without doubt, a key part of Viet Nam's economic transformation over the past 30 years has been the substantial progress made in agriculture. The main crop grown in Viet Nam has always been rice, and with the economic transformation, originating from the launch of the Doi Moi reforms in 1986, the country switched from being a net importer to a substantial net exporter of rice. At the same time Viet Nam has become much more involved in the cultivation of cash crops, notably coffee, and fisheries products are also an area of export growth, with some of this taking place at the household level.

The VARHS survey allows a detailed analysis of the role played by households in these different activities, and the panel feature of the data allows the dynamics of this role to be investigated over the period 2006–14. The large majority of households interviewed in the VARHS survey earn at least some of their income from agriculture, even if over time non-agricultural livelihoods are becoming increasingly more important, as expected with development. Although in several provinces wage earnings have overtaken agriculture as the main source of income, most households have some income from agriculture or natural-resource-based activities. And in provinces in the Central Highlands and Northern Uplands, agriculture remains the dominant activity.

The VARHS survey collects detailed information on the agricultural activities undertaken by households: the crops grown and sold, livestock activities,

land use including engagement in aquaculture, and use of inputs, among other things. This material enables a substantial and detailed analysis of these issues. This chapter is only a start at this, presenting a largely descriptive approach to look at households' engagement in three important areas of activity: rice cultivation; production of cash crops; and engagement in household-level aquaculture activities. Most households grow rice; the chapter being on commercialization, the focus here is more on sale of rice. And aquaculture in this chapter consists principally of deliberate activities undertaken by households on their own land; quite a few households also catch fish products from common property resources, on which information is also available, but this is not examined here.

Again the analysis is based on the 2,162 households included in the five wave panel between 2006 and 2014, looking in particular at the extent to which households cultivating rice sell and on what scale. For most households engaged in agriculture rice cultivation is a dominant income source. For cash crops and aquaculture, the outputs are sold almost by definition. The interest here is on modelling the correlates of households engaging in these activities. In practice much of the analysis compares the five cross sections which make up the panel data set, but we also exploit the panel feature of the data to look at the dynamics of these activities over time.

The rest of this chapter is structured as follows. Section 2 briefly reviews some relevant literature, after which section 3 provides an introduction to the extent of household engagement in these activities. Section 4 examines patterns of engagement in rice cultivation and sales, cash crops, and aquaculture by geographic region and income quintile, following which section 5 exploits the panel to examine among other things the extent of consistency of these activities over time at the household level. An econometric analysis of correlates of engagement in these different

commercial activities is presented in section 6, after which section 7 concludes.

### **3.2 Some relevant literature**

This paper relates to the growing literature that examines the determinants of small farmer participation in commercial activities in agrarian economies. Much of this literature focuses on food crops, which households often produce for their own consumption but may also choose to sell. This literature has sought to understand primarily the role of transactions costs and market failure in smallholder decision-making. Differential asset endowments, together with differential access to public goods and services that facilitate market participation, are identified as important factors underlying heterogeneous market participation among smallholders (Key et al. 2000; Barrett 2008). Differences in transaction costs across households are also important: each household faces some fixed time and monetary costs in searching for available marketing options, i.e. costs that are invariant to the quantity transacted, and if high enough may prevent market participation altogether. According to Goetz (1992), transaction costs affect market participation behaviour through the labour-leisure choice: where markets are thin it is costly (i.e. time consuming) to discover trading opportunities. Similarly, poor market access due to lack of transport, distance, and/or barriers such as ethnicity or language increases a household's cost of observing market prices to make transaction decisions, thus reducing the household's leisure time (Goetz 1992).

For staple food markets in particular, another important factor influencing the participation decision is risk, and household attitudes towards risk. Households concerned about their own food security and facing a high degree of price and non-price risk, especially in the presence of missing or imperfect credit and insurance markets, may choose not to sell in the attempt to ensure that own consumption requirements can be met. On the other hand, lack of liquidity from absence of alternative income sources and

credit may also lead to the decision to sell rice for subsistence reasons, in order to meet other non-food expenditures.

The determinants of smallholder participation in agricultural markets have been investigated empirically especially in the context of Sub-Saharan Africa. This literature identifies strong positive associations between market participation and: (a) household assets (especially land, but also livestock, labour, and equipment) and income (Nyoro et al. 1999; Cadot et al. 2006; Stephens and Barrett 2006; Boughton et al. 2007; Levinsohn and McMillan 2007); (b) access to credit and insurance (Cadot et al. 2006; Stephens and Barrett 2006); (c) input use and access to extension services (Alene et al. 2008); and (d) low levels of transactions costs, including transport costs and information costs (Heltberg and Tarp 2002; Alene et al. 2008; Ouma et al. 2010).

The literature on aquaculture is significantly less developed than it is in relation to selling of food crops or the choice to engage in cash crop production, but similar factors are likely to be as important here as in the case of cash crops.

With respect to Viet Nam, Rios et al (2009) find that households with higher productivity tend to participate in agricultural markets regardless of market access factors (e.g. distance to roads or quality of transport networks), suggesting that programmes targeted at improving poorer households' productive capital, and other assets have the potential to increase both productivity and market participation, while investments in market access infrastructure seem to be relatively less of a priority (Rios et al 2009). This might reflect the fact that already in the early 1990s Viet Nam had a much better coverage of basic rural infrastructure in most regions compared to countries with similar levels of income (Aksoy and Isik-Dikmelik 2007).

This analysis draws and builds on earlier analysis by the authors of some of these issues based on earlier waves of the VARHS survey (McCoy et al

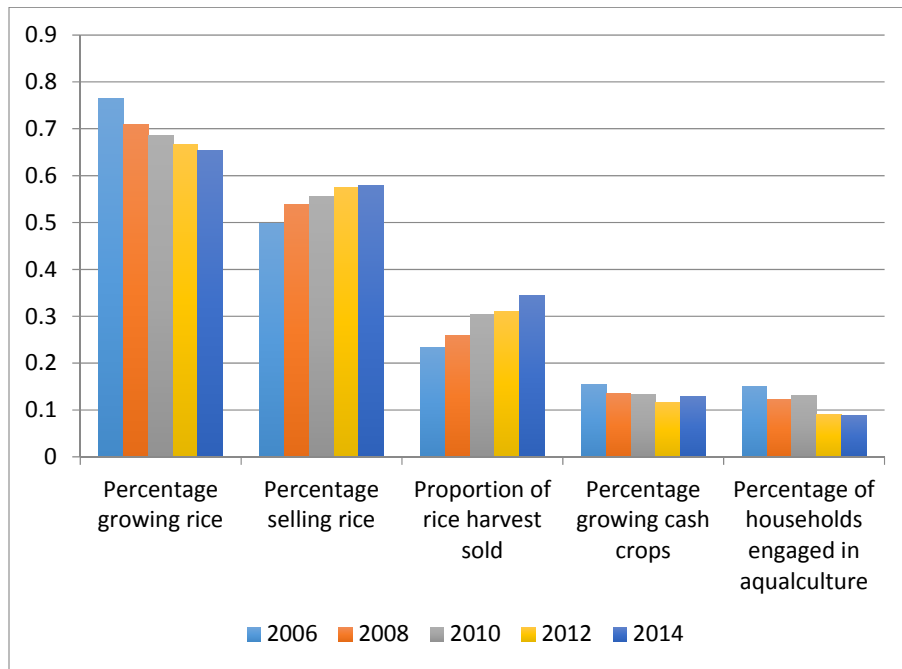
2010; Cazzuffi et al. 2011; Cazzuffi and McKay 2012). However these earlier studies also addressed more detailed issues not considered here for lack of space, for example the channels used to sell rice (Cazzuffi and McKay 2012) or the analysis of fisheries conducted in open access resources (McCoy et al 2010).

### **3.3 Agricultural activities in the VARHS panel**

In the VARHS panel data set, 100 per cent of households in 2006 reported income from one or more of crops, livestock, or aquaculture; this proportion fell gradually over time but in 2014 still 86.4 per cent of households reported positive income from one or more of these sources. This reinforces the point made in the introduction about the importance of agricultural or aquaculture activities for almost all households.

Figure 3.1 reports some summary statistics relating to these three activities for households included in the five wave panel, treating the different waves as separate cross sections for now. A large majority of households grows rice in each of the years. The proportion does decline gradually over time but even by 2014 more than 65 per cent of households grow rice in at least one of their plots. Rice is a dominant consumption commodity in Viet Nam as well as a very important export; in addition the authorities often require households to grow rice on some plots. Further, most locations covered by the survey are very suitable for rice cultivation.

Figure 3.1: Some summary characteristics relating to commercialization for the full sample



The next set of columns relates to the proportion of rice-growing households who sell some of their output. Starting out from nearly 50 per cent of households in 2006, participation in rice sales shows a consistently increasing trend over time. While fewer households may be growing rice over time, an increasing proportion of these are selling, and this latter effect outweighs the former, such that the absolute numbers who sell show an increase. The survey also reports on the channel of sale, the most important channels being sales to traders or sales to other individuals or households. This pattern shows variations by province and unsurprisingly the scale of sales reflects the channel used. The following columns of Figure 3.1 report on the average proportion of the harvest sold, which again shows an upward trend over time. The first years of the panel were a period where the rice price increased significantly, but the extent of commercialization according to these two indicators has continued to increase since, even though the rice price has fallen. This increasing commercialization takes place alongside continued increases in rural household income over this period (see Chapter 9).



The remaining groups of columns in Figure 3.1 relate to the extent of household engagement in cash crop production and in aquaculture activities on their own land. A small minority of households engage in these activities and, in the case of aquaculture at least, there may be a declining trend. But the choice to undertake these activities is a significant investment by the household and the climatic and other conditions need to be appropriate. The dominant cash crop grown by the households in the survey is coffee, which is grown predominantly in the Central Highlands provinces, but other cash crops cultivated by some households include tea, cocoa, cashew nut, sugarcane, pepper, and rubber. Around 10 per cent of households earn some income from aquaculture, an activity that requires a significant investment in order to convert one or more of their plots into a pond; this can also be a relatively labour-intensive activity and with an uncertain return from one year to another.

What is clear from this initial introductory analysis is the importance of agricultural activity, especially rice, for these households and the extent of engagement in sales for a majority of these households. That in itself is a signal of the success with which these activities have been conducted in rural Viet Nam. However the analysis to date is only conducted at an aggregate level and does not exploit the panel features of the data set; the remainder of this chapter now analyses these three activities separately and in more detail.

### **3.4 Rice cultivation and sales, cash crops, and aquaculture in rural Viet Nam**

While the role of rice as a dominant crop in Viet Nam has been stressed above, Table 3.1 shows variations in its importance by province and by income quintile of the household. The numbers of households cultivating rice are very high in the three northern upland provinces and do not fall over time. Typically 90 per cent or more of households grow rice there. By contrast in Dak Nong and Lam Dong in the Central Highlands relatively few

households grow rice. Also in Khanh Hoa the proportion growing rice is relatively low. The remaining provinces lie in-between these extremes. In a number of these such as Ha Tay and Quang Nam the proportions that grow rice is falling over time. These are locations where non-agricultural activities, notably wage work, become increasingly important over time (see Chapter 9). Looking by quintile, it is clear that rice cultivation is higher in lower quintiles than in higher ones, though the numbers cultivating rice remain substantial in the fifth quintile. In the higher income quintiles more non-agricultural opportunities exist, reflecting both their more urbanized nature but also higher levels of development. To some extent though the quintile pattern correlates with the geographic pattern in that the northern upland provinces referred to above, where rice cultivation rates are very high, are disproportionately found in the lower income quintiles.

Table 3.1: Percentage of households growing rice, by year, province, and quintile

	2006	2008	2010	2012	2014
By province					
Ha Tay	0.864	0.815	0.768	0.706	0.689
Lao Cai	0.906	0.882	0.859	0.871	0.906
Phu Tho	0.889	0.791	0.731	0.710	0.737
Lai Chau	0.945	0.908	0.881	0.881	0.908
Dien Bien	0.980	0.960	0.939	0.939	0.960
Nghe An	0.739	0.707	0.670	0.681	0.644
Quang Nam	0.824	0.820	0.784	0.734	0.694
Khanh Hoa	0.417	0.236	0.389	0.361	0.361
Dak Lak	0.542	0.489	0.550	0.527	0.473
Dak Nong	0.380	0.283	0.250	0.293	0.293
Lam Dong	0.250	0.281	0.266	0.250	0.172
Long An	0.668	0.585	0.567	0.588	0.581
By consumption quintile					
1	0.880	0.822	0.680	0.851	0.850
2	0.770	0.768	0.742	0.762	0.762
3	0.724	0.730	0.751	0.711	0.729
4	0.598	0.583	0.718	0.651	0.625
5	0.481	0.454	0.576	0.459	0.494
Total	0.764	0.710	0.685	0.666	0.654

Table 3.2: Percentage of rice-growing households who sell, by province and year

	2006	2008	2010	2012	2014
Ha Tay	0.424	0.512	0.568	0.605	0.590
Lao Cai	0.545	0.467	0.562	0.662	0.506
Phu Tho	0.212	0.374	0.350	0.218	0.324
Lai Chau	0.515	0.364	0.302	0.479	0.515
Dien Bien	0.887	0.411	0.505	0.581	0.484
Nghe An	0.518	0.459	0.341	0.484	0.645
Quang Nam	0.459	0.640	0.789	0.637	0.658
Khanh Hoa	0.600	0.706	0.536	0.846	0.654
Dak Lak	0.465	0.625	0.472	0.609	0.597
Dak Nong	0.571	0.538	0.609	0.444	0.444
Lam Dong	0.250	0.611	0.529	0.813	0.455
Long An	0.870	0.914	0.879	0.914	0.907

The geographic disaggregation of the proportion of rice growers selling their output is presented in Table 3.2, and this shows the very high market engagement in the Long An province in particular. While it may be that between 55 per cent and 70 per cent of rural households there grow rice, almost all of them sell. This is very much the commercial heartland; many of these households grow and sell on quite a large scale and they have the major advantage of being very close and well connected to a highly concentrated population in Ho Chi Minh City and elsewhere. When households choose to grow rice they almost all aim to sell and it will be seen in Table 3.3 that they also sell by far the highest proportion of their output.

Rates of sales are much lower in other provinces, not least in the Northern Uplands provinces seen above where most households grow rice. It is clear that many of these are not able to produce enough to be able to sell on a consistent basis; they also have significantly greater difficulty in getting access to buyers. A similar point is true of Phu Tho where again many households grow rice; this province has much easier access to Hanoi and bigger urban centres than the Northern Uplands provinces, but still

relatively few rice growers sell. This clearly reflects the scale of production plus the greater importance of non-agricultural activities. Among the other provinces, Quang Nam, Dak Lak, and Khanh Hoa are provinces with relatively high proportions of rice growers engaged in sales.

Table 3.3: Average proportion of rice output sold, by location, quintile, and year

	2006	2008	2010	2012	2014
By province					
Ha Tay	0.146	0.210	0.260	0.286	0.312
Lao Cai	0.203	0.119	0.198	0.259	0.227
Phu Tho	0.042	0.094	0.131	0.075	0.156
Lai Chau	0.147	0.109	0.121	0.181	0.203
Dien Bien	0.355	0.175	0.209	0.261	0.231
Nghe An	0.179	0.177	0.174	0.200	0.293
Quang Nam	0.211	0.281	0.457	0.290	0.380
Khanh Hoa	0.367	0.213	0.361	0.510	0.420
Dak Lak	0.272	0.400	0.375	0.384	0.383
Dak Nong	0.302	0.365	0.334	0.210	0.200
Lam Dong	0.094	0.494	0.360	0.406	0.221
Long An	0.730	0.755	0.696	0.849	0.883
By consumption quintile					
1	0.189	0.215	0.270	0.194	0.282
2	0.251	0.233	0.279	0.273	0.259
3	0.307	0.286	0.276	0.298	0.338
4	0.282	0.318	0.314	0.389	0.376
5	0.245	0.363	0.350	0.384	0.432
Total	0.234	0.258	0.304	0.311	0.345

The geographic distribution of the proportion of output sold is shown in Table 3.3. In almost all cases outside of Long An, households are selling a minority, and often a small minority of their output. It is quite clear that rice cultivation and commercialization is radically different in Long An compared to the other provinces. The proportions sold are particularly low in the Northern Uplands provinces as well as in Phu Tho, Dak Nong, and Lam Dong; this is partly accounted for in some cases by the small proportion of households selling, but it also strongly suggests a relatively

small scale of production. The proportion of output sold generally increases with the income quintile, though again this partly reflects the geographic distribution of the provinces, with Long An being disproportionately represented in the higher quintiles.

Both rice cultivation and sales can of course fluctuate from one year to the next, an issue which will be explored in the next section using the panel. For now we examine patterns of household engagement in cash crops and in aquaculture. Tables 3.4 and 3.5 report the percentage of households engaged in these activities by province and quintile, and these tables again show some quite distinct patterns. In particular cash crops are predominantly grown in the Central Highlands provinces of Dak Lak, Dak Nong, and Lam Dong, with the dominant part of this being coffee cultivation. Cash crop cultivation is much lower elsewhere, and almost non-existent in the provinces of Ha Tay, Dien Bien, Quang Nam, and Long An. In general, households in higher quintiles are more likely to be in higher quintiles even if the relationship is less strong in 2014.

The highest incidence of aquaculture is observed in the province in Dien Bien; depending on the year, between one-third and one-half of households report income from this activity. Reasonable numbers of households in Lao Cai, Phu Tho, and Long An also report earnings from aquaculture. Elsewhere the proportions are lower.

Table 3.4: Proportion of households growing one or more cash crop, by province, quintile, and year

	2006	2008	2010	2012	2014
By province					
Ha Tay	0.019	0.009	0.015	0.002	0.002
Lao Cai	0.106	0.082	0.082	0.071	0.082
Phu Tho	0.212	0.145	0.141	0.061	0.108
Lai Chau	0.110	0.073	0.028	0.037	0.055
Dien Bien	0.000	0.000	0.010	0.000	0.010
Nghe An	0.170	0.112	0.144	0.112	0.112
Quang Nam	0.018	0.014	0.018	0.004	0.004
Khanh Hoa	0.083	0.083	0.097	0.111	0.111
Dak Lak	0.634	0.672	0.626	0.649	0.626
Dak Nong	0.717	0.609	0.598	0.609	0.739
Lam Dong	0.719	0.781	0.734	0.750	0.766
Long An	0.011	0.011	0.022	0.004	0.011
By consumption quintile					
1	0.123	0.094	0.083	0.062	0.124
2	0.165	0.145	0.092	0.108	0.110
3	0.179	0.115	0.097	0.111	0.114
4	0.142	0.138	0.129	0.114	0.135
5	0.253	0.238	0.203	0.156	0.147
Total	0.155	0.134	0.134	0.115	0.129

Table 3.5: Proportion of households engaged in aquaculture activity on their own land, by province, quintile, and year

	2006	2008	2010	2012	2014
By province					
Ha Tay	0.055	0.062	0.038	0.040	0.055
Lao Cai	0.294	0.176	0.259	0.212	0.176
Phu Tho	0.273	0.175	0.152	0.121	0.128
Lai Chau	0.156	0.101	0.037	0.037	0.028
Dien Bien	0.333	0.475	0.515	0.475	0.485
Nghe An	0.133	0.080	0.080	0.074	0.053
Quang Nam	0.036	0.022	0.018	0.025	0.007
Khanh Hoa	0.014	0.042	0.056	0.042	0.014
Dak Lak	0.084	0.115	0.115	0.076	0.023
Dak Nong	0.196	0.098	0.109	0.087	0.076
Lam Dong	0.078	0.047	0.016	0.047	0.031
Long An	0.271	0.217	0.343	0.090	0.134
By income quintile					
1	0.141	0.123	0.118	0.095	0.086
2	0.116	0.123	0.12	0.079	0.081
3	0.155	0.132	0.127	0.09	0.093
4	0.179	0.118	0.15	0.102	0.09
5	0.167	0.118	0.144	0.083	0.095
Total	0.151	0.123	0.132	0.090	0.089

### 3.5 Using the panel to look at production and sales dynamics

To date, the analysis has been entirely based on comparisons between the repeated cross sections in the panel data set, but looking at dynamics helps identify the extent to which behaviour varies over time or is consistent from one period to another. The panel data are exploited here by looking at the extent to which households engage in these activities in each of the years: growing rice, selling rice, growing cash crops, and earning from aquaculture (Table 3.6). Those not engaged in these activities in any of the five years are also included in these data. The patterns vary by province and quintile in much the same way that the number of households growing rice do; in most locations those that grow rice do so consistently year-on-year.

Table 3.6: Proportion of households engaged in some commercial agricultural activities in all years of the panel

	Grow rice in all years	Selling in all years*	Cash crops in all years	Aquaculture in all years
Ha Tay	0.619	0.189	0.000	0.011
Lao Cai	0.776	0.121	0.071	0.047
Phu Tho	0.636	0.021	0.027	0.024
Lai Chau	0.853	0.097	0.000	0.009
Dien Bien	0.929	0.163	0.000	0.192
Nghe An	0.606	0.175	0.059	0.011
Quang Nam	0.640	0.292	0.000	0.004
Khanh Hoa	0.167	0.250	0.042	0.000
Dak Lak	0.336	0.364	0.519	0.000
Dak Nong	0.163	0.267	0.500	0.011
Lam Dong	0.141	0.222	0.641	0.000
Long An	0.455	0.762	0.000	0.025
Quintile				
1	0.717	0.182	0.050	0.030
2	0.559	0.289	0.091	0.021
3	0.533	0.283	0.100	0.019
4	0.337	0.273	0.096	0.016
5	0.253	0.225	0.196	0.023
Total	0.568	0.231	0.085	0.022
* from among those growing each year				

In relation to rice sales, Long An has by far the highest number of households who sell each year in the panel; not only do many households sell and sell a high proportion of their output, they also tend to do so every year. The number of consistent sellers is much smaller elsewhere, but this also reflects the lower numbers of people selling in any of the cross sections.

The numbers that consistently grow cash crops are not much lower than the numbers reported in the cross section. This reflects the fact that much of these cash crops are tree crops and therefore a long-term commitment. As in the cross section, the numbers are highest by far in the Central Highlands provinces. On the other hand, the same is not true for



aquaculture; here the numbers with consistent earnings are consistently lower than the numbers in the cross section, suggesting that there is quite a lot of variability from one wave to the next. This may reflect households starting and stopping the activity, but it may also reflect major shocks in particular years leading to a loss of earnings from this source.

### **3.6 In-depth analysis of determinants of commercialization**

Three different forms of commercialization have been considered in this chapter: the choice by a household to sell some of the rice it produces; the choice to grow cash crops; and the choice to engage in aquaculture. Some initial descriptive analysis of the types of patterns of commercialization by location and income quintile have been presented above, but here we turn to a more detailed analysis of the characteristics of households choosing to participate in these forms of commercialization. This starts with further descriptive analysis but then progresses to multivariate analysis of the decision by rice-growing households to sell some of their output. Following this we present a briefer but similar analysis of the factors associated with households growing cash crops or engaging in aquaculture activities.

Comparing rice growers who sell and those who do not (Table 3.7), the striking difference between those selling and those who do not is that the former cultivate larger areas of land, spend much more on inputs and are less likely to be poor according to the Ministry of Labour, Invalids and Social Affairs (MOLISA) classification. These differences are true in every year. Unsurprisingly, those households selling rice report much more agricultural income though not necessarily much higher income overall. Interestingly, those selling rice are further away from roads on average, though this does not stop them selling; many households sell to traders. Other differences such as household characteristics, group membership, and use of other inputs are much less striking or are less consistent across the different waves.

Table 3.7: Characteristics of households engaged in selling rice, compared to non-sellers

	2006		2008		2010		2012		2014	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total income	22,600.1	22,942.3	38,701.2	40,520.5	69,721.5	74,741.5	72,366.1	71,252.6	85,629.0	92,732.4
Agricultural income	6,296.5	9,254.9	11,478.6	17,006.0	17,589.5	23,025.6	18,972.6	24,057.0	20,483.8	30,691.4
If poor (MOLISA)	0.259	0.222	0.242	0.183	0.170	0.121	0.230	0.154	0.160	0.104
Cultivated area	7,663.4	13,175.3	6,704.2	10,451.2	6,930.5	10,173.8	6,887.9	9,909.8	6,127.3	9,997.7
Cropland area	4,724.7	9,983.4	4,481.1	8,373.9	5,032.7	7,667.2	4,988.0	8,256.6	4,700.1	8,189.5
Crop input expenses	2,529.8	6,966.8	8,043.5	25,509.3	10,517.6	28,529.5	15,741.0	38,496.6	16,310.5	41,525.4
Rice input expenses	1,284.6	5,986.4	1,972.7	10,135.2	2,459.8	10,858.7	3,804.6	14,110.0	3,638.1	15,218.0
% irrigated	0.705	0.766	0.711	0.841	0.745	0.856	0.801	0.879	0.193	0.182
% with restrictions	0.583	0.574	0.534	0.569	0.378	0.399	0.627	0.615	0.395	0.334
If received credit	0.642	0.713	0.457	0.473	0.464	0.549	0.403	0.425	0.358	0.373
If has redbook	0.913	0.921	0.874	0.874	0.785	0.833	0.879	0.920	0.887	0.934
household size	4.7	4.8	4.8	4.7	4.6	4.5	4.5	4.4	4.4	4.3
If Kinh	0.806	0.735	0.718	0.787	0.695	0.795	0.723	0.772	0.681	0.784
If speak Vietnamese	0.977	0.961	0.969	0.965	0.979	0.994	0.987	0.988	0.990	0.995
If head male	0.823	0.839	0.824	0.817	0.831	0.819	0.808	0.811	0.797	0.806
Age	50.2	49.9	50.5	51.6	51.7	52.5	53.4	53.5	54.6	54.7
Literacy	0.903	0.886	0.894	0.910	0.893	0.920	0.896	0.916	0.879	0.907
Distance to road	0.948	1.795	3.262	12.854	2.722	2.969	2.553	3.248	1.586	2.397
If has own transport	0.883	0.875	0.913	0.940	0.901	0.947	0.912	0.947	0.578	0.632
If used extension	0.367	0.415	0.042	0.035	0.522	0.547	0.533	0.646	0.555	0.655
If in farmer group	0.549	0.523	0.385	0.426	0.517	0.447	0.524	0.523	0.506	0.521
If in women's group	0.719	0.653	0.587	0.598	0.641	0.634	0.687	0.631	0.661	0.605

Table 3.8: Characteristics of households engaged in cash crop cultivation, compared to those not growing cash crops

	2006		2008		2010		2012		2014	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total income	23,275.5	29,263.4	41,975.8	63,855.8	74,329.2	114,758.7	73,547.4	114,830.6	94,331.2	137,878.2
Agricultural income	6,919.4	16,913.2	12,781.8	39,337.5	18,512.9	40,220.7	19,071.2	67,071.6	24,248.9	71,374.2
If poor (MOLISA)	0.228	0.264	0.204	0.209	0.147	0.111	0.182	0.165	0.128	0.111
Cultivated area	9,554.4	16,258.6	7,733.0	17,318.1	7,625.9	16,323.1	7,636.5	17,981.1	7,461.8	17,185.9
Cropland area	6,987.9	12,461.4	6,016.7	14,047.4	5,930.3	13,015.2	6,194.8	15,412.1	5,981.3	14,955.8
Crop input expenses	4,321.7	10,675.2	15,737.9	50,541.1	17,696.1	57,093.2	24,335.6	100,695.3	26,062.0	98,579.4
Rice input expenses	3,520.1	1,104.3	6,184.5	1,987.6	6,444.3	3,334.4	8,761.1	3,785.4	9,199.8	3,059.4
% irrigated	0.748	0.618	0.785	0.794	0.801	0.858	0.843	0.875	0.162	0.706
% with restrictions	0.584	0.285	0.533	0.740	0.369	0.665	0.597	0.754	0.335	0.750
If received credit	0.655	0.769	0.444	0.638	0.484	0.630	0.385	0.578	0.334	0.538
If has red book	0.908	0.901	0.867	0.879	0.819	0.841	0.902	0.911	0.917	0.925
Household size	4.7	4.9	4.6	4.9	4.4	4.7	4.4	4.7	4.3	4.5
If Kinh	0.797	0.722	0.780	0.738	0.786	0.734	0.783	0.699	0.783	0.677
if speak Vietnamese	0.971	0.961	0.968	0.990	0.988	0.986	0.988	0.992	0.993	0.993
If head male	0.810	0.889	0.794	0.879	0.792	0.879	0.790	0.871	0.775	0.842
Age	50.6	47.5	51.9	47.5	53.2	49.2	54.4	50.3	55.8	52.0
Literacy	0.893	0.907	0.908	0.907	0.913	0.907	0.911	0.892	0.899	0.896
Distance to road	1.351	1.308	3.873	27.238	2.736	2.286	2.908	1.196	2.034	1.088
If has own transport	0.873	0.907	0.923	0.955	0.919	0.940	0.925	0.955	0.608	0.373
If used extension	0.372	0.344	0.039	0.038	0.489	0.578	0.566	0.548	0.571	0.616
If in farmer group	0.505	0.593	0.368	0.510	0.434	0.526	0.492	0.562	0.469	0.513
If in women's group	0.673	0.737	0.564	0.648	0.609	0.637	0.633	0.651	0.601	0.606

Table 3.9: Characteristics of households engaged in aquaculture, compared to those not doing aquaculture

	2006		2008		2010		2012		2014	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Total income	22,600.1	22,942.3	38,701.2	40,520.5	69,721.5	74,741.5	72,366.1	71,252.6	85,629.0	92,732.4
Agricultural income	6,296.5	9,254.9	11,478.6	17,006.0	17,589.5	23,025.6	18,972.6	24,057.0	20,483.8	30,691.4
If poor (MOLISA)	0.259	0.222	0.242	0.183	0.170	0.121	0.230	0.154	0.160	0.104
Cultivated area	7,663.4	13,175.3	6,704.2	10,451.2	6,930.5	10,173.8	6,887.9	9,909.8	6,127.3	9,997.7
Cropland area	4,724.7	9,983.4	4,481.1	8,373.9	5,032.7	7,667.2	4,988.0	8,256.6	4,700.1	8,189.5
Crop input expenses	2,529.8	6,966.8	8,043.5	25,509.3	10,517.6	28,529.5	15,741.0	38,496.6	16,310.5	41,525.4
Rice input expenses	1,284.6	5,986.4	1,972.7	10,135.2	2,459.8	10,858.7	3,804.6	14,110.0	3,638.1	15,218.0
% irrigated	0.705	0.766	0.711	0.841	0.745	0.856	0.801	0.879	0.193	0.182
% with restrictions	0.583	0.574	0.534	0.569	0.378	0.399	0.627	0.615	0.395	0.334
If received credit	0.642	0.713	0.457	0.473	0.464	0.549	0.403	0.425	0.358	0.373
If has red book	0.913	0.921	0.874	0.874	0.785	0.833	0.879	0.920	0.887	0.934
Household size	4.7	4.8	4.8	4.7	4.6	4.5	4.5	4.4	4.4	4.3
If Kinh	0.806	0.735	0.718	0.787	0.695	0.795	0.723	0.772	0.681	0.784
If speak Vietnamese	0.977	0.961	0.969	0.965	0.979	0.994	0.987	0.988	0.990	0.995
If head male	0.823	0.839	0.824	0.817	0.831	0.819	0.808	0.811	0.797	0.806
Age	50.2	49.9	50.5	51.6	51.7	52.5	53.4	53.5	54.6	54.7
Literacy	0.903	0.886	0.894	0.910	0.893	0.920	0.896	0.916	0.879	0.907
Distance to road	0.948	1.795	3.262	12.854	2.722	2.969	2.553	3.248	1.586	2.397
If has own transport	0.883	0.875	0.913	0.940	0.901	0.947	0.912	0.947	0.578	0.632
If used extension	0.367	0.415	0.042	0.035	0.522	0.547	0.533	0.646	0.555	0.655
If in farmer group	0.549	0.523	0.385	0.426	0.517	0.447	0.524	0.523	0.506	0.521
If in women's group	0.719	0.653	0.587	0.598	0.641	0.634	0.687	0.631	0.661	0.605

When it comes, however, to cash crops (Table 3.8), those cultivating have substantially higher incomes (and agricultural incomes) on average than those who do not, though interestingly they are not any less likely to be poor. It is clear that some households benefit substantially from growing cash crops, but many others do not. Those growing cash crops cultivate much bigger areas on average and spend much more on inputs overall (although less on inputs specifically for rice). They are more likely to have accessed credit, but in other respects there are not many other systematic differences between cash crop growing farmers and those not cultivating cash crops. Looking at aquaculture (Table 3.9), those engaged in this activity earn more from agriculture (which includes aquaculture) and more income overall; they also cultivate larger areas. They also spend more on rice inputs showing that many households combine aquaculture with rice cultivation. In addition, those engaged in aquaculture are more likely to have borrowed. In other respects the differences are less apparent.

We turn now to a multivariate analysis of the factors associated with being engaged in these activities, considering each of the five panel waves as separate cross sections. The likelihood of engaging in each of these activities is modelled as a function of many of the factors already considered in the tables above, plus some additional factors as well as province fixed effects. The explanatory variables are all current period values, raising legitimate concerns about endogeneity; the results therefore can only be interpreted in terms of association.

Tables 3.10, 3.11, and 3.12 show results of probit models for, respectively, the likelihood of selling rice (conditional on growing rice), of engaging in cash crop production, and for having income from aquaculture. Looking at rice sales (Table 3.10), which variables are significant does vary from one wave to another. Land size used for crop cultivation has a significant positive influence on the likelihood of selling rice in the first two waves only, but the proportion that is irrigated has a positive influence in four of the

waves. Having a greater area subject to restrictions also has a positive influence, which is unsurprising as many of these restrictions are to cultivate rice, motivated often by food security concerns. The other factor which is important in most cases is crop input expenses, which is entirely consistent with the descriptive analysis above. Factors which frequently have a significant negative influence on the likelihood of selling include being from the Kinh majority population and household size. In relation to the latter, larger households clearly have greater consumption needs. In the later rounds the use of extension services also has a positive impact on the likelihood of selling; in fact in the 2014 round in particular the correlates are somewhat different from earlier rounds. Most other factors included in the model are not consistently significant.

Table 3.10: Fixed effects regression results for correlates of selling rice for each wave

	2006		2008		2010		2012		2014	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
% with restrictions	0.3603	3.92	0.2302	2.36	-0.0569	-0.61	0.2141	2.06	-0.1011	-1.08
Cultivated area	0.0000	-1.32	0.0000	-0.60	0.0000	0.61	0.0000	-0.53	0.0000	1.06
% irrigated	0.4133	3.38	0.6741	5.39	0.4362	3.22	0.6509	3.75	-0.1583	-1.35
Cropland area	0.0000	2.13	0.0000	2.82	0.0000	0.36	0.0000	1.05	0.0000	0.61
If received credit	0.1031	1.34	-0.0474	-0.66	0.1820	2.40	0.0172	0.22	-0.0329	-0.42
If has red book	0.0795	0.62	-0.1872	-1.68	0.0094	0.09	0.1570	1.18	0.2681	2.03
Distance to road	0.0450	3.03	0.0021	0.61	-0.0053	-0.63	0.0023	0.53	0.0099	1.00
If daily market in village	0.1086	1.20	0.1100	1.34	0.0221	0.24	0.0837	1.04	-0.0239	-0.27
If most villages road accessible	0.0427	0.64	0.1345	1.78	-0.1687	-2.12				
If uses hybrid seed	0.1307	6.48	-0.0496	-0.57	0.0805	0.99	-0.0147	-0.19	-0.0969	-1.24
Crop input expenses	0.0000	2.24	0.0000	5.10	0.0000	3.36	0.0000	0.43	0.0000	1.70
Total hired labour	0.0001	1.37	-0.0001	-3.20	0.0000	0.45	0.0000	1.90	0.0001	3.01
If hh does wage work	-0.0678	-0.89	-0.0312	-0.40	0.0041	0.05	0.2917	3.49	0.1356	1.58
Household size	-0.0385	-1.65	-0.0466	-1.99	-0.0336	-1.39	-0.0966	-3.90	-0.0484	-2.03
If in farmer group	-0.0710	-0.89	0.2058	2.55	-0.0911	-1.12	0.1807	2.19	0.1246	1.60
If in women's group	-0.0155	-0.18	0.0259	0.32	0.0181	0.22	-0.0165	-0.19	-0.1547	-1.86
If used extension	0.1075	1.42	-0.5809	-2.85	0.1114	1.42	0.3089	3.87	0.1788	2.19
If has radio	0.0702	0.66	-0.0257	-0.29	0.0775	0.80	-0.0749	-0.66	0.0324	0.24
If has own transport	0.0175	0.14	-0.0317	-0.24	0.2427	1.62	0.1753	1.12	0.0696	0.76
If Kinh	-0.3353	-2.49	-0.5032	-3.87	-0.3551	-2.63	-0.2577	-1.79	0.0086	0.06
If head male	-0.0358	-0.36	0.0093	0.1	-0.0276	-0.26	0.0902	0.88	0.0186	0.19
If speak Vietnamese	-0.4692	-1.89	-0.5132	-2.25	0.6959	1.63	-0.4022	-1.16	0.3750	0.85
If poor (MOLISA)	0.0232	0.26	0.0052	0.06	-0.1201	-1.06	-0.1626	-1.59	-0.1517	-1.35
Age	-0.0004	-0.13	0.0015	0.50	-0.0002	-0.06	0.0006	0.18	-0.0026	-0.77
Literacy	0.0907	0.69	-0.0491	-0.36	0.0002	0.00	0.1486	1.02	0.0615	0.45
Constant	-0.4428	-1.11	0.2193	0.57	-0.7667	-1.41	-0.5314	-1.09	-0.2947	-0.54
Number of observations	1600		1507		1424		1400		1404	
Pseudo R square	0.1956		0.1507		0.1535		0.1759		0.1316	

Table 3.11: Fixed effects regression results for correlates of producing cash crops for each wave

	2006		2008		2010		2012		2014	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
% with restrictions	-0.1701	-1.23	0.6126	3.59	0.1903	1.31	0.0541	0.26	0.1608	0.92
Cultivated area	0.0000	1.21	0.0000	0.58	0.0000	1.40	0.0000	0.28	0.0000	0.70
% irrigated	-0.5486	-3.45	-0.5525	-3.09	0.1233	0.64	0.1018	0.35	0.9711	5.08
Cropland area	0.0000	-1.14	0.0000	2.11	0.0000	0.50	0.0000	0.85	0.0000	0.68
If received credit	0.1654	1.35	0.3271	2.59	0.0141	0.12	0.4958	3.25	0.1219	0.87
If has redbook	0.2962	1.34	-0.0133	-0.06	-0.2585	-1.53	0.0023	0.01	-0.0678	-0.27
Distance to road	0.0058	0.37	0.0055	1.40	0.0319	2.49	0.0000	0.00	-0.0004	-0.02
If daily market in village	0.2696	2.06	-0.4464	-3.08	0.2385	1.55	0.1975	1.26	0.1161	0.75
If most villages road accessible	-0.3917	-3.91	0.0598	0.44	0.2931	2.36				
If uses hybrid seed	0.0379	1.30	0.0146	0.09	-0.0310	-0.24	-0.1200	-0.78	-0.2360	-1.70
Crop input expenses	0.0001	3.94	0.0000	3.45	0.0000	0.80	0.0000	2.84	0.0000	1.06
hiredlab_tot06	0.0003	2.14	0.0000	-0.24	0.0000	-0.67	0.0000	-0.08	0.0000	-0.48
If hh does wage work	-0.0143	-0.13	-0.1704	-1.29	-0.0404	-0.31	-0.2110	-1.34	0.0967	0.64
Household size	0.0293	0.83	-0.0243	-0.60	0.0560	1.50	-0.0569	-1.17	-0.0387	-0.88
If in farmer group	0.0052	0.04	0.1268	0.95	0.1357	1.03	-0.3447	-2.11	-0.0197	-0.14
If in women's group	-0.1678	-1.24	0.1125	0.75	-0.1490	-1.09	-0.1142	-0.69	-0.2461	-1.67
If used extension	0.2205	1.91	-0.5053	-1.07	0.0750	0.59	0.1225	0.76	0.1407	0.92
If has radio	0.1531	0.99	0.0516	0.32	0.0505	0.35	0.3979	1.96	0.2052	0.89
If has own transport	0.1765	0.86	0.2619	1.03	0.0386	0.15	0.5716	1.61	-0.0765	-0.49
If Kinh	-0.0434	-0.28	0.4486	2.38	0.1132	0.66	-0.1106	-0.54	-0.0450	-0.24
If head male	0.2471	1.44	0.3706	1.87	0.2151	1.19	0.1421	0.64	0.1066	0.57
If speak Vietnamese	0.6152	1.58	0.5701	1.39	0.4111	0.70	0.2927	0.46	0.0000	
If poor (MOLISA)	0.1886	1.46	0.3235	2.13	-0.1862	-0.94	0.1540	0.83	-0.1645	-0.80
Age	0.0037	0.82	-0.0050	-0.89	-0.0062	-1.14	0.0040	0.57	0.0017	0.27
Literacy	0.1812	0.88	-0.5612	-2.33	-0.2889	-1.25	-0.2378	-0.86	0.1421	0.59
Constant	-3.2389	-5.07	-3.3193	-4.82	-3.0258	-3.73	-3.9608	-4.20	-3.1904	-4.56
Number of observations	1331		1257		1424		954		1394	
Pseudo R square	0.3259		0.4181		0.3731		0.4396		0.4138	



Table 3.12: Fixed effects regression results for correlates of engaging in aquaculture for each wave

	2006		2008		2010		2012		2014	
	Coef.	z	Coef.	z	Coef.	z	Coef.	z	Coef.	z
% with restrictions	0.3603	3.92	0.2302	2.36	-0.0569	-0.61	0.2141	2.06	-0.1011	-1.08
Cultivated area	0.0000	-1.32	0.0000	-0.6	0.0000	0.61	0.0000	-0.53	0.0000	1.06
% irrigated	0.4133	3.38	0.6741	5.39	0.4362	3.22	0.6509	3.75	-0.1583	-1.35
Cropland area	0.0000	2.13	0.0000	2.82	0.0000	0.36	0.0000	1.05	0.0000	0.61
If received credit	0.1031	1.34	-0.0474	-0.66	0.1820	2.4	0.0172	0.22	-0.0329	-0.42
If has redbook	0.0795	0.62	-0.1872	-1.68	0.0094	0.09	0.1570	1.18	0.2681	2.03
Distance to road	0.0450	3.03	0.0021	0.61	-0.0053	-0.63	0.0023	0.53	0.0099	1
If daily market in village	0.1086	1.2	0.1100	1.34	0.0221	0.24	0.0837	1.04	-0.0239	-0.27
If most villages road accessible	0.0427	0.64	0.1345	1.78	-0.1687	-2.12				
If uses hybrid seed	0.1307	6.48	-0.0496	-0.57	0.0805	0.99	-0.0147	-0.19	-0.0969	-1.24
Crop input expenses	0.0000	2.24	0.0000	5.1	0.0000	3.36	0.0000	0.43	0.0000	1.7
Total hired labour	0.0001	1.37	-0.0001	-3.2	0.0000	0.45	0.0000	1.9	0.0001	3.01
If hh does wage work	-0.0678	-0.89	-0.0312	-0.4	0.0041	0.05	0.2917	3.49	0.1356	1.58
Household size	-0.0385	-1.65	-0.0466	-1.99	-0.0336	-1.39	-0.0966	-3.9	-0.0484	-2.03
If in farmer group	-0.0710	-0.89	0.2058	2.55	-0.0911	-1.12	0.1807	2.19	0.1246	1.6
If in women's group	-0.0155	-0.18	0.0259	0.32	0.0181	0.22	-0.0165	-0.19	-0.1547	-1.86
If used extension	0.1075	1.42	-0.5809	-2.85	0.1114	1.42	0.3089	3.87	0.1788	2.19
If has radio	0.0702	0.66	-0.0257	-0.29	0.0775	0.8	-0.0749	-0.66	0.0324	0.24
If has own transport	0.0175	0.14	-0.0317	-0.24	0.2427	1.62	0.1753	1.12	0.0696	0.76
If Kinh	-0.3353	-2.49	-0.5032	-3.87	-0.3551	-2.63	-0.2577	-1.79	0.0086	0.06
If head male	0.4068	2.82	0.1035	0.75	0.2948	1.84	0.4071	2.36	0.3588	2.23
If speak Vietnamese	-0.5101	-1.74	0.0270	0.09	0.0986	0.20	0.0144	0.03	0.0414	0.06
If poor (MOLISA)	-0.3447	-2.84	-0.3277	-2.40	-0.6762	-3.53	-0.2389	-1.52	-0.4344	-2.32
Age	0.0074	2.00	0.0035	0.88	0.0025	0.59	0.0029	0.62	0.0015	0.31
Literacy	0.8566	4.34	0.4299	2.28	0.2539	1.34	0.3421	1.62	0.4226	2.08
Constant	-2.9485	-5.57	-2.9743	-5.69	-2.3035	-3.28	-3.4659	-4.62	-2.5709	-3.15
Number of observations	1572		1476		1400		1360		1364	
Pseudo R square	0.2031		0.1637		0.2576		0.2011		0.2133	

In relation to cash crop cultivation (Table 3.11), there are strong regional patterns in this. Coffee is the main cash crop, chiefly cultivated in the Central Highlands; hence there are strong fixed effects associated particularly with these three regions. This in large measure contributes to the much better fit these models display. Expenses on crop inputs are significantly positively associated with cash crop production in three of the five waves, unsurprisingly in that cash crops will typically require more input expenditure. And receipt of credit is positively significant in two waves. Many other factors included in the model though are not significant—for instance land size—or are not consistently significant. As an example of the latter, the percentage of land which is irrigated is negatively correlated with growing cash crops in the first two waves, but then positively correlated in the fifth. In general, geographic factors seem to be the primary driving factor here.

Turning then to aquaculture (Table 3.12), again regional fixed effects are important in this model. As seen above these activities are particularly common in Dien Bien, Long An Lao Cai, and Phu Tho, and rare in most other locations. Having more land area, not being poor, being male-headed, and being literate are significantly associated with being engaged in this activity in most waves. Those engaged in this activity are typically better off than average. Analysis of the data shows that the return, in terms of income earned per unit time spent, is higher on average in aquaculture compared to crop cultivation, though it is also riskier in that the return is also more variable (McCoy et al. 2010). Receipt of credit is also significantly positively associated with working in aquaculture in the first two waves. This is an activity which requires significant investment, as well as input expenses. Many other factors in the model are less significant, or do not show a consistent pattern. As an example of the latter, the extent to which land is subject to restrictions has unsurprisingly a negative influence on

engagement in aquaculture in two waves, but in 2012 shows a positive association.

These regression results are first estimates and focus only on contemporaneous correlations, and can only identify associations. Furthermore, they do not take into account the panel features of the data sufficiently—something to be developed further in future work on this data. They do though confirm several of the patterns already suggested in the descriptive analysis above. In the case of rice, those engaged in selling are generally those cultivating on a larger scale. Geographic factors are important in relation to both cash crops and aquaculture, which can reflect many factors including climatic conditions as well as potentially local policies. In general, there is a clear association between engagement in these commercial activities and being better off. But of course it is not possible to say anything about causality based on this; better off households may be better placed to be engaged in commercial activity (e.g. by having more land), but households may also become better off by being engaged in these activities. In reality both processes are probably at work.

### **3.7 Conclusions**

This chapter has presented an initial analysis of the extent of commercialization of agriculture in these 12 provinces of rural Viet Nam, focusing on the five waves of the VARHS panel. What is clear first of all is the continuing importance of agriculture in rural Viet Nam, and this still remains true for households who now may earn more of their income from wages or other sources. Second, agriculture is increasingly commercialized in rural Viet Nam. The main area of commercialization is the sale of rice. The vast majority of rural households grow rice, of whom around half sell in any given year. There are variations in this by geography and wealth, but unsurprisingly those producing more and using more inputs are more likely to sell. However the panel shows that not many households sell

consistently from one year to another; presumably the decision to sell then reflects the scale of production in a given year and perhaps available opportunities. The exception though to this is Long An. There the activity is on a much larger scale, with households selling more and much more regularly compared to any other province.

Cash crop production and aquaculture are clearly also commercial activities undertaken by a non-negligible minority of these surveyed households, though here there are strong geographic patterns, in part reflecting the suitability of different locations for these activities. Unsurprisingly given its nature, usually involving tree crops, cash crop activity shows substantial persistence over time in the panel, but in aquaculture there are a lot of fluctuations from one year to another. This is potentially a high-return activity for households, but it is relatively labour intensive and relatively risky. It may therefore be harder for households to guarantee a worthwhile return from this activity every year.

One thing that clearly emerges from this initial analysis of the data is a strong association between commercialization and wealth. There is very likely to be a two-way process of causality at work here. But it is almost certainly the case that increased commercialization of agricultural activities in rural Viet Nam has been an important contributor to the impressive rural poverty reduction the country has experienced.

There is much scope to analyse these questions in more depth in subsequent work, in particular exploiting more the panel features of the data set. This is expected to allow clearer conclusions to be drawn about the nature of the factors facilitating commercialization in agriculture in rural Viet Nam, including the ability to engage consistently in commercial activities over time. These issues will be addressed in more detail in future work.

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## **Chapter 4 The rural non-farm economy**

Carol Newman and Christina Kinghan

### **4.1 Introduction**

The diversification of economic activity away from the agricultural sector is a key characteristic of economic development. This micro-level structural transformation is clearly evident in the changing patterns of economic activity undertaken by households in Viet Nam. Paid employment external to the household and the operation of micro-enterprises represent increasingly important sources of income generation. This chapter examines the extent to which rural Vietnamese households have diversified away from own-farm agriculture, into waged employment and entrepreneurial activities, and the impact of this diversification on welfare outcomes. We examine whether the welfare outcomes for households who participate in more than one type of economic activity, are superior to those who remain specialized in agriculture. The role of shocks in leading to diversification is also given consideration.

Understanding the outcomes from diversification in addition to the determinants that prompt households to diversify is of great importance to policy makers. Of particular importance is a consideration of whether diversification increases income inequality and the potential impact of this on society. Also important for policy makers is whether, in encouraging diversification, the focus should be on diversification into multiple areas of economic activity or whether specialization in a particular activity is more advantageous to households.

The chapter proceeds as follows. Section 4.2 presents a review of the literature on diversification of household incomes into non-farm activity for a number of developing economies. Section 4.3 describes the pattern of diversification of rural households in Viet Nam and documents the transition from specialized agriculture into other activities. Section 4.4 presents an empirical analysis of the impact of diversification on welfare and of the factors that determine the transition from agriculture. Section 4.5 concludes with a discussion of the key findings and recommendations for both policy and future research in this area.

## **4.2 Background literature**

The impact of diversification into non-farm activities on rural households has been well documented. Overall, the literature in this area concludes that, while diversification is positively correlated with income and wealth (Economica Viet Nam 2013), it also has the potential to increase inequality, as households with favourable initial characteristics and conditions may disproportionately benefit. This highlights the potential for a dichotomous outcome from non-farm activity, where poorer households partake in low-return activities and wealthier households undertake high-return activities. Differing outcomes from participating in non-farm activities can also be observed when diversification is as a result of 'push' factors such as shocks, risk reduction, and survival. These broad conclusions motivate the analysis of diversification undertaken in this chapter and are elaborated upon below.

Imai et al. (2015) observe significantly higher per capita consumption, as a proxy for poverty reduction, for households participating in the non-farm sector in both Viet Nam and India. Access to non-farm work also decreased vulnerability to shocks, reducing risk. However, effects were significantly higher for households participating in skilled employment compared to those working in unskilled/manual positions. Hoang et al (2014), suggest that diversification can act as a strong tool for poverty alleviation in Viet



Nam. They find that an additional member of the household working in a non-farm activity, decreases the probability of poverty by 7–12 per cent and can increase household expenditure by up to 14 per cent over a two-year period. Furthermore, their results indicate that a reduction in hours worked on the farm due to non-farm work does not lead to a reduction in income earned from agricultural activities. Bezu et al. (2012), also find a strong positive relationship between a household's non-farm income share and its subsequent expenditure growth, for both poor and well-off households in Ethiopia. Yet, relatively wealthier households benefitted more from off-farm activity than poorer households.

Similarly, Lanjouw et al. (2013) found that non-farm diversification in India not only led to increased incomes and reductions in poverty, but that it was also instrumental in breaking down barriers to economic mobility among the poorest segments of society. Coupled with diversification, however, they highlighted rising income inequality at village level and the potential impact this inequality may have on social cohesiveness. Birthal et al. (2014) stated that poorer households tended to diversify into low-return activities and that this diversification had an unequalizing effect on the income distribution, but a positive impact on household income for rural households in India. A report undertaken by the Development Analysis Network (2003), found that while non-farm employment was important for job creation in Viet Nam, it significantly widened the non-farm income gap between rich and poor, hence contributing to social inequality. This research emphasizes both the positives from diversification but also the potential for growing income inequality among rural households.

Regarding the determinants of diversification into non-farm activity, Olugbire et al (2012) consider the household characteristics associated with participation in non-farm employment and entrepreneurship in Nigeria. They conclude that education, gender, land, and household size are key determinants of participation in non-farm waged employment, whereas

value of assets, access to credit, social capital, household, and land size are important determinants of non-farm entrepreneurship. Similarly, Ackah (2013) finds land size, education past primary level, and gender are important determinants of diversification in Ghana, with females more likely to be engaged in non-farm work. Education past secondary school is of particular importance for stable waged employment. Benedikter et al. (2013) also note a correlation between enterprise size and owner education. They find that level of savings, prior work experience, and family relations/inheritance were key factors in establishing a non-farm enterprise in the Mekong Delta, Viet Nam. Micevska (2008) emphasizes the importance of education for diversification, finding that individuals with higher education levels tend to diversify into high-return non-farm activities, with low-return activities pursued by those with limited education levels. This in turn impacts on the level of income generated by diversification. Overall, this indicates that resource-poor, less educated households may face significant barriers to entry into non-farm activity.

Giesbert and Schindler (2012) examine welfare dynamics among rural households in Mozambique. They find that drought has a negative impact on a household's asset accumulation, but households in which at least one member has regular non-farm work experience less adverse asset growth from a drought than those without non-farm wage opportunities—suggesting that income diversification has a positive impact in the aftermath of an exogenous shock. Looking at the impact of shocks on diversification in Ethiopia, Porter (2012) finds that households who increase in non-crop income as a result of rainfall shocks can effectively cancel out the negative impact on crop income. Bezu and Barrett (2012) also conclude that shocks reducing agricultural income can trigger transition into high-return non-farm activities, with shocks to wealth resulting in transition into low-return non-farm activities. At a broader level, Haggblade et al. (2010) highlight the importance of agricultural development in determining

whether diversification will be primarily as a result of 'pull' factors into high-return activities or 'push' factors into low-return activities. They posit that this is the result of linkages between agriculture and diversification. Positive linkages include: rising incomes stimulating demand for products and services, increased productivity freeing up labour for non-farm work, and demand for seeds and fertilizers, all of which stimulate a productive non-farm sector. In contrast, where the agricultural sector is stagnant or declining, yet population growth is increasing, linkages such as low labour productivity, rising landlessness, and limited household purchasing power will induce diversification into low-return activities.

In summary, diversification into non-farm activities by rural households has a positive impact on overall household incomes/expenditures. However the impact of diversification on the income distribution and ensuing inequalities between households is less clear. Differing returns are evident for households based on their individual characteristics, which may determine whether they diversify into high- or low-return activities. Whether diversification is in response to a shock and hence prompted by 'push' factors or due to favourable endowments possessed by a household can also lead to heterogeneous welfare outcomes from non-farm activity. This is of great importance to policy makers—facilitating and indeed encouraging diversification of household incomes should result in improved welfare outcomes, yet this may be at the cost of rising inequalities and divisions in society.

#### **4.3 Description of non-farm activities of households**

The analysis is focused on a representative sample of 2,181 rural households, examining the extent of diversification of economic activity that has taken place over a seven-year time period from 2008–14.

Table 4.1 details the economic activities these households were involved in during this time period. A household’s economic activity can fall into one of eight categories constructed from activity in agriculture, labour, enterprise, or a combination of these, or if the household was inactive. The share of households engaged only in agriculture has fallen steadily from 2008–14 highlighting the micro-level structural transformation taking place at the household level. Few households diversify away from agriculture completely but we observe a steady, albeit small, increase in the number of households specializing in labour or enterprises. The most common form of diversification is supplementing agriculture with labour, which rises consistently throughout the sample period.

Table 4.1: Economic activities of households, 2008–14

Per cent HH	Ag only	Labour only	Ent only	Ag & labour	Ag & Ent	Ag, labour & Ent	Labour & Ent	No activity
2008	25.16	4.09	2.39	40.62	11.41	11.50	2.44	2.39
2010	22.38	4.45	3.03	41.91	12.10	10.04	2.93	3.16
2012	20.59	5.73	3.58	43.15	9.35	10.45	2.43	4.72
2014	19.53	5.64	3.76	45.62	6.79	10.36	3.39	4.91

Note: n = 2,181

Table 4.2 contains information on the proportion of income households earn from agriculture, labour, enterprise, or other income sources (such as rent and transfers). This highlights the decreasing proportion of household income originating from agriculture and large increases in the importance of waged employment in particular. We also observe a decrease in income earned by enterprises in 2012. This drop is potentially the result of poor macroeconomic conditions during this time period.

Table 4.2: Proportion of income earned from different economic activities, 2008–14

Per cent HH	Agriculture	Labour	Enterprise	Other
2008	34.76	28.15	12.63	24.36
2010	23.36	31.26	13.67	31.66
2012	23.00	32.92	3.85	40.11
2014	23.80	44.35	12.28	19.54

Note: n = 2,181

Looking at the characteristics of household enterprises, in Table 4.3 we observe that over half are led by a female household member. As only 20 per cent of households have a female household head, it appears that diversifying by operating a non-farm enterprise is commonly undertaken by female household members to generate additional income for the family. This is in line with previous empirical research into non-farm household enterprises in Viet Nam, which finds that this sector is becoming increasingly feminized (Oostendorp et al. 2009). Nearly 80 per cent of enterprises do not have a business licence and so operate in the informal sector of the economy, with little evidence of increasing formalization of enterprise activities over the years of the survey.

Table 4.3: Enterprise characteristics

	2008	2010	2012	2014	Total
<i>Gender</i>					
<i>Manager</i>					
Female	328 (55%)	331 (54%)	291 (52%)	254 (48%)	1,204 (52%)
Male	271 (45%)	282 (46%)	272 (48%)	276 (52%)	1,101 (47%)
<i>Formal Enterprise</i>					
Informal	470 (78%)	471 (77%)	444 (79%)	409 (77%)	1,794 (78%)
Formal	129 (22%)	142 (23%)	119 (21%)	121 (23%)	511 (22%)
<i>Total Labour</i>					
1–3 workers	508 (86%)	509 (84%)	469 (84%)	428 (81%)	1,914 (84%)
4–6 workers	61 (10%)	71 (12%)	58 (10%)	72 (14%)	262 (11%)
7–62 workers	25 (4%)	28 (5%)	31 (6%)	29 (5%)	113 (5%)
<i>Total Paid Labour</i>					
0 employees	526 (88%)	528 (86%)	484 (86%)	425 (80%)	1,963 (85%)
1–3 employees	48 (8%)	55 (9%)	52 (9%)	72 (14%)	227 (10%)
4–60 employees	25 (4%)	30 (5%)	27 (5%)	33 (6%)	115 (5%)
<i>Needed Investment</i>					
No	51 (9%)	28 (5%)	25 (4%)	20 (4%)	124 (5%)
Yes	548 (91%)	585 (95%)	538 (96%)	510 (96%)	2,181 (95%)
Variable	Observations	Mean	Std Dev	Min	Max
<i>Age</i>	2,297	44.98	11.90	11	91
<i>Education</i>	2,297	7.58	3.50	0	12

Over 80 per cent of household enterprises are operated by one to three individuals, with a further 10 per cent having four to six workers. Only 5 per cent have more than seven people working in the enterprise. We can also look at how many of these individuals receive a wage for their work. Approximately 85 per cent of enterprises do not pay a wage to those working in the enterprise, 10 per cent of enterprises pay a wage to between one and three employees and only 5 per cent of enterprises pay a salary to more than four workers. These descriptive statistics are in line with the findings that diversification into non-farm activity is more likely to be undertaken by low-income households and often in response to a shock. While welfare enhancing, the vast majority of enterprises tend to be

operated informally and on a low scale, as a basic means for households to generate additional income. However, almost all households were required to invest in the enterprise in order to start doing business, with over 90 per cent of households stating that an initial investment was needed to diversify into this activity.

The age and education of enterprise managers are also important when examining the key characteristics of these household enterprises. The average age of an enterprise manager is 45, with a wide disparity in ages, ranging from 11 to 91 years old. On average, enterprise managers have completed eight years of schooling. Finally, the most popular industries were processing and manufacturing (30 per cent), wholesale and retail trade (28 per cent) and accommodation and food services (9 per cent). A full list of the industry sectors is given in Table 4A.1 of the Appendix.

Regarding external employment, Table 4.4 shows an increase both in households with a member working externally and the number of individuals working externally, over the years of the survey. The number of households that do not have any kind of external employment fell from 41 per cent in 2008 to 35 per cent in 2014 and the number of households with three household members working externally increased from 7 per cent to 9 per cent. However, while a large number of households have members working externally, less than half of these households have at least one member working with a formal labour contract. This indicates that the kind of employment undertaken by diversifying households may be informal.

Table 4.4: External employment descriptive statistics

	2008	2010	2012	2014	Total
<i>Members working</i>					
0	900 (41%)	894 (41%)	833 (38%)	761 (35%)	3,388 (39%)
1	604 (28%)	620 (29%)	648 (30%)	594 (27%)	2,466 (28%)
2	458 (21%)	417 (19%)	475 (22%)	546 (25%)	1,896 (22%)
3	142 (7%)	161 (7%)	153 (7%)	184 (9%)	640 (7%)
4-10	70 (3%)	85 (4%)	68 (3%)	91 (4%)	314 (4%)
<i>Labour contract</i>					
No	793 (62%)	830 (65%)	813 (60%)	837 (59%)	3,273 (62%)
Yes	481 (38%)	453 (35%)	531 (40%)	578 (41%)	2,043 (38%)
<i>Member employed by:</i>					
<i>Individual/household</i>					
No	363 (28%)	366 (29%)	436 (32%)	451 (32%)	1,616 (30%)
Yes	911 (72%)	917 (71%)	908 (68%)	964 (68%)	3,700 (70%)
<i>Government/state ent</i>					
No	974 (76%)	980 (76%)	1,016 (76%)	1,069 (76%)	4,039 (76%)
Yes	300 (24%)	303 (24%)	328 (24%)	346 (24%)	1,277 (24%)
<i>Vietnamese private firm</i>					
No	1,098 (86%)	1,111 (87%)	1,081 (80%)	1,094 (77%)	4,384 (82%)
Yes	176 (14%)	172 (13%)	263 (20%)	321 (23%)	932 (18%)
<i>Location employment:</i>					
<i>Within commune</i>					
No	524 (41%)	489 (38%)	466 (35%)	443 (31%)	1,922 (36%)
Yes	757 (59%)	798 (62%)	882 (65%)	977 (69%)	3,414 (64%)
<i>Another commune in district</i>					
No	982 (77%)	938 (73%)	955 (71%)	1,048 (74%)	3,923 (74%)
Yes	292 (23%)	345 (27%)	389 (29%)	367 (26%)	1,393 (26%)
<i>Outside district</i>					
No	786 (62%)	910 (71%)	1,024 (76%)	1,016 (72%)	3,736 (70%)
Yes	488 (38%)	373 (29%)	320 (24%)	399 (28%)	1,580 (30%)



We see further evidence of this when we examine who household members are employed by. Approximately 70 per cent of the households engaged in external employment, state that this employment is with another individual or household, compared to 25 per cent with a member employed by a government or state enterprise and less than 20 per cent employed by a private Vietnamese firm. In terms of the location for these activities, employment is widely dispersed. Around 60 per cent of households have a household member working within the commune, 25 per cent working in another commune within the district, and 30 per cent working outside the district. Finally, the most popular sectors for external employment are construction and engineering (24 per cent), processing and manufacturing (19 per cent) and agriculture, forestry, and aquaculture (17 per cent). A full list of industry sectors is given in Table 4A.2 in the Appendix.

#### **4.4 Diversification and the transition from agriculture in Viet Nam**

Table 4.5 presents detailed transition matrices for households, demonstrating the extent of movement between different types of economic activities over time.

A strong pattern of movement away from specializing in agriculture is evident. Almost 50 per cent of households involved only in agriculture in 2008 had diversified into another economic activity in 2010. Of these households, 25 per cent combined agriculture with labour and 10 per cent combined agriculture with a non-farm enterprise. There is also evidence of further diversification by those households involved in agriculture and labour. While 67 per cent remained in this category, approximately 8 per cent diversified further by establishing a household enterprise. Thirteen per cent of households engaged with agriculture and enterprises further

diversified into paid employment. We do observe some reversion to agriculture only for households who combined agriculture with labour or enterprises (14 per cent and 11 per cent, respectively). However, this likely reflects job losses and enterprise failure.

This pattern is consistent in the 2010–12 and 2012–14 time periods, with further movement away from agriculture specialism. In both years, over 50 per cent of those who were previously engaged in agriculture only diversified their economic activities. Interestingly, those households who were involved in enterprise only, show a strong tendency to move towards labour only or labour and enterprise, especially in the 2010–12 and 2012–14 periods. This may reflect the uncertainty associated with operating an enterprise, compared to the stability of waged employment. Approximately 12 per cent of households with enterprise only transitioned to labour only in 2010–12 and 2012–14. Thirteen per cent supplemented enterprise operation with labour in 2010–12 and this rose to almost 18 per cent in 2012–14. This may also be reflective of a more tumultuous operating environment in the 2012–14 period due to the global recession. This potentially impacted on the viability of sustaining household incomes through enterprise activity alone.

The transition matrices highlight the large variation and movement between economic activities of these households. It is evident that households rely on a variety of sources to generate income. In particular, we observe a movement away from specialization with agriculture as the solitary source of income. This chapter aims to explore whether this transition leads to improvements in household welfare. To do this, we utilize three different welfare indicators: food expenditure/consumption, household income, and an indicator of the level of assets owned by a household.

Table 4.5: Economic activity transition matrices, 2008–14

2008–10	Ag only	Labour only	Ent only	Ag & Labour	Ag & Ent	Ag, Labour & Ent	Labour & Ent	No activity
Ag only	52.83	0.37	0.00	25.41	10.05	7.68	0.00	3.66
Labour only	3.37	48.31	4.49	21.35	1.12	2.25	13.48	5.62
Ent only	0.00	0.00	53.85	5.77	13.46	5.77	13.46	7.69
Ag & labour	14.49	3.26	0.11	67.08	5.51	7.75	0.67	1.12
Ag & ent	11.29	1.21	6.85	20.16	45.97	12.50	0.81	1.21
Ag, labour & ent	8.40	3.20	2.00	39.60	13.20	28.40	4.40	0.80
Labour & ent	0.00	16.98	15.09	7.55	9.43	0.00	47.17	3.77
No activity	34.62	5.77	5.77	5.77	0.00	1.92	1.92	44.23
2010–12	Ag only	Labour only	Ent only	Ag & Labour	Ag & Ent	Ag, Labour & Ent	Labour & Ent	No activity
Ag only	48.16	2.46	0.41	31.76	6.56	3.28	0.20	7.17
Labour only	4.12	52.58	2.06	27.84	3.09	2.06	4.12	4.12
Ent only	3.03	12.12	54.55	1.52	6.06	6.06	12.12	4.55
Ag & labour	13.35	3.61	0.98	68.38	4.92	7.00	0.33	1.42
Ag & ent	18.18	0.00	4.17	18.94	35.23	21.21	0.76	1.52
Ag, labour & ent	10.96	2.28	0.91	35.16	11.42	36.53	1.83	0.91
Labour & ent	0.00	15.63	20.31	4.69	1.56	6.25	48.44	3.13
No activity	20.29	8.70	4.35	4.35	1.45	2.90	0.00	57.97
2012–14	Ag only	Labour only	Ent only	Ag & Labour	Ag & Ent	Ag, Labour & Ent	Labour & Ent	No activity
Ag only	48.33	1.34	0.89	33.85	5.12	4.45	0.22	5.79
Labour only	5.60	48.00	4.80	20.00	0.00	6.40	8.80	6.40
Ent only	0.00	11.54	47.44	5.13	5.13	5.13	17.95	7.69
Ag & labour	14.35	2.87	0.21	71.94	2.44	6.70	0.64	0.85
Ag & ent	14.22	0.49	6.86	23.04	30.39	23.04	1.47	0.49
Ag, labour & ent	6.14	0.44	2.63	37.72	14.47	32.89	4.82	0.88
Labour & ent	0.00	5.66	20.75	1.89	5.66	15.09	50.94	0.00
No activity	23.30	15.53	1.94	2.91	0.00	0.97	0.97	54.37

Note: n = 2,181

Expenditure on food is the key welfare indicator used in our analysis. This variable is less likely to suffer from measurement error than household income and is therefore a more reliable and accurate measure of the welfare benefits from diversification (Meyer and Sullivan 2011). The

variable is constructed by aggregating the value of a set of food items consumed by the household in the previous month and is converted to real terms using a national food price index. We also consider total household income (in real 2014 values) and an asset index constructed using data on the value of crops stored, the number of animals, the number of transport vehicles, the size of land owned, and commodities such as televisions, telephones, and lighting to give an indication of the wealth of assets held by an individual household.

Table 4.6 contains the group means for these welfare measures by economic activity undertaken by the household. Focusing on the total figures first, we see increases in each time period in real household income (per capita), real food expenditure (per capita) and the asset index. Disaggregating by economic activity, it is evident that average income is highest for households specializing in enterprise activity only in each year. Household's specializing in agriculture, however, have the lowest income levels, below average for the group as a whole. It appears on first glance, therefore, that any kind of diversification leads to income improvements compared to remaining in agriculture only. Operating an enterprise is also positively correlated with high levels of food expenditure.

Table 4.6: Welfare measures, 2008–14

	Real income per capita	Real food expenditure per capita	Asset index
<i>2008</i>			
Ag only	956	237	-0.276
Labour only	1,752	382	-0.202
Ent only	2,769	491	-0.324
Ag & labour	1,117	298	0.152
Ag & Ent	2,027	397	0.270
Ag, labour & ent	1,503	341	0.426
Labour & ent	1,745	415	0.081
Total	1,318	311	0.037
<i>2010</i>			
Ag only	1,223	312	-0.113
Labour only	2,139	377	-0.090
Ent only	3,400	504	-0.132
Ag & labour	1,369	321	0.290
Ag & ent	2,173	388	0.421
Ag, labour & ent	2,014	400	0.702
Labour & ent	2,531	419	0.398
Total	1,649	349	0.195
<i>2012</i>			
Ag only	1,627	407	0.097
Labour only	2,484	615	0.127
Ent only	4,100	653	0.147
Ag & labour	1,586	415	0.448
Ag & ent	2,185	449	0.531
Ag, labour & ent	1,935	445	0.663
Labour & ent	2,755	550	0.626
Total	1,890	448	0.316
<i>2014</i>			
Ag only	1,829	413	0.121
Labour only	2,394	506	0.176
Ent only	4,541	681	0.223
Ag & labour	1,742	422	0.435
Ag & ent	2,544	498	0.704
Ag, labour & ent	2,476	498	0.746
Labour & ent	3,092	531	0.748
Total	2,082	455	0.345
Note: n = 2,181			

Average food expenditure (real per capita) is highest in each time period for households in either enterprise only or enterprise and labour categories. Households with labour only also have higher than average food expenditure, particularly in the later years. Again this highlights the welfare benefits of movement away from agriculture only. The asset index presents a slightly different view, consistently highest for households involved in agriculture, labour, and enterprise, and negative for households engaged in enterprise only in 2008 and 2010. This can be explained by the composition of this index, which includes assets such as land size, animals, and machinery. These are not necessarily important for successful functioning of an enterprise or external waged employment. The asset index for all groups is positive in the 2012 and 2014 time periods, yet highest still for households engaged in agriculture, labour, and enterprise. The transition to a positive coefficient over time for households engaged in labour and enterprise only may reflect a build-up of assets over time due to the positive impacts of this work on household welfare.

Overall, these descriptive statistics highlight the potential welfare-enhancing outcomes of non-farm diversification. However, these relationships will be formally examined in the ensuing empirical analysis in section 4.5.

#### **4.5 Empirical analysis**

In this section we explore further the impact of diversification on household welfare. Identifying a causal relationship between income diversification is complicated by the possibility that households may self-select into more productive activities. In other words, richer or wealthier households may choose to diversify rather than diversification in itself leading to higher levels of income or wealth. Any econometric model used to identify the effect of diversification on welfare must therefore control for all factors,

observed or otherwise, that impact on both the welfare of the household and their decision to diversify their income sources.

Using the balanced panel of data from VARHS for the 2008–14 period allows us to control for self-selection in two ways. First, with the inclusion of household fixed effects, all time invariant characteristics of households are controlled for in the analysis including the households' initial wealth and income levels. Second, the availability of lags allows past values of income and wealth to be controlled for in the analysis. As such, the impact of both long-term and transitory changes in income and wealth on welfare will be controlled for, allowing us to isolate the specific impact of diversification. We focus on consumption as our outcome measure of interest and control for household fixed effects, past income, and wealth to address the self-selection problem. The model we estimate is as follows:

$$C_{it} = \beta_1 S_{it} + \beta_2 X_{it} + \beta_3 X_{it-1} + \beta_4 Income_{it-1} + \beta_5 Wealth_{it-1} + \alpha_i + \tau_t + e_{it}$$

The key variables of interest are the sources of income of households. They are included in the vector  $S_{it}$  in the form of dummy variable indicators of the various categories described above with households that are involved in agriculture only (i.e. specialized agriculture) forming the base category. The vector  $X_{it}$  includes time varying household characteristics, namely household size, household size squared, whether the household head is female, age of the household head, age squared, the education level of the household head, the number of children in the household, whether the household is of Kinh ethnicity, whether the head of household is born in the commune, and whether the household is classified as poor by the authorities. Current period wealth is also included as a control variable within this vector. An additional complication with this specification is the need to control for current period income of households which is collinear with the sources of income and with the other control variables. If we assume that the generation of income is a dynamic process, in that past

values will determine future values, the lag of income and the lag of other time varying household characteristics (included in  $\mathbf{X}_{it-1}$ ) should serve as adequate controls. The model includes household fixed effects,  $\alpha_i$ , and time dummies,  $\tau_t$ ;  $e_{it}$  is the statistical noise term. Summary statistics for each of the variables included in the analysis are presented in Table 4A.3 in the Appendix.

The results for the key variables of interest are presented in Table 4.7.<sup>1</sup> Table 4A.4 of the Appendix details the full set of results for all of the explanatory variables. The dependent variable is the log of real consumption per capita. Making the per capita adjustment is particularly important in this model given that diversification and food consumption will be related to the size of the household. We also include household size to control for the fact that there may be economies of scale associated with food consumption in larger households. A log transformation is used to reduce the impact of outliers and for ease of interpretation of the parameter estimates.

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<sup>1</sup> We exclude households that report having no economic activities.



Table 4.7: Impact of diversification on household welfare

	(1)	(2)	(3)
Ag & labour	0.074*** (0.027)	0.122*** (0.026)	0.119*** (0.027)
Ag & ent	0.125*** (0.039)	0.149*** (0.038)	0.127*** (0.039)
Ag, labour & ent	0.163*** (0.036)	0.229*** (0.037)	0.225*** (0.038)
Labour only	0.032 (0.073)	0.062 (0.073)	0.061 (0.074)
Ent only	0.170** (0.072)	0.213*** (0.069)	0.200*** (0.071)
Labour & ent	0.073	0.139**	0.134*
HH characteristics	No	Yes	Yes
Lag controls	No	No	Yes
Time dummies	Yes	Yes	Yes
Number of households	2,151	2,151	2,149
Number of observations	6,263	6,238	6,150

Note: Each model includes household fixed effects. Standard errors clustered at the household level are presented in parentheses. \*\*\* indicates significance at the 1% level, \*\* indicates significance at the 5% level, \* indicates significance at the 10% level.

Columns (1) to (3) reveal that households that are diversified are better off than households that are specialized in agriculture. In particular, when all control variables are included (column (3)), we find that households that are engaged in agriculture with some other type of activity—waged employment, a household enterprise or both—have higher levels of consumption per capita than those that are engaged in agricultural production only. The coefficient estimates suggest that compared with households that are fully specialized in agricultural production, the fully diversified households do the best with consumption levels per capita that are 22 per cent higher than households specialized in agriculture, followed by households that are engaged in agriculture and enterprise activities with consumption levels per capita that are almost 13 per cent higher, while

households engaged in agriculture and waged employment have consumption levels per capita that are almost 12 per cent higher.

Households with an enterprise are also better off in welfare terms than households that are specialized in agriculture. Households that concentrate solely on household enterprise activities have consumption levels per capita that are almost 20 per cent higher than those that are specialized in agriculture. Households with an enterprise and waged employment also have higher consumption levels but this difference is only marginally statistically significant.

In Table 4.8 we disaggregate the diversification of economic activities further, separating out households that moved out of specialized agriculture between survey rounds from other types of diversified households.<sup>2</sup> We find that the transition out of specialized agriculture is welfare enhancing. The per capita consumption of households that move from being engaged in agricultural production only into other types of production activities is almost 14 per cent higher than those who remain specialized (column (1)). When this is disaggregated by type of activity (column (2)) we find that this result is driven by those households that diversify by entering into waged employment or by both entering waged employment and adding an enterprise activity to their portfolio of production activities. Of the non-transition households those that are diversified also perform better, particularly those that are involved in both labour and enterprise activities.

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<sup>2</sup> The full set of results are presented in Table 4A.5 in the Appendix.

Table 4.8: Impact of diversification out of agriculture on household welfare

	(1)	(2)
Transition out of ag	0.138*** (0.030)	
<i>Of which:</i>		
Into ag & labour		0.146*** (0.034)
Into ag & ent		0.053 (0.070)
Into ag, labour & ent		0.237*** (0.081)
Into other		0.126* (0.074)
Control for activities of non- transition households	Yes	Yes
HH characteristics	Yes	Yes
Lag controls	Yes	Yes
Time dummies	Yes	Yes
Number of households	2,149	2,149
Number of observations	6,150	6,150

Note: Each model includes household fixed effects. Standard errors clustered at the household level are presented in parentheses. \*\*\* indicates significance at the 1% level, \*\* indicates significance at the 5% level, \* indicates significance at the 10% level.

We now turn our attention to exploring the characteristics of households that transition out of agriculture. The dependent variable in this analysis takes a value of one if a household moved from specialized agricultural production to some other combination of economic activities and zero otherwise. As explanatory factors, we include the full set of time varying household characteristics, but at a lag so that we are considering the impact of past values of each characteristic on the decision to transition out of agriculture. A drawback of using a household fixed effects approach in this case is that it factors out all time invariant household characteristics, observed and unobserved. It is in fact many of the time invariant characteristics, such as the ethnicity or gender of the household head, that are of most interest in determining what characteristics impact on the decision to diversify. As such, we estimate the model using a random

effects estimator but control for time invariant characteristics by including the household specific means of the time varying characteristics (the so-called Chamberlain-Mundlak adjustment).

The results are presented in Table 4.9. Column (1) reveals that higher income households are less likely to transition out of agriculture. This suggests that diversification in the Vietnamese case is not driven by higher income levels. All types of income shocks (natural and economic) are positively related to the probability of transitioning out of specialized agriculture. This suggests that diversification into other activities might be a mechanism that households use to cope with shocks that affect agricultural production (see Wainwright et al. (2012) for a full analysis of the role of diversification in helping households to manage risks using the VARHS data). We do not find any evidence that the wealth of the household is a determining factor. The key motivation appears to be income related (lower incomes) and income shocks (losses to income).

There is no evidence that the characteristics of the household head are important in determining the transition out of agriculture with the exception of ethnicity. We find that even when income differences are controlled for, ethnic minority households are more likely to transition out of agriculture. The proportion of ethnic minorities involved in specialized agriculture fell from around a half in 2008 to only a quarter in 2014. It should be noted that a greater proportion of ethnic minorities remain in specialized agriculture in 2014 compared with Kinh households. The characteristics of ethnic minority households are discussed in more detail in Chapter 12.

Table 4.9: Determinants of the transition out of agriculture

	(1) Transitioned out of ag	(2) Diversified into labour & ag	(3) Diversified into enterprise & ag	(4) Diversified into labour, enterprise & ag	(4) Diversified into other activities (no ag)
Lag log(income)	-0.029*** (0.008)	-0.025 (0.017)	0.004 (0.019)	-0.039*** (0.015)	0.055*** (0.020)
Lag asset index	0.001 (0.007)	0.007 (0.016)	-0.008 (0.016)	-0.001 (0.013)	0.004 (0.018)
Lag HH size	-0.021*** (0.006)	-0.035*** (0.013)	0.002 (0.013)	-0.017 (0.012)	0.052*** (0.015)
Lag female <sup>a</sup>	-0.005 (0.018)	0.068 (0.053)	0.002 (0.046)	-0.048 (0.037)	-0.071 (0.053)
Lag married <sup>a</sup>	-0.007 (0.019)	0.029 (0.051)	-0.009 (0.040)	-0.039 (0.035)	-0.060 (0.056)
Lag age <sup>a</sup>	0.001 (0.001)	-0.002 (0.001)	0.000 (0.001)	-0.001* (0.001)	0.002* (0.001)
Lag higher ed <sup>a</sup>	0.012 (0.014)	-0.006 (0.040)	0.007 (0.026)	0.021 (0.025)	0.032 (0.039)
Lag children	-0.009 (0.018)	0.020 (0.034)	0.018 (0.028)	-0.005 (0.036)	-0.012 (0.046)
Lag ethnic minority	0.151*** (0.019)	-0.022 (0.045)	0.038 (0.026)	-0.024 (0.022)	0.026 (0.036)
Natural shock	0.028*** (0.010)	0.001 (0.025)	-0.023 (0.018)	0.015 (0.018)	-0.001 (0.024)
Economic shock	0.027** (0.011)	0.004 (0.026)	0.031 (0.024)	-0.049*** (0.018)	0.020 (0.030)
Time dummies	Yes	Yes	Yes	Yes	Yes
Household specific means	Yes	Yes	Yes	Yes	Yes
Number of households	2,150	630	630	630	630
Number of observations	6,174	1,098	1,098	1,098	1,098

<sup>a</sup> Refers to characteristic of the head of household.

Note: Each model is estimated using a random effects estimator. Standard errors clustered at the household level are presented in parentheses. \*\*\* indicates significance at the 1% level, \*\* indicates significance at the 5% level, \* indicates significance at the 10% level.

Before exploring the pattern of diversification further we consider briefly the characteristics of the households who remain specialized in agriculture.

Performing a similar analysis to that presented in Table 4.9 we find that older households and ethnic minorities are significantly more likely to remain specialized (results not shown). This implies, as suggested above, that while ethnic minority households are more likely to transition out of agriculture they are still more likely than Kinh households to remain specialized. We also find that households that remain specialized are less likely to suffer from natural and economic shocks, providing further evidence that diversification appears to be a push factor for vulnerable households. There is no evidence to suggest that remaining specialized is associated with income, wealth, or other household characteristics.

To explore this further we consider whether there are certain household characteristics associated with moving from agriculture into different types of activities. Conditioning on households that transition out of agriculture, we explore the factors that determine diversification into labour (column (2)), household enterprises (column (3)), and labour with a household enterprise (column (4)). In each of these cases some agricultural activities are kept on by the households. In column (5) we consider the factors that determine the full transition out of agriculture into other activities.

The main driving factors behind which activities households that transition engage in, are income related. Lower income households are more likely to transition into waged employment, while income does not appear to be a factor in making the transition to a household enterprise. Higher income households are more likely to make the full transition out of agriculture into other activities. Overall, it is clear that the income levels of households is the main determinant of the transition from specialized agriculture and the types of activities that households transition into.

## 4.6 Conclusions

In this chapter we documented the extent to which structural transformation is observed at the microeconomic level through household-level income diversification. The VARHS data confirm the macroeconomic story. We observe a significant shift in the allocation of labour from agriculture towards operating a household enterprise and engaging in waged labour outside the home.

We find that diversified households have higher per capita consumption measures than non-diversified households. In particular, households with an enterprise tend to have higher welfare (by about 20 per cent). We also examined the welfare impact of the transition out of agriculture. Controlling for household characteristics, initial income and wealth, we find that households that moved from specialized agriculture between 2008 and 2014 experienced welfare gains of the order of 13 per cent. Those that transitioned into waged labour experienced gains of around 15 per cent, while those that transitioned into both waged labour and a household enterprise experienced gains of around 23 per cent.

In the final part of our analysis we explore what factors drive the decision of households to transition out of agriculture. We find that the decision is primarily income related. Low-income households are more likely to make the transition as are households that have experienced income shocks. Also of note is the fact that ethnic minority households are much more likely to transition out of specialized agriculture. Only the richest households, however, completely abandon agricultural production.

While agriculture remains the main source of income and employment for the vast majority of rural Vietnamese, our results strongly confirm that diversification is happening on a large scale in Viet Nam. This process will continue and is likely to accelerate. Our core finding is that diversification

has been, on average, welfare improving. While the most beneficial form of diversification is into a household enterprise there are many other factors that determine the success or otherwise of entrepreneurial activities in rural settings (Kingham and Newman 2015). These include access to finance, education, market access, and others. Future research is needed in understanding the relative importance of these factors in cultivating enterprises. Diversification into waged employment is also an important source of welfare gain in our analysis, leading to welfare improvements of around 15 per cent. As such, close attention should be paid to job creation, particularly in rural areas, for those leaving agricultural production.

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## Appendix 4

Table 4A.1: List of industry sectors of enterprise operation

Industry	Freq	%
Agriculture, forestry & aquaculture	179	7.8
Mining & quarrying	9	0.39
Processing & manufacturing	723	31.49
Water & waste management	20	0.87
Construction & engineering	33	1.44
Wholesale & retail trade	638	27.79
Transport & storage	93	4.05
Accommodation & food services	207	9.02
Information & communication	7	0.3
Financial, banking, insurance & real estate	5	0.22
Professional, scientific & technical	38	1.66
Admin & support services	21	0.91
Education & training	2	0.09
Health care	13	0.57
Arts, entertainment & recreation	94	4.09
Other service activities	214	9.32
Total	2,296	100

Table 4A.2: List of industry sectors of external employment

Industry	Freq	%
Agriculture, forestry & aquaculture	915	17.23
Mining & quarrying	52	0.98
Processing & manufacturing	998	18.79
Water & waste management	11	0.21
Construction & engineering	1,274	23.98
Wholesale & retail trade	127	2.39
Transport & storage	162	3.05
Accommodation & food services	123	2.32
Information & communication	40	0.75
Financial, banking, insurance & real estate	35	0.66
Professional, scientific & technical	75	1.41
Admin & support services	84	1.58
Education & training	290	5.46
Political organizations	484	9.11
Health care	132	2.48
Arts entertainment & recreation	38	0.72
Other service activities	472	8.89
Total	5,312	100

Table 4A.3: Summary statistics

	2008		2010		2012		2014	
	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
Log food exp p.c.	5.43	0.89	5.63	0.73	5.90	0.71	5.82	0.69
Log income	10.75	0.87	10.91	0.90	11.05	0.85	11.13	0.87
Asset index	0.04	1.08	0.19	1.09	0.32	1.08	0.35	1.08
HH size	4.56	1.77	4.34	1.73	4.23	1.79	4.14	1.80
Female	0.21	0.41	0.21	0.41	0.22	0.41	0.24	0.43
Married	0.82	0.38	0.82	0.39	0.79	0.41	0.78	0.41
Age	40.24	11.84	41.89	12.46	43.23	13.09	45.62	13.21
Higher education	0.16	0.37	0.19	0.39	0.18	0.39	0.21	0.41
Children	0.49	0.50	0.53	0.50	0.49	0.50	0.47	0.50
Ethnic minority	0.21	0.40	0.20	0.40	0.20	0.40	0.20	0.40
Natural shock	0.43	0.50	0.43	0.49	0.32	0.47	0.24	0.43
Economic shock	0.23	0.42	0.17	0.37	0.19	0.39	0.14	0.34

Table 4A.4: Impact of diversification on household welfare, results for control variables

	Table 4.7 Column (2)	Table 4.7 Column (3)
Asset index	0.092*** (0.014)	0.093*** (0.015)
HH size	-0.131*** (0.013)	-0.130*** (0.013)
Female	0.001 (0.079)	0.002 (0.082)
Married	0.061 (0.068)	0.065 (0.070)
Age	0.003 (0.002)	0.003 (0.002)
Higher education	0.008 (0.037)	0.006 (0.038)
Children	0.052* (0.031)	0.065** (0.032)
Ethnic minority	-0.137 (0.144)	-0.113 (0.157)
Natural shock	-0.001 (0.019)	-0.005 (0.021)
Economic shock	0.013 (0.023)	0.012 (0.026)
L.log income		0.013 (0.012)
L.Asset index		-0.006 (0.073)
L.HH size		-0.049 (0.061)
L.Female		-0.000 (0.002)
L.Married		-0.005 (0.033)
L.Age		-0.073** (0.033)
L.Higher education		0.041 (0.112)
L.Children		-0.004 (0.020)
L.Ethnic minority		0.002 (0.025)
L.Natural shock		-0.020 (0.015)
L.Economic shock		0.019 (0.012)

Note: Each model includes household fixed effects. Standard errors clustered at the household level are presented in parentheses. \*\*\* indicates significance at the 1% level, \*\* indicates significance at the 5% level, \* indicates significance at the 10% level.

Table 4A.5: Impact of diversification out of agriculture on household welfare, results for control variables

	Table 4.8 Column (1)	Table 4.8 Column (2)
<i>Activities of non-transition hhs:</i>		
Ag & labour	0.076 (0.047)	0.078* (0.047)
Ag & ent	0.132** (0.057)	0.135** (0.057)
Ag, labour & ent	0.224*** (0.054)	0.227*** (0.054)
Labour only	0.020 (0.080)	0.022 (0.080)
Ent only	0.187** (0.082)	0.188** (0.082)
Labour & ent	0.097 (0.081)	0.100 (0.081)
<i>Household characteristics:</i>		
Asset index	0.094*** (0.015)	0.093*** (0.015)
HH size	-0.129*** (0.013)	-0.130*** (0.013)
Female	0.003 (0.082)	0.003 (0.082)
Married	0.065 (0.069)	0.066 (0.070)
Age	0.003 (0.002)	0.003 (0.002)
Higher education	0.007 (0.038)	0.007 (0.038)
Children	0.065** (0.032)	0.067** (0.032)
Ethnic minority	-0.122 (0.158)	-0.122 (0.158)
Natural shock	-0.003 (0.021)	-0.004 (0.021)
Economic shock	0.012 (0.026)	0.013 (0.026)
L.log income	0.013 (0.012)	0.014 (0.012)
L.Asset index	-0.005 (0.073)	-0.002 (0.074)
L.HH size	-0.048 (0.061)	-0.046 (0.061)
L.Female	-0.000 (0.002)	-0.000 (0.002)
L.Married	-0.005 (0.033)	-0.005 (0.033)
L.Age	-0.073** (0.033)	-0.073** (0.033)
L.Higher education	0.044 (0.111)	0.044 (0.111)
L.Children	-0.003 (0.020)	-0.003 (0.020)
L.Ethnic minority	0.003 (0.025)	0.002 (0.025)
L.Natural shock	-0.020 (0.015)	-0.019 (0.015)
L.Economic shock	0.019 (0.012)	0.019 (0.012)

Note: Each model includes household fixed effects. Standard errors clustered at the household level are presented in parentheses. \*\*\* indicates significance at the 1% level, \*\* indicates significance at the 5% level, \* indicates significance at the 10% level.

## **Part II**

# **Key Production Factors and Institutions**

## **Chapter 5 Land and land markets**

Thomas Markussen

### **5.1 Introduction**

The transfer of agricultural land use rights from collectives to individual households in 1988 was a key element of the Doi Moi reforms. In 1993, private land property rights were further strengthened as a massive programme of systematic land titling was initiated and land holders gained the rights to sell, rent, exchange, mortgage, and bequest their plots. These developments are often credited as an important driver of rural, economic growth in Viet Nam (for example Pingali and Xuan 1992; Rozelle and Swinnen 2004; Deininger and Jin 2008; Do and Iyer 2008; Newman et al. 2015). On the other hand, the literature also documents that household land property rights are far from complete and not always well protected. For example, Markussen et al. (2011) point out that many households face binding restrictions on crop choice, Anderson and Davidsen (2011) show that land titling is perceived to be severely affected by corruption, and Markussen and Tarp (2014) show that the risk of government land expropriation is significant and depends on whether or not a household has informal ties with local government officials. Khai et al. (2013) document that while land market transactions seem to increase efficiency as well as equity of land use, land markets are still very thin in many areas of Viet Nam.

This chapter investigates land and land markets from different angles. It first considers access to agricultural land by reporting the share of landless,



rural households (section 5.2).<sup>1</sup> It then turns to analysing issues of farm size and land fragmentation (section 5.3), land sales and rental markets (section 5.4), and property rights to land (section 5.5). While the first five sections are mainly descriptive, section 5.6 presents fixed effects regressions at the plot level to determine the causal effect of land titles on agricultural investment. This section demonstrates a significant and strong effect of land titling on household investment in irrigation. Remarkably, this effect is only present in upland regions, where titling is least prevalent. The policy implication is that titling should be expanded in the highlands. Section 5.7 concludes.

## **5.2 Landlessness**

We first consider landlessness, a phenomenon often associated with poverty and vulnerability in developing countries. Households that neither own nor operate any agricultural land are defined as 'landless'. Figure 5.1 shows the prevalence of landlessness over time and in five different regions. The figure shows that landlessness in the 2006–14 VARHS panel is low (around 8 per cent in 2014) and relatively stable over time.<sup>2</sup> There is significant variation across regions. Landlessness is highest in the Mekong River Delta and, in 2014, the Central Coast (12–18 per cent) and lowest in the Red River Delta and the North (around 3–6 per cent). There is a tendency towards convergence over time, driven by a moderate increase in landlessness in the northern parts of Viet Nam and a moderate drop in the Southern and Central Lowlands. The increase in landlessness in

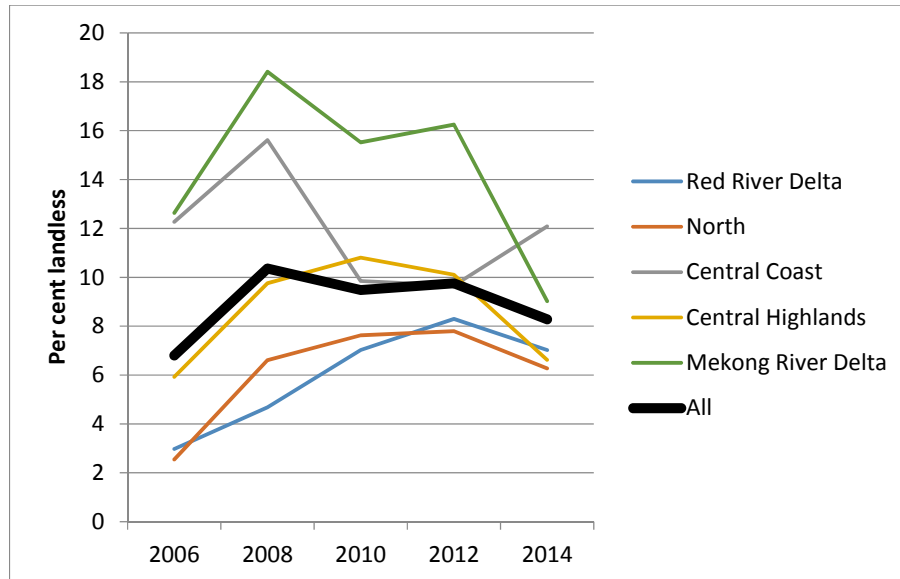
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<sup>1</sup> Analyses are based on the 2006–14 panel households. Other overviews of land issues in Viet Nam include Kerkvliet (2006) and Brandt (2006).

<sup>2</sup> Using the full, representative VARHS sample, landlessness in 2014 is 11 per cent (the same as in 2008). Hence, with the full sample, the slight downward trend in the panel sample between 2008 and 2014 is not present.

the Red River Delta might be driven by improving off-farm opportunities in and around Hanoi.

Figure 5.1: Landlessness, by region



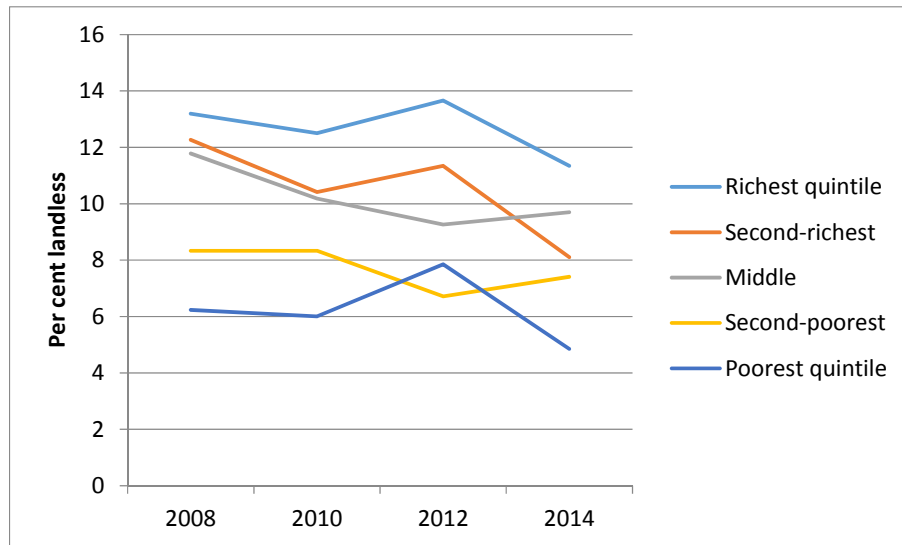
Note: N = 2,162.<sup>3</sup> Only households that neither own nor operate any agricultural land are defined as 'landless'.

Figure 5.2 shows landlessness by income quintile. Since a comprehensive measure of income could not be computed for 2006, results for that year are not included. The figure shows clear and stable differences across income groups, but not in the direction one might expect. Landlessness is highest in the richest quintile (around 12 per cent) and lowest in the poorest quintile (around 5 per cent). Hence, landlessness is not generally associated with poverty in Viet Nam. This is of course partly explained by the patterns revealed in Figure 5.1: landlessness is most prevalent in the Southern and Central Lowlands, which are also relatively rich regions. However the positive association between landless and income is present within each region, except the Central Highlands, where there is no clear correlation between income and landlessness (results not shown).

<sup>3</sup> Observed in each year, i.e. there are  $5 \times 2,162 = 10,810$  observations.

Therefore, results are consistent with the findings in Ravallion and van de Walle (2008), who argue that households in Viet Nam typically do not become landless because they are exposed to negative, economic shocks, but rather sell their land in order to take up new opportunities in the growing non-farm economy.

Figure 5.2: Landlessness, by income quintile



Note: N = 2,162 households. Only households that neither own nor operate any agricultural land are defined as 'landless'.

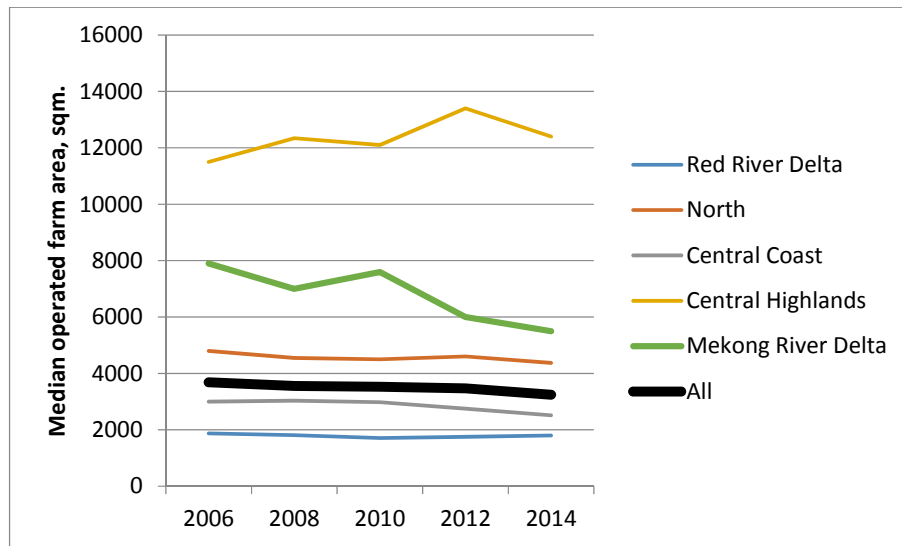
The background for low levels of landlessness and the absent correlation between landlessness and poverty is of course the highly egalitarian land reforms initiated in 1988, which in turn were premised on the collectivization of agriculture after the communist revolution (Ravallion and van de Walle 2004, 2006). Equality of the agricultural land distribution is arguably one of the most important, positive aspects of the Communist legacy in Viet Nam.

### 5.3 Farm size and land fragmentation

An implication of egalitarianism in land distribution, combined with high, rural population density, is that Vietnamese farms are small. In addition, they tend to be divided into many, separate plots, especially in the North

(see Markussen et al. 2013). This section considers developments in farm size and land fragmentation between 2006 and 2014. Figure 5.3 shows median, farm size (defined as operated, agricultural area) by region. Even though the land distribution is equal, compared to most other countries, there are still a few high outliers that affect results on mean landholdings significantly. This is why we present medians rather than means (trends are very similar if means are used, although levels are significantly higher). The figure documents that farms are much bigger in the Central Highlands than in other regions and significantly larger in southern than in northern areas. The latter difference (between North and South) has long historical roots. A part of the background is of course the longer period of communist rule in the North, which meant that agricultural collectivization was much more comprehensive in the North than in the South. This in turn led to a more egalitarian, post-Doi Moi land distribution in the North. In the South, many households simply continued to farm the land they had farmed before the communist takeover. The North–South differences go back even longer than communism, though. Since pre-colonial times, population density was significantly higher in the Red River Delta than in the Mekong River Delta, meaning that landholdings per household were significantly lower in Red River Delta (Gourou 1936; Popkin 1979).

Figure 5.3: Farm size, by region



Note: N = 1,953 households in 2006 (slightly less in later years). Farm size is defined as *operated* rather than owned area (i.e. plots rented in are included and plots rented out are excluded). Only households operating agricultural land are included.

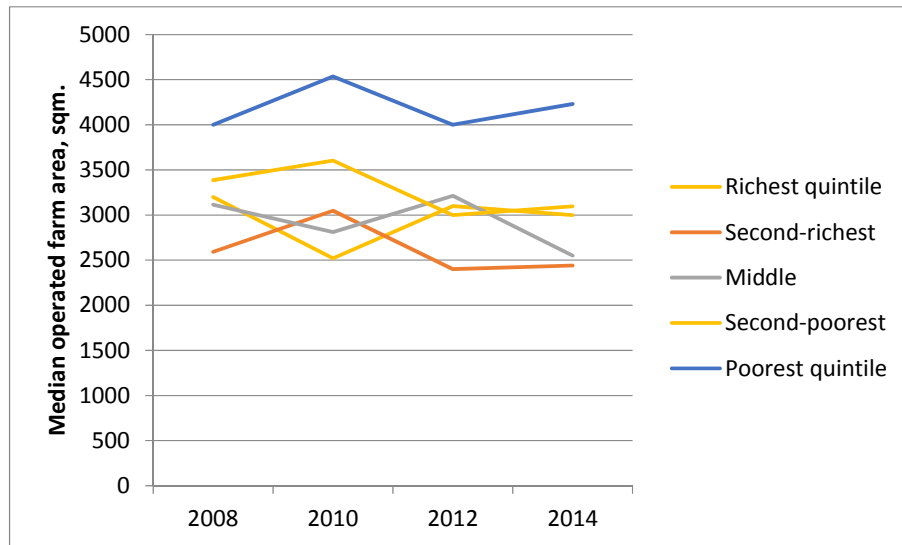
The figure shows a moderate decrease in median farm size over time (from around 3,700 m<sup>2</sup> to around 3,250 m<sup>2</sup> significant at the one per cent level in a median regression).<sup>4</sup> While farms in the VARHS panel are getting smaller in most regions, they are actually growing in the Central Highlands, implying a tendency towards interregional divergence, since farms in the Central Highlands were already higher than in other regions in 2006.

Figure 5.4 shows median farm size by income quintile. The results show that farms are biggest in the poorest quintile. Among the four richest quintiles, there is no strong association between income and farm size. This again shows that there is no straightforward association between poverty and access to land in Viet Nam. It is of course important to remember that the figure does not account for the quality of land. As discussed, land in the highlands is often of lower quality than in the lowlands. The incidence of

<sup>4</sup> The decrease in median farm size is somewhat stronger when the full, representative VARHS sample is used (from 3,700 m<sup>2</sup> in 2006 to 3,050 m<sup>2</sup> in 2014).

poverty is also significantly higher in the mountains than in the plains. Another key factor behind the results, however, is the importance of the rural non-farm economy. Most households have other sources of income than agriculture and non-farm employment is often more remunerative than farming.

Figure 5.4: Farm size, by income quintile

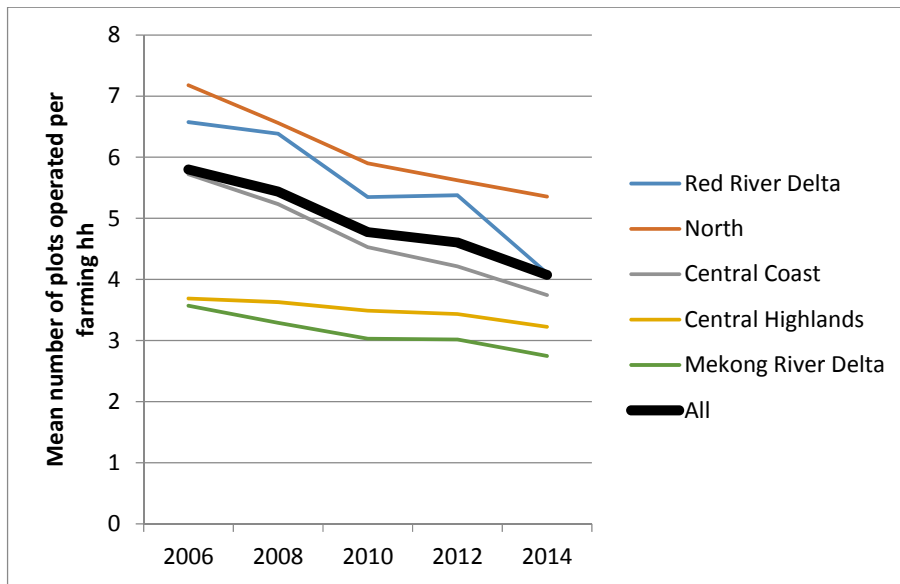


Note: Note: N = 1,876 households in 2008 (slightly deviations from this in later years). Farm size is defined as *operated* rather than owned area (i.e. plots rented in are included and plots rented out are excluded). Only households operating agricultural land are included.

While Figures 5.3 and 5.4 can be said to consider 'inter-farm land fragmentation' (the division of land between many, relatively small farms), Figure 5.5 considers 'intra-farm fragmentation' (the division of each farm into separate plots). The figure shows the average number of agricultural plots operated by farming households. Intra-farm land fragmentation is potentially problematic because it prevents the use of large-scale machinery and uses land resources for boundary demarcation and labour resources for travelling between plots. On the other hand, fragmentation may reduce household exposure to risk, for example because natural hazard such as floods and pests are likely to affect only some plots in a fragmented farm, but potentially hits all land in a consolidated farm. The

Government of Viet Nam has aimed to reduce land fragmentation by implementing land consolidation programmes in many communes, especially northern areas. These programmes aim to consolidate land holdings by facilitating plot exchanges between households. Figure 5.5 suggests that these programmes may have had some effect. The mean number of plots operated has dropped from 5.8 in 2006 to 4.1 in 2014, with the sharpest decrease recorded in the Red River Delta (from 6.6 to 4.0). An alternative interpretation is that because the panel households are getting older, they operate fewer plots (i.e. rent fewer plots in, rent more plots out, and pass more plots on to younger relatives). However, there is also a significant decline in the number of plots *owned* (rather than operated), from 5.7 in 2006 to 4.1 in 2014. The rate of giving plots away (for example as bequests) is stable over time (4.4 per cent of households gave at least one plot away during the two years before the 2006 survey; the equivalent number for the 2014 survey is 4.3 per cent). Hence, the results do suggest that intra-farm land consolidation is taking place. There is certainly no trend in the direction of ever more fragmented farms over the period considered here.

Figure 5.5: Number of plots operated, by region

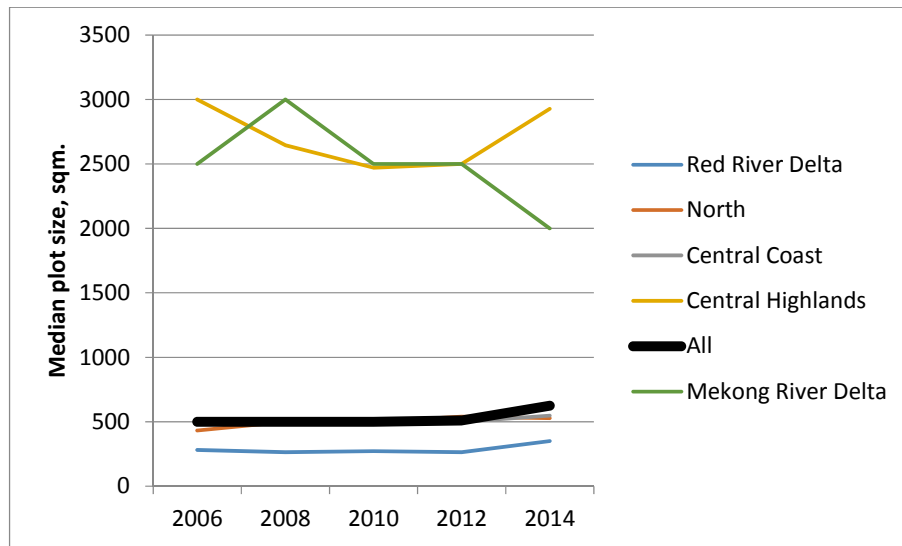


Note: N = 1,953 households in 2006 (slightly less in later years). Only households operating agricultural land are included.

If farms are being consolidated, plots should be getting bigger. Figure 5.6 tests whether this is the case by presenting median plot size by region and over time (again, results on means are quite strongly affected by outliers). The median plot size does indeed increase from 500 m<sup>2</sup> in 2006 to 625 m<sup>2</sup> in 2014 (an increase of 25 per cent, highly statistically significant), driven by increases of 22–24 per cent in the Red River Delta and the North. To be sure, these are moderate changes and plots remain extremely small (the median plot is about 1/16 of a hectare), but the positive trend is nonetheless interesting.



Figure 5.6: Plot size, by region



Note: N = 10,007 plots in 2006 (somewhat less in later years). Only operated plots included.

In sum, while there is little evidence of inter-farm land consolidation (if anything, farms are getting a bit smaller), there is evidence of moderate progress towards intra-farm consolidation.

#### 5.4 Land markets

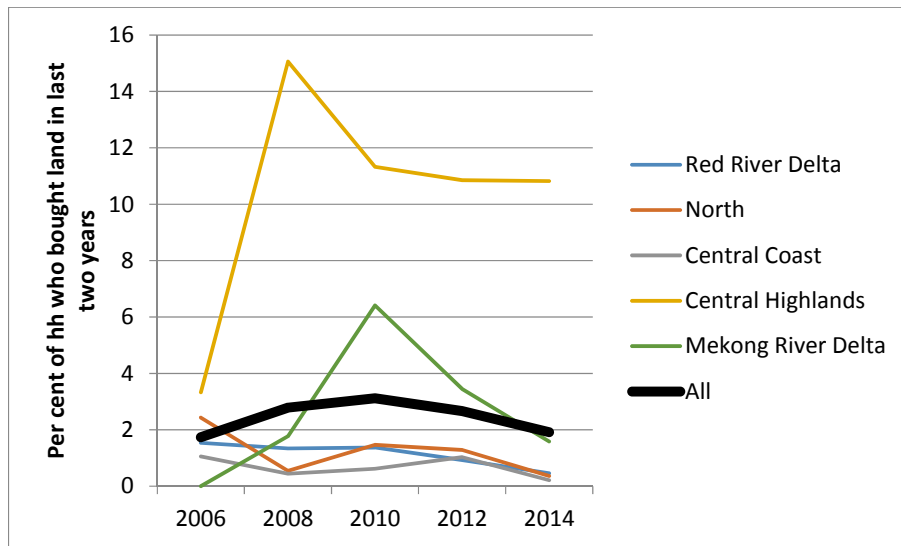
In a dynamic economy such as the Vietnamese, where new economic opportunities constantly arise, it is of high importance that land can be shifted between different users without excessive friction. Therefore, well-functioning land markets are essential. This section considers participation rates in land sales and rental markets.

In contrast with China, agricultural land sales markets are legal in Viet Nam. Legality is not a sufficient condition for activity, however. As documented in Khai et al. (2013), land market sales have played a relatively minor role for land allocation in large parts of Viet Nam, particularly in the North. On aggregate, only about 8 per cent of plots operated by households have been acquired through purchase (63 per cent have been given by the state, 15 per cent were received as

inheritance, and 13 per cent were cleared by households). In the North, only about 2.5 per cent of plots were acquired through the market (compared with 11 per cent in the Southern Lowlands and 46 per cent in the Central Highlands). Part of the reason for low levels of activity in the land market is the relatively high degree of efficiency that characterized the administrative land allocation implemented after 1988 (Ravallion and van de Walle 2004). In addition, however, land sales have until recently been subject to a virtual taboo in large parts of Northern Viet Nam, where land sales markets never existed in the past, even before the rise of communism (Popkin 1979).

Figures 5.7 and 5.8 show the share of households that purchased (Figure 5.7) or sold (Figure 5.8) agricultural land during the two years prior to each survey round, by region. Results document clearly that land sales markets are much more active in the Central Highlands than in any other region. The Central Highlands differ from other regions in the sense that recent decades have seen massive, inward migration and changes in agricultural activities. The massive increase in coffee production is the most important of these changes. Therefore, land allocation is much more dynamic in the Central Highlands than elsewhere, as migrants and other residents attempt to adapt land holdings to changing circumstances. Figures 5.7 and 5.8 also show that participation rates in land sales markets tend to be higher in the Mekong River Delta than in northern and central areas, although activity levels are much lower in the Mekong River Delta than in the Central Highlands.

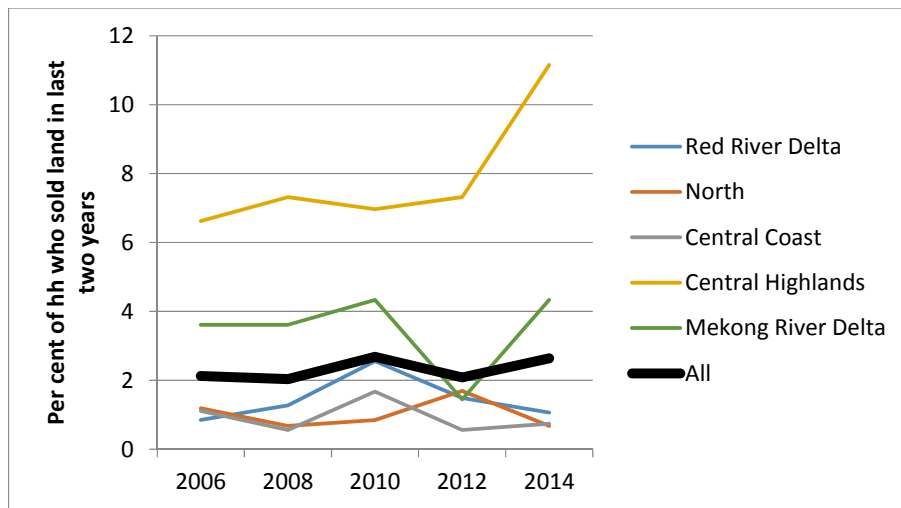
Figure 5.7: Land purchases in the last two years, by region



Note: N = 2,025 households in 2006 (slightly less in later years). Only land-owning households included.

Overall, activity levels are largely stable over time. Sharp increases in activity levels are recorded in the Central Highlands in 2008 (purchases) and 2014 (sales). The reasons behind these specific developments are unclear.

Figure 5.8: Land sales in the last two years, by region

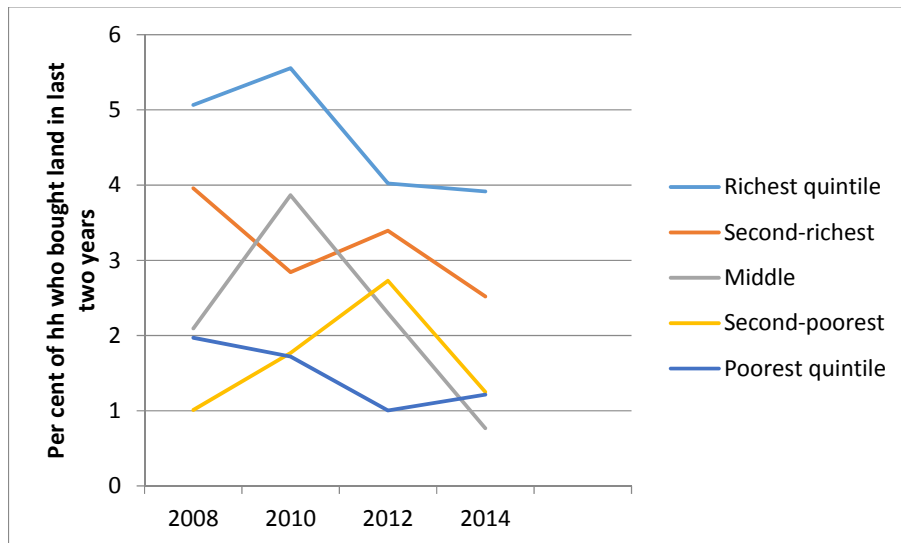


Note: N = 2,162 households.

Figures 5.9 and 5.10 present activity levels in land sales markets by income quintile. Results show clearly that the richest households are most active

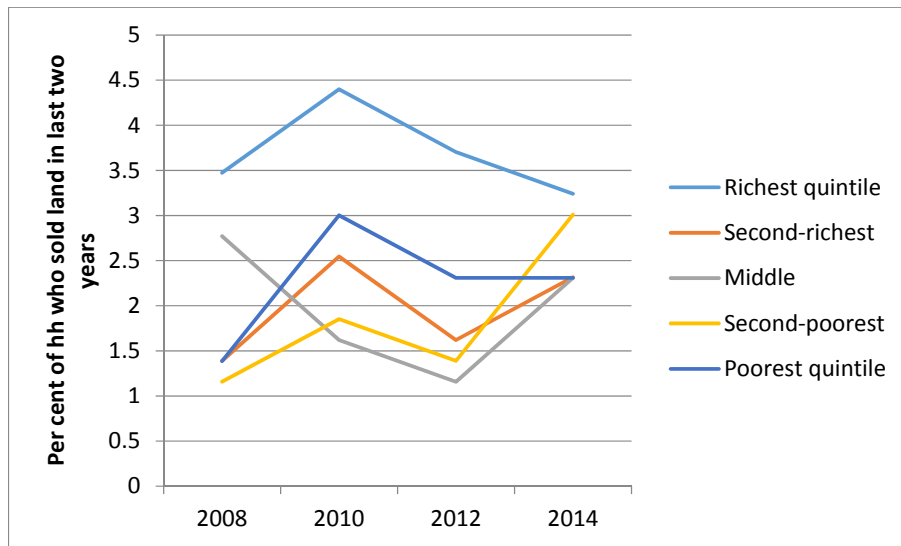
on the supply as well as the demand side of the market. Hence, there is no evidence that land sales markets increase inequality, in the sense of transferring land from the poor to the rich. However, it is a concern that markets mainly serve the better-off part of the population, leaving many poorer households excluded. In terms of land sales, there is a tendency towards convergence between income groups over time, but no such trend is apparent in the case of land purchases. Comparing with Figure 5.1, we note that there is no correlation between increases in land sales activity and increases in landlessness (i.e. the regions where landlessness increased (North and Red River Delta) did not experience an increase in land sales). So, increasing market activity does not necessarily go hand-in-hand with increased landlessness.

Figure 5.9: Land purchases in the last two years, by income quintile



Note: N = 1,938 households in 2008 (slightly more in later years). Only land-owning households included.

Figure 5.10: Land sales in the last two years, by income quintile

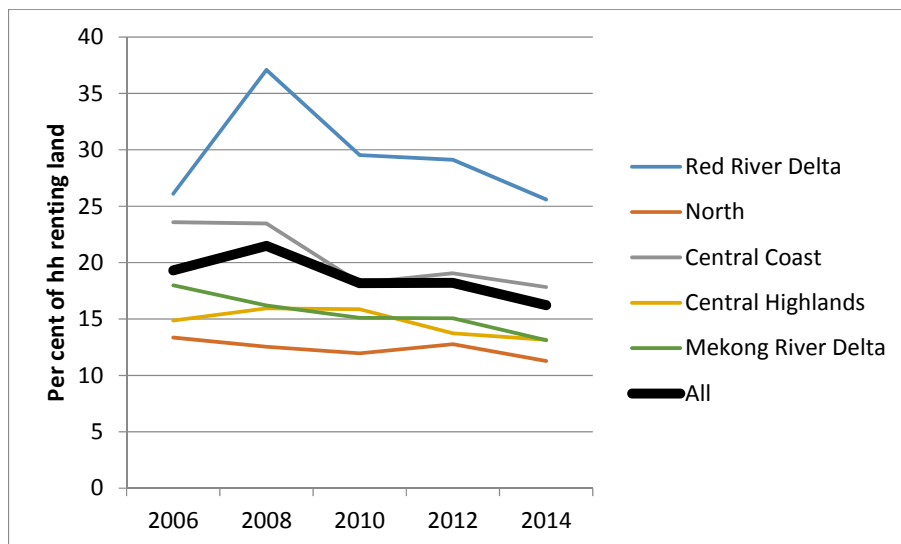


Note: N = 2,162 households.

We now turn to considering the land rental market. Figures 5.11 and 5.12 show, respectively, the share of households renting land in and out, by region. Results show that the regional pattern is quite different for rental- than for sales markets. The most active region is the Red River Delta, followed by the Central Coast. The North is the least active region in the case of renting in, while the Central Highlands are least active in terms of renting in.<sup>5</sup> Hence, in the Red River Delta, low activity of land sales markets are to a large extent compensated for by high activity in rental markets. In the North, however, this is not the case.

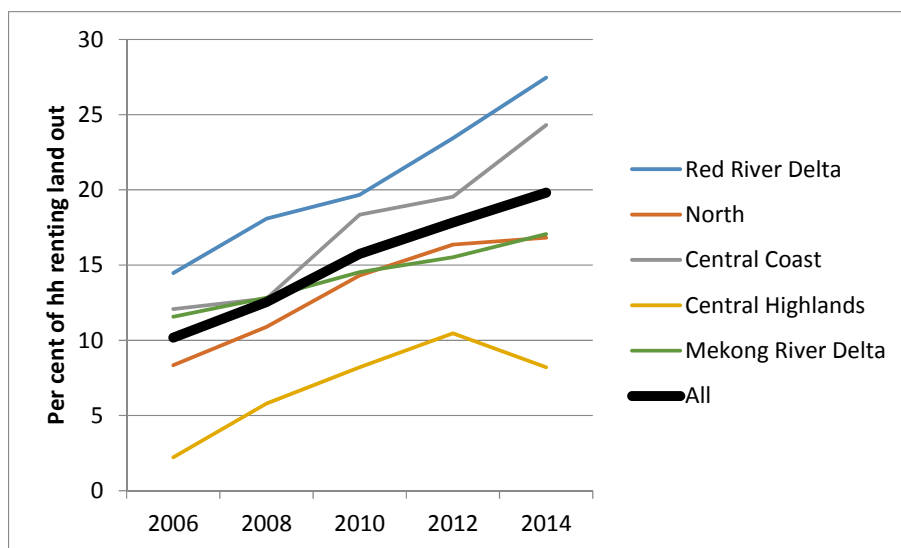
<sup>5</sup> Rates of renting in and out may differ for several reasons. First, the same landlord may rent out to several tenants, and vice-versa. Second, landlords may not be households, but rather commune authorities or corporate entities, which are not captured by the survey.

Figure 5.11: Share of households renting land, by region



Note: N = 1,953 households in 2006 (slightly less in later years). Only households operating agricultural land included.

Figure 5.12: Share of households renting land out, by region

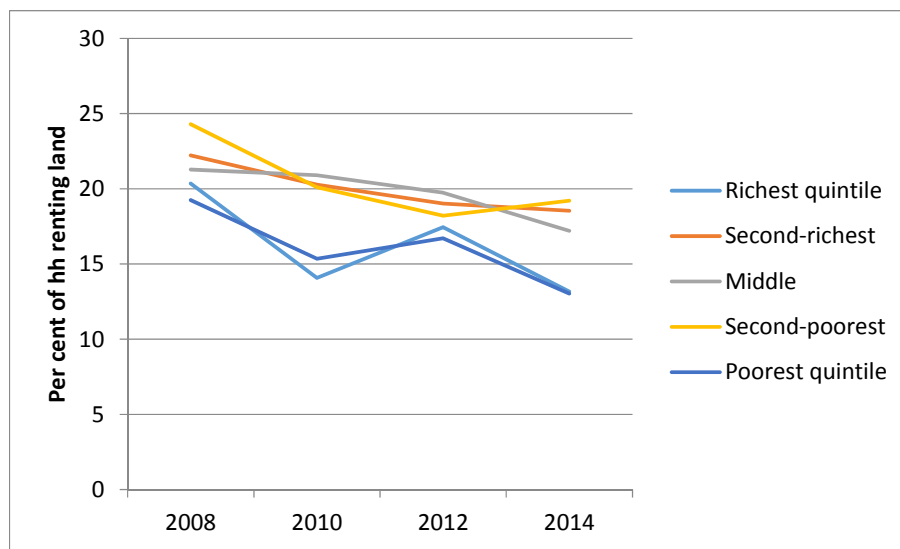


Note: N = 2,015 households in 2006 (slightly less in later years). Only land-owning households included.

There are clear time trends: the share of households renting land in is decreasing, while the share renting land out is increasing. These opposite trends are likely to result from the ageing of panel households. Rental

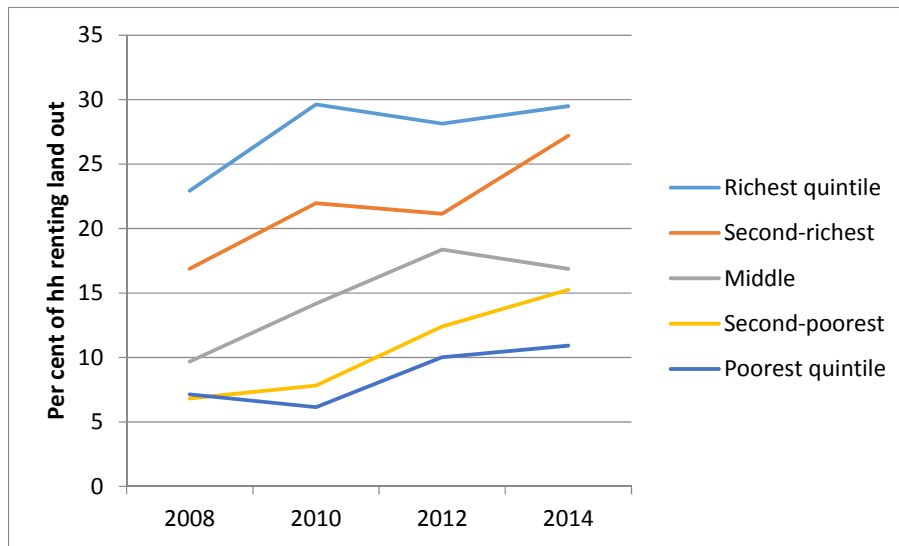
activities are strongly correlated with age of the household head (younger households rent land in, older households rent out). However, the upward trend in renting out (10 percentage points) is markedly stronger than the downward trend in renting in (three percentage points), suggesting that overall activity levels in land rental markets have increased. Indeed, the share of households involved in land rentals on at least one side of the market increased from 28 per cent in 2006 to 34 per cent in 2014 (a highly statistically significant change).

Figure 5.13: Share of households renting land, by income quintile



Note: N = 1,876 households in 2008 (slightly deviations from this in later years). Only households operating agricultural land included.

Figure 5.14: Share of households renting land out, by income quintile



Note: N = 1,938 households in 2008 (slightly more in later years). Only land-owning households included.

Figures 5.13 and 5.14 show rental market participation by income quintile. Results are quite interesting. There is no clear correlation between income and participation rates on the demand side (Figure 5.13). The poorest and the richest quintiles are the two least active groups, with the three middle quintiles all being somewhat more active. On the supply side (Figure 5.14), however, there is a very clear tendency towards higher participation among richer households. This suggests that land rental markets are 'progressive' in the sense of transferring land from rich to poor households. These findings are consistent with the results reported in Deininger and Jin (2008) and in Khai et al. (2013). Differences across income groups are stable over time.

## 5.5 Property rights

As discussed in the introduction, the 1993 Land Law endowed landholders with a rather comprehensive set of land rights. Land continues formally to be owned by the state ('the People', states the law), but land users gained 20 years' use rights for plots designated for annual crops land and 50 years

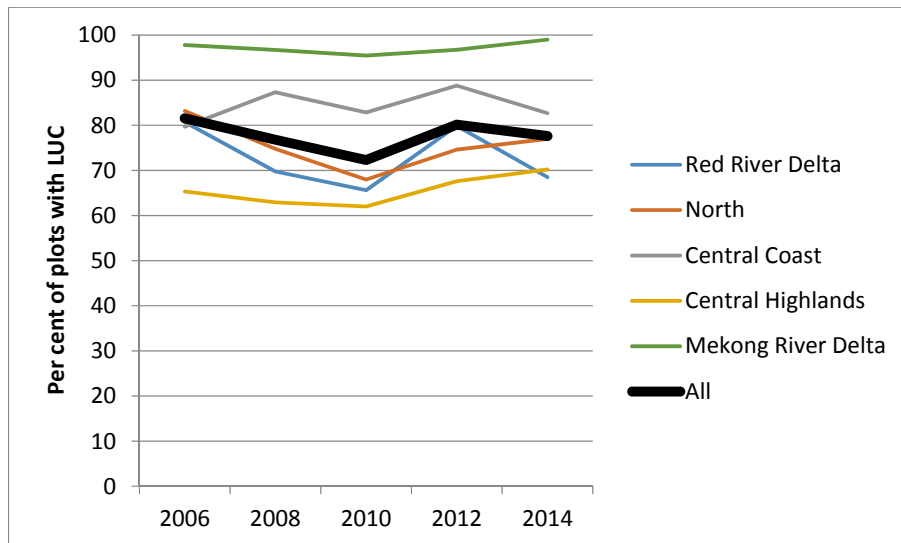


for perennial crops land. These rights were guaranteed through the issuance of Land Use Certificates (LUCs), which also imply the rights to sell, rent, mortgage, exchange, and bequest a plot of land. Land rights have been gradually strengthened and clarified through various revisions of Land Law. The 2013 Land Law (in effect from 2014) extends the duration of use rights to 50 years for all types of land. While formal protection of tenure security and transfer rights is fairly strong, Markussen and Tarp (2014) show that de facto property rights are not complete. The actual risk of losing land against the will of the household is significant in many areas. Also, while transfer rights are extensive, Markussen et al. (2011) show that rights to determine use of the land, e.g. which crops to grow, are in many cases quite limited. This section considers formal property rights (LUCs) as well as de facto tenure security (risk of being expelled) and crop choice restrictions.

Figure 5.15 shows the share of land plots held with a LUC. Only plots owned by households are included, i.e. rented plots are excluded. Purely residential plots are also excluded. Results show that land titling is comprehensive (covering around 80 per cent of plots) but not complete, and that the share of plots titled is approximately stable over the period studied. The pattern of overall stability is the result of different, opposing forces. On the one hand, titling efforts are ongoing, although much less vigorously than in the 1990s (cf. Do and Iyer 2008). On the other hand, plots may cease to be titled if they change hands through sale or inheritance and title documents are not updated. An obvious barrier to registration of land transactions (and thereby titling) is the presence of informal fees in the land administration system. Anderson and Davidsen (2011) show that corruption is perceived to be widespread in the public land administration. Also, plots obtained by clearing the forest are often not titled. Only 42 per cent of plots obtained through forest clearing are titled. Among plots cleared in the last five years, only 13 per cent are held

with a LUC. This probably explains the downward trend in titling in the Northern Uplands, where clearing is most prevalent. There is important, interregional variation in land titling. Titling is most prevalent in the Mekong River Delta, where almost all plots are held with a LUC. Titling is least prevalent in the Central Highlands. There is significant heterogeneity within the North. Titling is very widespread in the Phu Tho, a relatively rich, mostly lowland province. In the remote, highland provinces of Dien Bien and Lai Chau, on the other hand, only 41 and 46 per cent of plots, respectively, are titled.

Figure 5.15: Land Use Certificates, by region

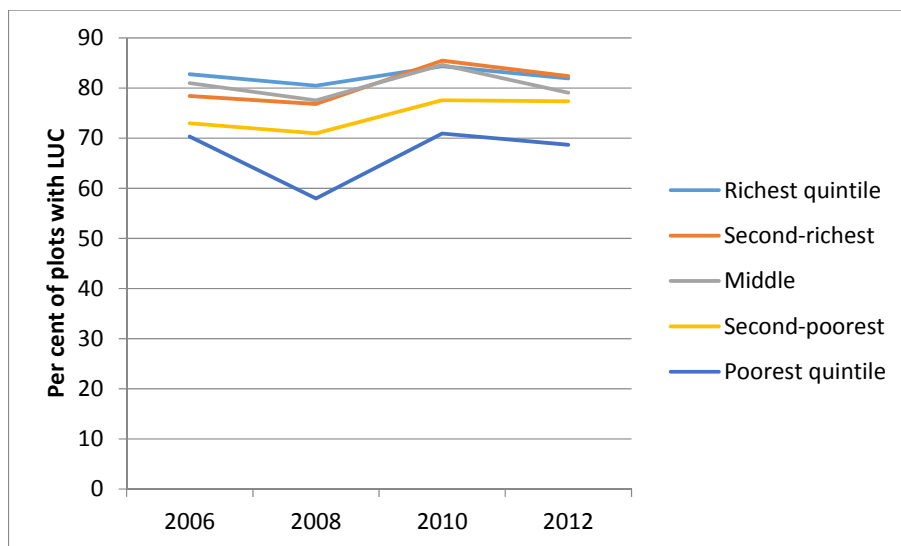


Note: N = 9,910 plots in 2006 (slightly less in later years). Only plots owned by households included (i.e. plots rented in are excluded).

Figure 5.16 shows land titling by income quintile of the plot owner. There is a clear and stable income gradient in land titling, the prevalence of LUCs being significantly lower in the poorest quintiles than in the richest. This is of course partly explained by the interregional pattern described above: LUCs are least common in the Northern Uplands, which is also the poorest region. Whether weak property rights is a causal factor behind low income is not clear from these analyses (although the results presented below suggest that it might be), but it is in any case a cause for concern that the

poorest segments of the population have the weakest, formal protection of property rights.

Figure 5.16: Land Use Certificates, by income quintile

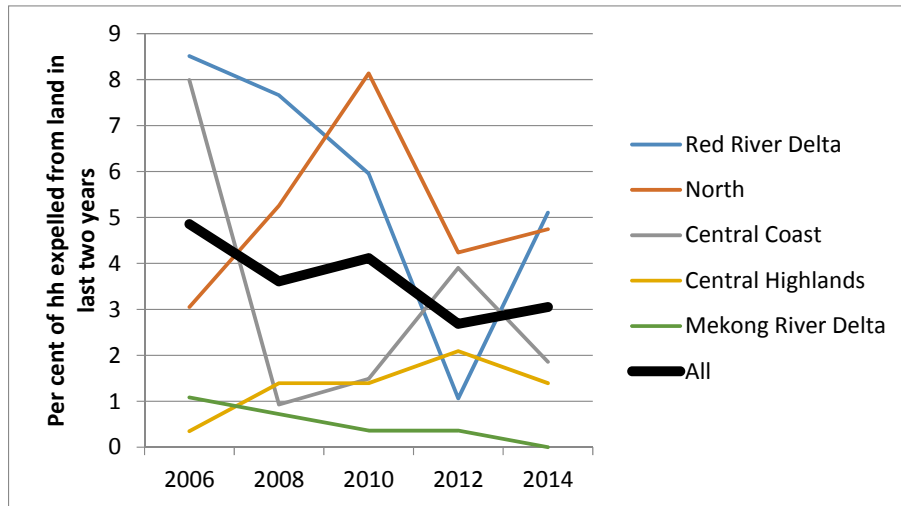


Note: N = 9,422 plots in 2008 (somewhat less in later years). Only plots owned by households included (i.e. plots rented in are excluded).

We now turn to investigating actual, rather than formal, tenure security. Figure 5.17 shows the share of households who lost a plot of land against their will (i.e. were 'expelled') during the two years prior to each survey round. In the vast majority of cases (around 97 per cent), households were expelled by the state, rather than private individuals or corporations. Hence, state land expropriation is by far the most important source of tenure insecurity. The figure shows that the rate of expulsions has dropped from around 5 per cent in 2006 to around 3 per cent in 2014. This is positive, but we note that 3 per cent is not an insignificant level of risk. A household facing a risk of expropriation equal to 3 per cent over a two-year period runs approximately a 26 per cent risk of having a plot expropriated over the next 20 years. This level of risk is likely to be taken into account in, for example, household decisions about land-related investment.

Also, trends in land expropriation are very different across regions. While a drop in expropriations was recorded in the Red River and Mekong River deltas, increases took place in the North and the Central Highlands. Hence tenure insecurity appears to be rising in the poorest regions.

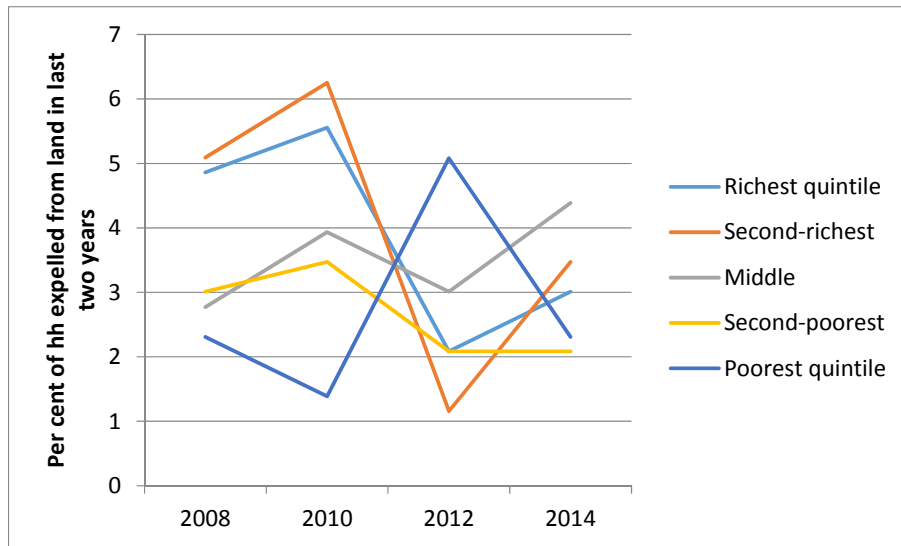
Figure 5.17: The share of households expelled from land in the last two years, by region



Note: N = 2,162 households.

This partly explains the pattern found in Figure 5.18, which shows the prevalence of land expropriation by income quintile. In 2008 and 2010, the richest quintiles were most likely to experience expropriations. This correlation is not present in 2012 and 2014, though, which again suggests that poorer households are becoming relatively more exposed to tenure insecurity.

Figure 5.18: The share of households expelled from land in the last two years, by income quintile



Note: N = 2,162 households.

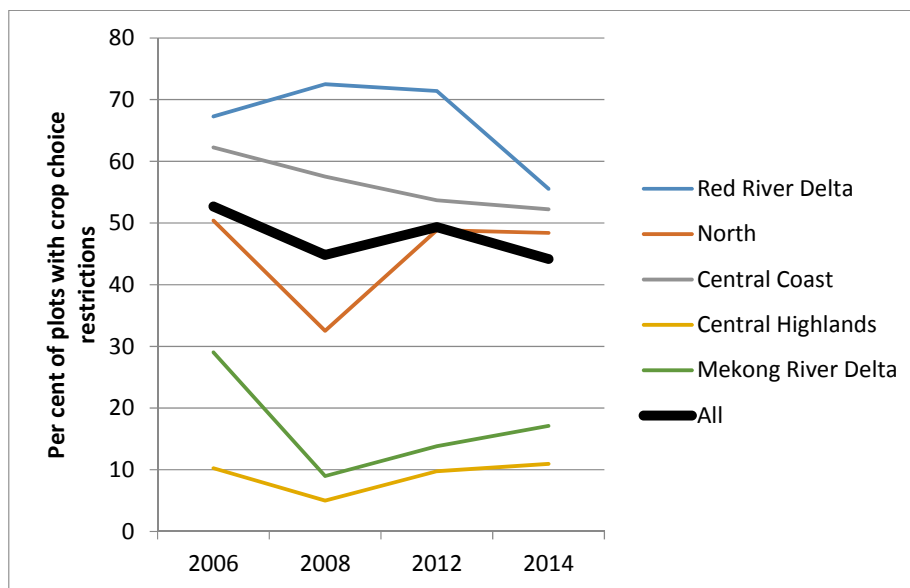
The discussion about property rights has so far focused on tenure security and transfer rights, as is common in the literature on land rights. Another aspect of land rights, which is important in Viet Nam and other communist and post-communist countries, is the right to determine how to *use* the land (cf. Markussen et al. 2011). In particular, Vietnamese Land Use Plans compel a large number of farmers to grow rice on their plots. The main motivation for this policy is food security. Markussen et al. (2011), Kompas et al. (2012) and Giesecke et al. (2013) argue that in the current context of large rice surpluses, the efficiency cost of restrictions may provide a strong rationale for abandoning the strict land use planning regime.

Figure 5.19 shows the prevalence of crop choice restrictions over time.<sup>6</sup> Between 2006 and 2014, the share of plots with restricted crop choice drops from 53 to 44 per cent, but the trend is not monotonous (there were more restrictions in 2012 than in 2008). There are very significant differences

<sup>6</sup> Results for 2010 are not presented due to suspected data errors. The 2010 results show sharply lower prevalence of restrictions (32 per cent) than in 2008 (45 per cent) and 2012 (49 per cent).

across regions. Most strikingly, restrictions are much more prevalent in the Red River Delta (65 per cent) than in the Mekong River Delta (15 per cent), in spite of the fact that both these regions are well suited for rice cultivation.<sup>7</sup> This may reflect the longer history of communism in the North, making production planning a more accepted and customized policy tool in that part of the country. Note that restrictions are also more common in the Northern than in the Central Highlands. In particular, while growth of the coffee sector in the Central Highlands has undoubtedly been a policy goal, this goal has not been pursued through the use of crop choice restrictions.

Figure 5.19: Crop choice restrictions, by region



Note: N = 10,619 plots in 2006 (somewhat less in later years).

<sup>7</sup> It should be noted that each of these regions is represented by only one province (ex-Ha Tay and Long An, respectively). It is possible that the prevalence of restrictions is different in other delta provinces.

## 5.6 Effects of land titles on agricultural investment

The previous section documented that while a large share of plots are held with a land use certificate ('titled'), titling is not complete, and varies significantly across regions. Actual tenure insecurity is not insignificant and rights to determine land use are often restricted. This section analyses the *effects* of variation in land rights. In particular, we investigate whether stronger property rights increase agricultural investment, focusing on two of the most important types of investment in Vietnamese farming, namely irrigation and perennial crops.

A large literature investigates the effects of land property rights on agricultural investment (e.g. Feder and Onchan 1987; Besley 1995; Alston et al. 1996; Braselle et al. 2002; Jacoby et al. 2002; Carter and Olinto 2003; Jacoby and Mansuri 2008; Do and Iyer 2008; Markussen 2008; Hornbeck 2010). These papers generally struggle to deal with an important identification problem, namely the potential effect of unobserved plot characteristics, which affect property rights (e.g. land titling) as well as investment. For example, households may own plots in the plains as well as in the hills. Land measurement, border demarcation, and dispute resolution may be easier in the plains than in the hills, and a systematic titling programme, such as the programme implemented in Viet Nam from 1994 onward, might tend to focus foremost on titling plots in the plains. At the same time, investment may differ systematically between the plains and the hills. For example, it might be more feasible to invest in irrigation in the plains. Of course, one can try to control for the factors that drive property rights and investment, but this endeavour is likely to be only partly successful. For example, we might measure slope of the land and distance from the family home, and this will capture some of the variation between the plains and the hills, but at the same time it cannot be ruled out that a particular plot in the hills is flat and close to the family home, or that a plot in the plains is sloped and far from the home. In addition to using control

variables, one might attempt to solve identification problems through instrumental variables methods, as for example in Besley (1995) and Markussen (2008). As discussed in Markussen (2008), the validity of the instruments used for land property rights (for example, mode of plot acquisition) is in most cases uncertain.

The VARHS data set offers unusual opportunities to deal with these issues because the survey collects panel data not only at the household, but also at the plot level. This allows us to track individual plots and see, for example, whether changes in property rights are associated with changes in investment. Newman et al. (2015) exploit the plot panel to investigate the effects of LUCs on rice yields. They are particularly interested in analysing effects of having both the husband's and the wife's names written into the LUC. They find that LUCs do indeed increase productivity and that this effect is not diminished by having two rather than one name in the LUC. (If husbands and wives have different objectives, shared property rights might have lowered investment and productivity relative to having only one person as the property rights holder. There was no evidence that this was the case.) The present analysis investigates one of the channels through which property rights may affect rice yields, namely investment in irrigation.

Given the prevalence of rice production in Vietnamese agriculture, the importance of irrigation infrastructure is beyond dispute. In 2014, 73 per cent of agricultural plots recorded in VARHS were irrigated (up from 68 per cent in 2006). Investment in irrigation is conducted by the government as well as by individual farmers and includes, for example, investment in reservoirs, canals, wells, dykes, and other water conservation infrastructure. We also consider investment in perennial crops. Since a number of years typically pass between planting and the first harvest of, say, coffee or mangoes, there is an important element of investment in the choice of perennial rather than annual crops. Households with high tenure



security and access to credit are more likely to plant perennial crops than others. Formalized property rights may improve access to credit as well as tenure security because a land title facilitates the process of using land as collateral for loans. In 2014, 18 per cent of plots in VARHS were planted with perennial crops, up from 15 per cent in 2006.

We estimate plot level regressions models of the following type:

$$I_{pt}^k = \beta_1 LUC_{pt} + \beta_2 RESTRIC_{pt} + \beta_3 L_{pt} + \theta_p + \gamma_t + \varepsilon_{pt}$$

where  $I_{pt}^k$  is an indicator for the presence of investment good  $k$  on plot  $p$  in year  $t$ . LUC is an indicator for the plot being held with a land use certificate. This is the main variable of interest. RESTRIC is an indicator for crop choice restrictions. This is mainly included as a control variable. Restrictions may affect investment, for example, because authorities are more likely to invest in irrigation for restricted plots than for other plots. Also, restrictions and titling could be correlated, for example if systematic titling efforts are directed towards restricted plots. This could be the case if titling is viewed as a way to compensate households for being subject to restrictions, or simply because authorities are more aware of the existence of restricted plots (which are covered by official land use plans) than other plots.  $L$  is a measure of household labour resources (the number of working age household members, with 'working age' defined as 15–65 years). A higher labour force makes it more feasible to conduct investment projects and may also increase the likelihood that households seek land titles, given that the title application process requires certain amounts of time and skills.  $\theta_p$  is a plot fixed effect, equivalent to including a dummy variable for each plot in the data set.  $\gamma_t$  is a year fixed effect, which captures general trends in investment, as for example those arising from variation in national and international crop prices.  $\varepsilon_{pt}$  is an error term. We allow errors to be

correlated within communes (the primary sampling unit of VARHS) but not across. Only owned and operated agricultural plots are included. Some plots are recorded with different areas in different years. This may reflect recording errors, or it may reflect real changes, as when a plot is expanded by clearing the forest, or by merging it with another plot. We exclude all plots with recorded changes in area in order to avoid endogeneity problems. For example, if a titled plot is merged with a non-titled plot, the household may report that the initially titled plot is not titled anymore. It may also change its report about the investment status of the plot (e.g. if one of the merged plots has perennial crops while the other does not).

Table 5.1: Property rights and agricultural investment, plot level regressions

	<i>Dependent variable:</i>					
	Plot irrigated	Plot planted with perennial crops	Plot has soil and water conservation infrastructure	Plot irrigated from canals	Plot irrigated from well	Plot irrigated from spring, stream or lake
	(1)	(2)	(3)	(4)	(5)	(6)
LUC	0.064*** (0.018)	0.0003 (0.006)	0.049** (0.019)	0.030* (0.016)	0.006 (0.006)	0.028* (0.015)
Crop choice restricted	0.124*** (0.012)	-0.022*** (0.005)	0.124*** (0.013)	0.139** * (0.016)	-0.003 (0.004)	-0.012 (0.011)
Working age HH members, log	0.040** (0.017)	-0.007 (0.010)	0.012 (0.018)	0.029 (0.019)	-0.003 (0.008)	0.014 (0.016)
Plot fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30,125	29,409	30,001	30,125	30,125	30,125
Level of analysis: Plot. Linear probability models. Standard errors in brackets. Standard errors adjusted for commune level clustering. Only plots with constant area included. *** p<0.01, ** p<0.05, * p<0.1						

Table 5.1 presents results of estimating the model above. All models contain plot as well as year fixed effects. The first two regressions are models for a plot being, respectively, irrigated and planted with perennial

crops. Results show a strong and statistically significant effect of LUCs on irrigation. Plots are more than six percentage points more likely to be irrigated after they are titled than before. In contrast, there is no effect of LUCs on perennial crops, contrary to the findings in Do and Iyer (2008). One somewhat speculative explanation for this negative finding is that perennial crops may function as a *substitute* for land titles. Trees and bushes are a visible and costly type of investment and may in themselves strengthen a household's claim to a plot of land, thus reducing the demand for an LUC (Besley 1995; Braselle et al. 2002). Crop choice restrictions have a positive effect on irrigation and a negative effect on perennial crops. This is not surprising since restrictions typically compel the household to grow rice. Labour resources have a positive effect on investment in irrigation but no effect on perennial crops. The reason for the latter result might be that perennial crops often require less labour (after planting) than annual crops. Hence, the incentive to plant perennial crops might be highest in households with scarce labour resources.

Regressions 3–6 further investigate the effect of LUCs on irrigation. A major concern is the potential importance of government investment in irrigation and the possibility that public irrigation investment might be correlated with titling. The government mainly invests in canal infrastructure that brings water to plots. Households, on the other hand, mainly conduct on-plot investment in wells, dykes, flattening etc. The data set contains an indicator for a plot having 'soil and water conservation infrastructure'. Since this reflects investment on the plot, it is likely to be driven mainly by household activities. Regression 3 shows that plots are five percentage points more likely to have soil and water conservation infrastructure after titling than before (a statistically significant effect). This suggests that the effect of titling is not driven by government investment activities. Regressions 4 to 6 provide further support for this view. These regressions model the presence of irrigation from three different types of sources: a) canals, b)

wells, and c) springs, streams, or lakes. Only the first type of irrigation is likely to be substantially driven by government investment. Indeed, LUCs do have significant, positive effect on irrigation from canals. This may partly reflect government investment. However, LUCs also have a positive, significant effect on irrigation from springs, streams, or lakes. This is much more likely to be driven by household investment in water conservation infrastructure.<sup>8</sup> Overall, the results support the view that stronger land property rights, in the form of land titles, increase agricultural investment by households.

Table 5.2 investigates whether the effect of LUCs on irrigation differs across regions. The table repeats regression (1) in Table 5.1 separately for each of the five regions analysed above. The results are striking. There are no significant effects of LUCs in the deltas and the Central Coast. In the North and the Central Highlands, on the other hand, the effect of land titles is strong and highly, statistically significant. Plots are 9–12 percentage points more likely to be irrigated after titling than before. Within the North, we conducted the analyses separately for Phu Tho and for the highland provinces (Dien Bien, Lai Chau, and Lao Cai). As explained above, Phu Tho is mostly a lowland province with a much higher prevalence of titling than in the other VARHS provinces in this region. Results are in line with those in Table 5.2: there is no effect of titling in Phu Tho and a strong, significant effect in the other three provinces. Compare this with Figure 5.15 and the discussion above, which showed that LUCs are much less prevalent in the highlands than in the lowlands.

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<sup>8</sup> There is a positive but small and insignificant effect of LUCs on irrigation from wells.

Table 5.2: Property rights and agricultural investment, region-specific regressions

	<i>Dependent variable: Plot irrigated</i>				
	Red River Delta	North	Central Coast	Central Highlands	Mekong River Delta
LUC	0.027 (0.024)	0.115*** (0.036)	0.006 (0.036)	0.094*** (0.029)	0.096 (0.068)
Crop choice restricted	0.097*** (0.023)	0.125*** (0.023)	0.176*** (0.023)	0.122** (0.046)	0.002 (0.023)
Working age HH members, log	0.038** (0.017)	-0.017 (0.030)	0.060* (0.036)	0.137** (0.063)	0.140** (0.058)
Plot fixed effects	Yes	Yes	Yes	Yes	Yes
year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	2,392	3,755	2,310	946	780

Level of analysis: Plot. Linear probability models. Standard errors in brackets. Standard errors adjusted for commune level clustering. Only plots with constant area included. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

In other words, *titling matters exactly where it is least common*. This provides a strong case for expanding titling programmes in the uplands. Of course, concerns for equity only make the case stronger: the uplands are poorer than the lowlands, and the result presented here (combined with those in Newman et al. 2015) suggest that titling is a way to increase productivity and therefore household income.

What explains the interregional variation in the effect of LUCs? One might suspect that the absence of a statistically significant effect in the lowlands is due to lack of variation on the dependent variable, i.e. that almost all plots are already irrigated. This is not the case. Even in the lowlands only around 80 per cent of plots are irrigated. A more likely reason is that property rights are more contested in the hills, implying that the protection offered by titles is more important. For example, many plots in the uplands are acquired by clearing forest land, which in many cases is communally owned. Hence, disputes about rightful ownership are not unlikely. In contrast, land clearing is almost entirely absent in the lowlands.

## 5.7 Conclusions

This chapter has investigated a number of topics related to agricultural land. First, we showed that landlessness among the VARHS panel households is low (around eight per cent) and stable. Landlessness is highest in the richest income quintile and lowest in the poorest quintile, supporting the view advanced by Ravallion and van de Walle (2008) that Vietnamese households typically do not become landless as a result of adverse, economic shocks, but rather as part of a strategy aimed at exploiting new opportunities in the non-farm economy. Second, we show that the median farm size is small (around one-third of a hectare—one-fifth of a hectare in the Red River Delta), with a slight decline over time. Hence, there is no evidence of 'inter-farm' land consolidation, i.e. that small farms are being merged into larger ones. On the other hand, we find some evidence that 'intra-farm' consolidation is taking place. The mean number of plots operated dropped from 5.8 in 2006 to 4.1 in 2014, and there was a moderate increase in median plot size. This is consistent with the view that land consolidation programmes are to some extent effective in terms of merging small land plots into larger ones. Plots remain very small, though (the median plot is 625 m<sup>2</sup>, one-sixteenth of a hectare).

Next, we consider land markets. We show that land sales markets are more active in the Central Highlands than in any other region by orders of magnitude. The likely reason is the high level of migration into these areas, combined with the rapid changes in economic circumstances, related for example to the 'coffee boom', in these provinces. The richest households are more active than poorer households on the demand as well as the supply side of the land sales market. Hence, these markets mainly serve the better-off part of the population. Land rental markets are different. On the supply side, the richer households are much more likely to participate than poorer households. On the demand side, there is no such correlation. This implies that land rental markets transfer land from rich to poor

households. The interregional distribution of rental market participation is also very different from the distribution of sales market activity. Rental markets are most active in the Red River Delta and least active in the North and the Central Highlands. While activity levels in land sales markets are approximately constant over time, participation rates in rental markets appear to be increasing. The share of households involved in land rental markets increased from 28 per cent in 2006 to 34 per cent in 2014.

Finally, we investigate property rights to agricultural land. We find that about 80 per cent of plots are held with a LUC (referred to here as a 'title') and that this share is approximately constant over the period of study. There is substantial, interregional variation in land titling. In the Northern Uplands ('North' excluding Phu Tho province), about 45 per cent of plots are not titled, while the corresponding share in the Mekong River Delta is only about 2 per cent. Richer households are significantly more likely to hold titled plots than poorer households.

We find that the risk of government land expropriation has dropped over the period of study but remains substantial (about 3 per cent over a two-year period). There is significant interregional heterogeneity. The risk of being expelled from a plot of land has actually increased in the North and the Central Highlands. We also consider rights to choose what to use a plot for. We find that on 45 per cent of agricultural plots, households are not free to decide which crops to grow. In the vast majority of cases, households are compelled to grow rice. Crop choice is much more likely to be restricted in the Red River Delta than in other regions, including the Mekong River Delta.

We use fixed effects regressions at the plot level to investigate the effects of LUCs on agricultural investment. While we find no evidence that LUCs increase investment in perennial crops, results indicate that LUCs have a substantial, positive effect on private, household investment in irrigation.

Remarkably, this effect is much stronger in the uplands than in the lowlands. This is paradoxical because titling efforts have been disproportionately focused on the lowlands. These findings provide a strong rationale for expanding land titling programs in the Northern uplands and Central Highlands.

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## **Chapter 6 Labour and migration**

Gaia Narciso

### **6.1 Introduction**

According to the 2009 Vietnamese Census, 6.6 million people migrated within Viet Nam over the period 2004–09 (United Nations Viet Nam 2010), an increase of 46 per cent with respect to the number of internal migrants recorded in the 1999 Census. The 2004 Viet Nam Household Living Standard Survey (VHLSS) unveils that almost 89 per cent of households with a migrant receive remittances, which constitute a substantial means by which households can pay daily expenses such as education or health care expenses.

The aim of this chapter is to provide an overview of the characteristics of migrant households and analyse the labour market effects of migration in Viet Nam, on the basis of the VARHS survey conducted in 2012 and 2014. The economics literature has extensively explored the determinants of migration. The seminal paper by Harris and Todaro (1970) modelled the rural to urban migration decision. According to their theory, the main determinant of migration is the expected wage differential between the origin place of residence and the destination. Later contributions to the literature analyse other factors besides wage differentials and introduced income uncertainty and relative deprivation as further determinants of the migration decision (Stark 1991). The new economics of migration modelled the migration decision as a risk-sharing decision, whereby households can

diversify risk by letting a member migrate to another labour market, with the aim of reducing the income risk facing households.<sup>1</sup>

In this chapter, we will discuss differences across migrant households on the basis of reasons for migrating and we will explore the features of migrants and migrant households. We will try to establish whether a positive or negative self-selection of migrants can be identified. In particular, we will focus on the labour market effects of migration. We will investigate the move out of agriculture into more waged employment in urban and rural areas. Next, we will examine the households that receive remittances and how they are used. Finally, we will uncover the role of migration and remittances as shock-coping mechanisms in rural Viet Nam.

This paper is organized as follows. Section 2 provides a policy background on migration directives in Viet Nam and an overview of the literature. Section 3 describes the data, while section 4 compares migrant versus non-migrant households. Section 5 discusses the characteristics of migrants, while remittance behaviour is explored in section 6. Section 7 presents the results of the econometric investigation of the role of migration as a risk-coping mechanism, while section 8 investigates the relationship between migration and access to credit. Section 9 concludes.

## **6.2 Policy background and literature review**

The Doi Moi policy, introduced in Viet Nam in 1986, led to a drastic increase in domestic migration, in response to the rapid economic growth experienced with the opening up of the economy. Moreover, since 1986, Viet Nam has seen an increase in the population leading to a shortage of arable land in the countryside. This has motivated many individuals to move

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<sup>1</sup> See Bauer and Zimmermann (1994) for an extensive review of the literature.

from rural to urban areas, where industrial development offers more employment opportunities.

The socio-economic repercussions of migration have spurred the Vietnamese government to implement a number of national regulations aimed at managing internal migration. Census 2009 figures for 'unplanned' internal migration in Viet Nam reveal that migration between provinces reached 1.3 million individuals, about 2.5 per cent of the total population, in 1989, 2 million or 2.9 per cent of the total population in 1999, and 3.4 million or 4.3 per cent of the total population in 2009. Furthermore, the annual rate of migration within provinces increased from 0.6 per cent in 1999 to 4.2 per cent in 2009. Forecasts predict that migration will continue to rise, reaching 6 million or 6.4 per cent of the total population by 2019.<sup>2</sup>

A few studies have investigated patterns of migration in Viet Nam. Using the VHLSS, Nguyen et al. (2008) explore the determinants of migration in Viet Nam. The authors provide evidence that larger households and households with a higher level of education tend to be associated with higher emigration rates. Moreover, households involved in waged employment are more likely to migrate. A recent work by Nguyen et al. (2015) explores the relationship between shocks and rural-urban migration. The authors provide evidence that migration acts as a risk-coping mechanism. Gröger and Zylberberg (2015) analyse in particular the effect of a typhoon, which hit central Viet Nam in 2009. Internal labour migration could be regarded as being a shock-coping strategy in rural economies when households cannot rely on remittances. Indeed, the analysis predicts that, after a typhoon, family members are more likely to migrate and support their relatives through remittances.

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<sup>2</sup> General Statistics Office of Viet Nam (2011).

At a more macro level, Phan and Coxhead (2010) explore the determinants of inter-provincial migration and the effect of migration on inter-provincial inequality. Using a gravity model, the authors show that migrants move from low-income to high-income provinces. As for the impact of migration on inequality, the evidence suggests that on average migration leads to a reduction in inequality, although the extent of the effect mainly depends on the type of receiving province.

We contribute to the existing literature by providing more recent evidence of the determinants of migration in Viet Nam.

### **6.3 Data**

Our data come from the 2012 and 2014 VARHS survey. The survey was developed in collaboration between the Development Economics Research Group, Department of Economics, University of Copenhagen and the Central Institute of Economic Management, the Institute for Labour Studies and Social Affairs, and the Institute of Policy and Strategy for Agriculture and Rural Development in Hanoi, Viet Nam. The survey provides a detailed picture of the incomes, assets, and access to resources of rural households in 12 provinces. While data have been gathered using this survey instrument since 2006, in 2012, a new module was introduced to capture information on migration.<sup>3</sup>

According to VARHS 2012, about 20 per cent of interviewed households have at least one member who has migrated, of which 48 per cent are working migrants.<sup>4</sup> We do not observe much variation over time, as in 2014 the percentages of migrant households and migrant households with a working migrant are indeed very similar (19.2 per cent and 48 per cent

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<sup>3</sup> See CIEM (2011) and CIEM (2013) for a comprehensive descriptive report of the data gathered in each round of the survey.

<sup>4</sup> We will refer to these households as migrant households.

respectively). About 22 per cent of migrant households have a permanent migrant, while 63 per cent of households have a migrant who is only away temporarily. Two years later, about 15 per cent of migrant households have at least one permanent migrant, while 69 per cent have at least one temporary migrant.

Table 6.1 presents the reasons for migration, distinguishing between temporary and permanent migrants. The majority of temporary migrants are away due to education and work, while the majority of permanent migrants are away either for family reunification or for work reasons. Army service also plays a role with about 4 per cent of migrants away on army duty.

Table 6.1: Reasons for migrating

	All migrants	Temporary migrants	Permanent migrants
<b>2012</b>			
Work/looking for work	45.29%	46.05%	40%
Education	35.60%	46.49%	1.29%
Marriage/family reunification	13.62%	1.1%	52.26%
Army service	3.80%	5.26%	1.94%
<b>2014</b>			
Work/looking for work	45.54%	47.15%	24.76%
Education	36.63%	44.57%	1.90%
Marriage/family reunification	10.72%	2.25%	60%
Army service	4.04%	4.75%	0.95%

Table 6.2 presents the percentage of households with a migrant by province and the percentage of households with a working migrant. According to VARHS 2012, the province which has the highest percentage of 'migrant' households is Nghe An, where about 47 per cent of interviewed households have at least one migrant living away, while about 36 per cent of households have a working migrant. Quang Nam also reports a high



percentage of households with a migrant (27 per cent), although it shows a smaller fraction of households with a working migrant (8.8 per cent). The data from the 2014 survey show some interesting changes in the percentages of migrant households by province. Three provinces in particular, Dak Lak, Dak Nong, and Lam Dong, report high percentages of migrant households, around 28 per cent. With the exception of Nghe An, all provinces show a remarkable increase in the number of households with a working migrant. It appears indeed that migration is continuing to rise at a remarkable speed.

Table 6.2: Province of origin

Province	% of HHs with a migrant	% of HHs with a working migrant	% of HHs with a migrant	% of HHs with a working migrant
	2012		2014	
Ha Tay	18.51	9.52	17.32	9.38
Lao Cai	17.76	9.35	5.61	3.74
Phu Tho	17.52	6.47	20.78	10.65
Lai Chau	7.46	1.49	15.55	5.18
Dien Bien	13.06	7.03	24.41	7.09
Nghe An	46.90	36.28	24.12	16.67
Quang Nam	27.22	8.88	17.45	7.99
Khanh Hoa	20.18	7.34	26.85	17.59
Dak Lak	18.18	7.88	28.39	8.02
Dak Nong	17.19	7.81	28.15	11.85
Lam Dong	20.25	2.53	28.20	8.97
Long An	7.49	3.25	13.51	6.61

Where do migrants move to? Table 6.3 reports the list of the main migrant-receiving provinces. Hanoi and HCM provinces received the highest share of migrants in our sample in 2012, 26.55 per cent and 16.51 per cent respectively, supporting the idea that migrants tend to converge in big urban cities. This pattern is even more remarkable in 2014, as Hanoi and

HCM provinces attract 27 per cent and 20 per cent of migrants in our sample.<sup>5</sup>

Table 6.3: Province of destination

	Obs.	%	Obs.	%
	2012		2014	
Hanoi	193	26.55	176	27.20
TP.HCM	120	16.51	134	20.71
Da Nang	70	9.63	49	7.57
Nghe An	40	5.50	19	2.94
Quang Nam	37	5.09	7	1.08
Binh Duong	24	3.30	14	2.16
Phu Tho	22	3.03	15	2.32
Dien Bien	21	2.89	22	3.40
Dak Lak	19	2.61	26	3.99

The majority of migration occurs across provinces: in 2012 about 62 per cent of the migrant households report that the migrant migrated outside of the province of origin, while 37 per cent of migrants moved within the province. Less than 1 per cent moved internationally. Working migrants are less likely to move within the province of origin and are more likely to either move to another province or to move internationally (see Table 6.4). In 2014, we observe a significant increase in inter-province migration, as 73 per cent of migrants move to another province. International migration has also significantly increased, as 10 per cent of working migrants are reported to have migrated abroad.

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<sup>5</sup> We do not find any evidence that out-migration affects social capital in the commune of origin. Communities with higher out-migration show similar levels of trust and social capital as communes with lower levels of out-migration.

Table 6.4: Inter- and intra-province migration

	All migrants	Working migrants	All migrants	Working migrants
	2012		2014	
Same province	37.55%	34.06%	20.06%	15.30%
Another province	61.90%	65%	73.30%	74.14%
Abroad	0.55%	0.94%	6.64%	10.55%

#### 6.4 Migrant and non-migrant household characteristics

Are migrant households wealthier? In order to address this issue we consider the distribution of migrant and non-migrant households by expenditure quintile. The results are shown in Table 6.5. A smaller percentage of migrant households is in the first food expenditure quintile, therefore indicating that a smaller percentage of migrant households is less wealthy. The difference is particularly striking if we look at working migrant households, where the percentage of households in the first quintile in 2012 is just 10.16 per cent compared to 21.99 per cent of non-migrant households. A much higher percentage is in the last food expenditure quintile for working migrant households, therefore indicating that working migrant households are wealthier. The distribution of migrant and non-migrant households appears to be unchanged in 2014. The aim of Table 6.5 is to present a simple, but informative correlation between household wealth and migration status. However, we cannot infer from these summary statistics whether migrant households are wealthier because they have a migrant away (and potentially receive remittances) or whether they were able to send a migrant away because they are wealthier. Also, working migrants are likely to be wealthier than other migrants, as they are more likely to be educated and therefore better off.

Table 6.5: Distribution of migrant and non-migrant households, by food expenditure quintile

Food expenditure quintile	Distribution of migrant HHs	Distribution of working migrant HHs	Distribution of non-migrant HHs
2012			
1	12.03%	10.16%	21.99%
2	18.23%	17.97%	20.79%
3	20.86%	25.39%	19.46%
4	19.55%	16.02%	20.06%
5	29.32%	30.47%	17.70%
2014			
1	14.42%	10.85%	21.41%
2	15.92%	13.95%	20.95%
3	19.85%	19.77%	20.04%
4	20.60%	21.32%	19.85%
5	29.21%	34.11%	17.75%

Table 6.6 compares migrant versus non-migrant households in terms of a set of demographic features. Non-migrant household heads tend to be older than non-migrant household heads and the difference is statistically significant at the 5 per cent level in 2012 and 2014. Migrant households have a higher net income than non-migrant households and the difference is statistically significant in both years. This finding is indeed consistent with the summary statistics presented in Table 6.5 on food expenditure quintiles. Ethnicity also seems to play a role. A higher percentage of migrant households belong to the Kinh ethnic group, compared to the non-migrant households, suggesting that either they have more opportunities for migration or are more willing to do so.<sup>6</sup> Finally, a larger proportion of migrant households are affected by natural shocks in 2012, but no difference appears to exist in terms of exposure to shocks in 2014.

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<sup>6</sup> According to the findings in Chapter 4, ethnic minorities are more likely to transition out of specialized agriculture, i.e. are more likely to diversify activities. It is interesting to note that such a diversification does not include location mobility.

Table 6.6: Migrant and non-migrant household characteristics

Variable	Migrant HH (1)	Non-migrant HH (2)	Difference (1)-(2)
2012			
Age	41.96	43.66	-1.67**
Net income (000 VND)	2,017	1,778	239**
Kinh	87.74%	77.39%	10.35***
Economic shock	19.14%	18.94%	0.00
Natural shock	38.71%	31.06%	0.08***
2014			
Age	40.69	44.70	-4.00***
Net income (000 VND)	2,366	1,885	481***
Kinh	82.17%	78.77%	0.04*
Economic shock	13.75%	12.99%	0.01
Natural shock	25.58%	22.77%	0.03
*Significant at 10%, **Significant at 5%, ***Significant at 1%.			

Given the different reasons for migrating, Table 6.7 presents the characteristics of working migrant households with respect to non-working migrant households. Working migrant household heads are older than non-working migrant household heads and the difference is statistically significant in 2012 and 2014. There is no difference in terms of net household income in either year, while Kinh households are more likely to have a working migrant, although this difference is statistically significant in 2014 only. Regarding exposure to shocks, we do not find much difference between working migrant and non-working migrant households in either year, apart from the percentage of households affected by a natural shock in 2012. We will explore this aspect in the regression analysis in section 6.7.

Table 6.7: Working migrant and non-working migrant household characteristics

Variable	Working migrant HH(1)	Other migrant HH(2)	Difference(1)-(2)
2012			
Age of the HH head	43.41	40.70	2.70*
Net income (000 VND)	2,137	1,914	-5,598
Kinh	90.28%	85.54%	0.05
Economic shock	16.20%	21.69%	-0.05
Natural shock	43.06%	34.94%	0.08*
2014			
Age of the HH head	42.50	38.96	3.53***
Net income (000 VND)	2688	2058	629***
Kinh	86.50%	78.03%	0.08**
Economic shock	13.09%	14.39%	-0.01
Natural shock	25.00%	26.13%	-0.01
* Significant at 10%, ** Significant at 5%, *** Significant at 1%.			

## 6.5 Migrant characteristics

Table 6.8 presents the characteristics of migrants by comparing working migrants with non-working migrants. A slight majority of migrants are men, although the percentage is higher for working migrants in both years. About 30 per cent of migrants are married, while this percentage slightly increases for working migrants. Working migrants tend to leave the commune later than other types of migrants, which might be related to the fact that they are more likely to receive their education before migrating compared to households who migrate to attend school. Indeed a lower percentage of working migrants have no diploma. There is no difference in the length of the migration experience between the two groups. On average, migrants have been away for two years. There does not seem to be any statistically significant difference between working and non-working migrants in terms of the intention of the length of stay in 2012, although this difference becomes statistically significant in 2014: it appears that working migrants are more likely to return to their home community. This result is not

unexpected, given that migrants who moved for family reasons are less likely to return to their home communities.

Table 6.8: Working migrant and non-working migrant characteristics

Migrants characteristics Variable	All migrants		Working migrants		t-test of difference
	Mean	S.D.	Mean	S.D.	
2012					
Male	51.05%	0.50	58.96%	0.49	***
Married	30.50%	0.46	36.70%	0.48	***
Age at migration	22.45	8.06	25.39	9.14	***
No diploma	62.43%	48.46	40.46%	0.49	***
Years since the migrant left	2.14	1.95	2.05	2.01	
Permanent	25.37%	0.43	22.79%	0.42	
2014					
Male	52.78%	0.50	57.29%	0.49	***
Married	27.99%	0.45	32.22%	0.47	***
Age at migration	22.62%	8.16	24.50	8.86	***
No diploma	63.65%	0.48	47.83%	0.50	***
Years since the migrant left	2.07	1.90	2.13	2.13	
Permanent	19.19%	0.39	13.78	0.34	***
*Significant at 10%, **Significant at 5%, ***Significant at 1%					

What do migrants do? In the light of labour market movements, it is crucial to understand what migrants' occupations are, during their migration experience. Table 6.9 presents the percentage of working migrants by occupation. The majority of migrants are employed in manual jobs and they work either as unskilled workers or as skilled workers. A significant percentage are employed in top or mid-level occupations.

Table 6.9: Migrant occupation

	2012	2014
Army	3.96%	1.74%
Leaders in all fields and levels	7.25%	2.48%
Top-level occupations in all fields	7.25%	9.93%
Mid-level occupations in all fields	5.71%	20.60%
Staff (elementary occupations, white-collar technical personnel)	9.45%	4.96%
Skilled workers in personal services, security protection, and sales	2.86%	5.96%
Skilled workers in agriculture, forestry, and aquaculture	1.54%	0.25%
Skilled handicraftsmen and other relating skilled manual workers	19.78%	17.87%
Assemblers and machine operators	7.69%	8.93%
Unskilled workers	33.41%	26.55%
Communal officials who are not public servants	0.88%	0.74%

Given the level of inter-province migration, it is also interesting to explore how migrants manage to find their job at the destination. The literature on migration networks explores the role of family and friends in providing information about job opportunities to potential or recent migrants. Interestingly, in the case of Viet Nam, the role of migration networks in providing support to migrants seems more limited. Table 6.10 presents the evidence. About one-third of migrants in the sample found a job through their migration network, i.e. family and friends. However, the majority finds an occupation in the location of destination either through an employment service or, more generally, through self-seeking. This is a rather interesting pattern, which suggests that migrants may have migrated to a specific destination without the support of an existing migration network.



Table 6.10: Role of migration networks

How did the migrant get the job?		
	2012	2014
Self-seeking	57.45%	51.77%
Relative/friend	30.50%	34.09
Employment service	4.96	5.81%
Other	7.09%	8.34%

## 6.6 Remittance behaviour

Migrants may send remittances for altruistic motives, a sense of social responsibility; as a risk-sharing mechanism, to smooth consumption in the face of external shocks; or as a combination of these reasons (Maimbo and Ratha 2005). While our data do not allow us to uncover the motives for sending remittances, we can explore the characteristics of those that receive remittances compared with those that do not and analyse the reasons for sending as reported by the receiving households. We observe a remarkable increase in the percentage of households receiving remittances: only 26 per cent of migrant households in our sample received remittances in 2012, while the percentage rose to 45 per cent in 2014. Remittance recipient households differ on many aspects with respect to migrant households that do not receive remittances. Table 6.11 shows that remittance recipient households have smaller household size and an older household head, although the latter difference takes the opposite sign in 2014. We find no difference in net household income between the groups in 2014, although in 2012 remittance recipient households appear to have a slightly higher income. We find no statistically significant difference in terms of ethnicity in either year. Remittance recipient households are more likely than non-remittance recipient households to be affected by a natural shock in 2012, while the difference disappears in 2014. We will explore the relationship between remittances and shocks more in section 6.7.

Table 6.11: Remittance recipient and non-remittance recipient household characteristics

Variable	Remittance recipient HH (1)	Non-remittance recipient HH (2)	Difference (1)-(2)
2012			
Age of the HH head	46.63	40.34	6.29***
HH size	3.61	4.29	0.68***
Net income (000 VND)	2,345	1,903	442**
Kinh	91.67%	86.38%	0.05
Economic shock	14.17%	20.87%	-0.07*
Natural shock	50.00%	34.78%	0.15***
2014			
Age of the HH head	38.17	42.70	-4.52***
HH size	4.59	4.18	0.41***
Net income (000 VND)	2,375	2,345	18
Kinh	83.40%	81.18%	0.02
Economic shock	13.97%	13.59%	0.00
Natural shock	26.64%	24.74%	0.02

\* Significant at 10%, \*\* Significant at 5%, \*\*\* Significant at 1%.

A recent strand of the migration literature has focused on the ability of migrants to control how remittances are used. The issue is relevant given the asymmetric information which characterizes the relationship between migrants and their family of origin. Batista and Narciso (2013), McKenzie et al. (2013), Elsner et al. (2015) and Ashraf et al. (forthcoming), show that spatial distance and lack of monitoring harms the quality of information flows between migrants and their family and friends in the commune of origin. Table 6.12 compares how remittances are used by the household, with respect to the migrant's purpose for sending remittances.

According to column 1, remittances are mainly spent for daily expenses, i.e. daily consumption and bills. The second category is savings, followed by expenses for special occasions and medical and education expenses. There is no statistically significant difference between the way households spend the remittances and the migrants' purpose of sending remittances.

This finding differs with respect to previous results found in the literature, but it is likely to be driven by the fact that the remittance recipients have a biased view of what the migrant’s purpose for sending remittances is and might simply respond to the question in a way that validates the way they spend the remittances.

Table 6.12: Remittance use

	How household spends remittances	Migrant’s purpose for sending remittances
2012		
Daily meals and bills	44.57%	46.86%
Medical expenses	6.86%	5.14%
Educational expenses	5.14%	5.71%
Savings	14.29%	14.86%
Special occasion	6.86%	6.86%
House	9.14%	7.43%
2014		
Daily meals and bills	56.72%	55.72%
Medical expenses	6.47%	7.46%
Educational expenses	5.47%	5.47%
Savings	11.44%	13.43%
Special occasion	1.49%	1.49%
House	2.99%	2.49%

There is some evidence that migrants receive transfers from the household of origin as well. About a third of all migrants in our sample receive transfers, a result which is mainly driven by the large number of migrants who moved for education motives. However, it is interesting to note that also a percentage of working migrants receive transfers (7 per cent in 2012, 14 per cent in 2014), therefore highlighting the potential vulnerability working migrants face—an issue which needs further investigation in future research.

## 6.7 How does migration impact on the welfare of sending households?

How does migration impact on the welfare of sending households? To explore this question we create a household panel which tracks migrant and non-migrant households in 2012 and 2014. We consider the extent to which migration serves as a risk-coping mechanism and estimate the following model:

$$\Delta FoodExp\_pc_{ht} = \beta_1 migrant_{ht} + \beta_2 shock_{ht} + \mathbf{X}_{ht}'\boldsymbol{\gamma} + \alpha_h + \tau_t + \varepsilon_{ht}$$

where  $\Delta FoodExp\_pc_{ht}$  is the change in household food expenditure per capita, for household  $h$  at time  $t$ ; the variable  $migrant_{ht}$  takes the value 1 if household  $h$  is a migrant household at time  $t$  and 0 otherwise. The indicator variable  $shock_{ht}$  measures whether the household experienced a shock (either economic or natural shock), while  $\mathbf{X}_{ht}$  is a vector of household characteristics, such as ethnicity, an indicator variable for remittance recipient households, age of the household head, and whether the household head is a woman. We also include household fixed effects ( $\alpha_h$ ) and time fixed effects ( $\tau_t$ ). Table 6.13 presents the results of this simple exercise.

As expected, economic and natural shocks have a negative impact on the change in food expenditure, although the estimated coefficient is not statistically significant (column 1). Migrant households show higher food expenditure per capita and the relationship is statistically significant at the 1 per cent level. The next column adds the dummy variable 'remittance recipient household', which takes the value 1 if the household receives remittances and 0 otherwise. We find no statistically significant difference between remittance-receiving households and other households. In column 3, we interact the shock dummy variable with the indicator variable of being

a migrant household. We find that migrant households are not affected by shocks in a different way to non-migrant households. Of course the reason for migrating is very relevant, therefore in the next column we distinguish between working migrants and migrants who left the household for other reasons.<sup>7</sup> Column 4 shows that having a working migrant outside the household has a positive and statistically significant impact on the change in per capita food expenditure, both for working migrant households and other migrant households, relative to non-migrant households. The results hold also when we control for other household characteristics, such as age of the household head, ethnicity, and whether the household head is a woman (column 5). Finally, in column 6, we interact the shock dummy variable with the indicator variable of having a migrant, distinguishing between working migrants and other migrants. We find that the coefficient of the interaction term is not statistically significant, while the relation between other migrant households and the change in per capita food expenditure is still positive and statistically significant.

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<sup>7</sup> Namely, education, family reunification, military service, and other reasons.

Table 6.13: Migration and food expenditure

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Change in per capita food expenditure					
Shock	6.05 [16.689]	5.21 [16.748]	-1.43 [18.098]	5.19 [16.778]	4.87 [16.847]	-1.39 [18.105]
Migrant	85.04*** [20.588]	69.02*** [24.914]	55.58* [30.047]			
Migrant*Shock			25.93 [38.909]			
Remittance recipient HH		43.87 [34.316]	44.61 [34.196]	43.75 [34.351]	43.97 [34.340]	43.32 [34.388]
Kinh			-3.26 [189.619]		-2.05 [188.904]	-5.55 [189.244]
Age of HH			1.12		1.12	1.12
Head			[0.764]		[0.771]	[0.767]
Female HH			56.54		56.29	56.59
Head			[57.435]		[57.440]	[57.478]
Working Migrant				70.45** [32.168]	67.76** [32.273]	51.58 [41.456]
Other migrant				67.83** [29.311]	65.97** [29.395]	59.74* [35.414]
Working migrant*shock						39.31 [53.626]
Other migrant*shock						14.97 [49.381]
Observations	4739	4739	4738	4739	4738	4738
Number of HH	2715	2715	2714	2715	2714	2714
Adjusted R-squared	0.024	0.025	0.025	0.025	0.025	0.025

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Table 6.14 explores to a greater extent the role of remittances in acting as a coping mechanism in the event of negative shocks. We interact the dummy variable capturing remittance recipient household with the shock dummy variable. As expected, per capita food expenditure is correlated in a negative way by economic and natural shocks, although the coefficient is not statistically significant. Being a remittance recipient households is not correlated with food expenditure. Interestingly, the estimated coefficient

on the interaction term between remittances and shock is positive and statistically significant at the 5 per cent level, thus providing evidence that remittances act as a shock-coping mechanism. Similar results hold when we control for household characteristics (column 2).

Table 6.14: Remittances and food expenditure

VARIABLES	(1) Change in per capita food expenditure	(2)
Shock	-4.48 [17.458]	-4.88 [17.515]
Migrant	67.00*** [24.961]	64.89*** [25.072]
Remittance recipient HH	-1.68 [44.006]	-1.85 [43.956]
Remittance recipient HH*shock	113.01** [55.226]	113.41** [55.084]
Kinh		-16.06 [191.617]
Age of HH head		1.11 [0.770]
Female HH head		57.57 [57.157]
Observations	4739	4738
Number of HH	2715	2714
Adjusted R-squared	0.027	0.027

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

The variable shock captures both economic and natural shocks. Given the potential endogeneity between economic shocks and household behaviour, we repeat the previous analysis and focus on natural shocks only.

Table 6.15 analyses the impact of migration and natural shocks on the change in food expenditure. Again, migration is associated with a positive and statistically significant increase in food expenditure, while the estimated coefficient on natural shocks is negative but it is not statistically

significant. These findings hold also when we control for household characteristics (column 2). Next, we interact the migrant household dummy variable with the natural shock indicator. Migration seems to act as a natural shock-coping mechanism as migrant households are able to offset the impact of the natural shock on the change in per capita food expenditure. In columns 4 to 6 we distinguish between the reasons for migrating. Working migrants are positively associated with a change in food expenditure and so are other types of migrants. A word of caution is needed here. Wealthier households are more likely to send their children to study away from home (other migrant). This could explain the positive and statistically significant coefficient on the other migrant variable. On the other hand, having a working migrant might signal that the household is less wealthy and therefore had to send a member to work somewhere else. Interestingly, having a working migrant offsets the impact of negative shocks on the change in food expenditure (column 6).



Table 6.15: Migration and natural shocks

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Change in per capita food expenditure					
Natural shock	-22.64 [18.163]	-22.97 [18.123]	-42.58** [19.444]	-22.65 [18.171]	-22.98 [18.131]	-41.90** [19.418]
Migrant	68.73*** [24.890]	66.50*** [25.016]	41.03 [29.727]			
Migrant*natural shock			75.95* [39.210]			
Remittance recipient HH	46.37 [34.408]	46.52 [34.412]	46.52 [34.303]	46.23 [34.441]	46.41 [34.445]	42.34 [34.606]
Kinh		-5.63 [188.097]	-1.01 [190.473]		-5.69 [188.215]	-2.21 [189.901]
Age of HH head		1.13 [0.790]	1.16 [0.784]		1.13 [0.789]	1.14 [0.793]
Female HH head		56.99 [57.315]	57.02 [57.186]		56.98 [57.326]	56.55 [57.175]
Working migrant				70.41** [32.122]	67.72** [32.224]	29.30 [39.129]
Other migrant				67.33** [29.303]	65.48** [29.399]	54.35 [36.011]
Working migrant*economic shock						119.89** [53.082]
Other migrant*economic shock						37.00 [50.871]
Observations	4739	4738	4738	4739	4738	4738
Number of HH	2715	2714	2714	2715	2714	2714
Adjusted R-squared	0.025	0.026	0.028	0.025	0.026	0.028

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Finally, Table 6.16 presents the evidence related to the relationship between remittances and the type of shock. We find that remittances act as a coping mechanism in the face of economic or natural shocks, as remittance recipient households manage to counterbalance the negative effect of natural shock on food expenditure.

Table 6.16: Remittances and type of shock

	(1)	(2)
	Change in per capita food expenditure	
Natural shock	-31.16*	-31.68*
	[18.813]	[18.775]
Migrant	67.38***	65.17***
	[24.945]	[25.067]
Remittance recipient HH	14.88	14.25
	[41.572]	[41.500]
Kinh		-15.76
		[189.749]
Age of HH head		1.15
		[0.792]
Female HH head		58.50
		[57.138]
Remittance recipient HH	93.81*	95.73*
*natural shock	[55.286]	[55.152]
Observations	4739	4738
Number of HH	2711	2710
Adjusted R-squared	0.054	0.054

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

## 6.8 Migration and access to credit

How does migration affect the financial behaviour of households? The evidence reported in Table 6.17 shows that households with a working migrant and other migrant households show no statistically significant relationship with the change in total amount borrowed. Interestingly, remittance recipient households experience an increase in the total amount borrowed, a result which can be interpreted as showing that remittances increase collateral and ease access to credit. Column 2 presents the results related to the interaction between the type of migrant household and

natural shocks. We do not find a statistically significant relationship between this interaction and the change in total amount borrowed.

The next column explores the impact of remittances in the presence of natural shocks. Being a working migrant household eases access to credit in the case of a negative natural shock, therefore supporting the view that working migrant households face natural shocks by resorting to more borrowing. On the other hand, remittance recipient households reduce the amount borrowed in the case of a negative natural shock. We may conclude that, on the one hand, having a working migrant eases access to credit in the case of a natural shock; on the other, remittances counteract the negative impact of a natural shock by reducing the amount borrowed by the household.

Table 6.17: Migration, remittances, and borrowing behaviour

VARIABLES	(1)	(2)	(3)
	Change in total amount borrowed		
Natural shock	1,879.04 [1,950.738]	1,023.97 [2,054.101]	1,008.40 [2,052.619]
Working migrant	-1,663.62 [3,116.848]	-4,352.46 [4,077.264]	-6,247.71 [4,229.039]
Other migrant	-240.29 [3,162.492]	203.43 [3,990.438]	-2,344.27 [4,109.934]
Working migrant*nat. shock		8,438.58 [6,384.379]	16,582.28** [7,090.551]
Other migrant*nat. shock		-757.88 [5,187.580]	6,595.55 [5,829.505]
Remittance recipient HH	10,624.35*** [3,481.131]	10,120.28*** [3,513.153]	17,483.77*** [4,782.449]
Remittance recipient HH *natural shock			-21,336.69*** [7,417.379]
Kinh	12,844.70 [11,324.693]	12,956.21 [11,426.000]	16,167.97 [11,324.048]
Age of HH head	-40.44 [49.572]	-41.14 [49.784]	-43.90 [49.713]
Female HH head	-3,932.56 [3,671.569]	-3,986.55 [3,673.432]	-4,357.86 [3,617.205]
Observations	4569	4569	4569
Number of HH	2653	2653	2653
Adjusted R-squared	0.010	0.011	0.015

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

## 6.9 Conclusions

This paper provides an overview of the characteristics of migrant households and analyses the effects of migration in Viet Nam, on the basis of the VARHS survey conducted in 2012 and 2014. The data reveal significant movements of household members, both intra-province and inter-province, with about 20 per cent of the interviewed households having at least one member who has migrated. The two main reasons for migrating

are education and work related motives. Significant differences are uncovered between migrant and non-migrant households, as migrant households are wealthier than non-migrant households, as measured by food expenditure quintiles. The econometric analysis shows that remittances and migration act as shock-coping mechanisms, especially in the presence of natural shocks. Migrant households are also more likely to have better access to the market for credit. In particular, remittance recipient households seem to react better to natural shocks, as the remittances flows counterbalance for the need for formal borrowing.

Given the large and increasing migration movements within Viet Nam, it has become crucial to understand the role of remittances as a means of poverty reduction and as a risk-coping mechanism and also the features of migrant households, especially in the face of shocks affecting households' welfare. This chapter makes a significant first step in understanding these issues for the 12 provinces included in the VARHS dataset. The results suggest that migration has the potential to act as a safety valve for vulnerable households in rural communities. Better-off households are more likely to migrate, however, which suggests that there are constraints to migration for less well-off households. Our findings suggest that constraints to voluntary migration should be removed, particularly for poorer households where members may have the desire to leave their home community to find work but may not have the resources to do so. Moreover, there may be a role for government or other agencies in developing formal banking mechanisms to facilitate the remittance of funds back to sending households. On a final note, we would like to emphasize that the VARHS data focus on the characteristics of the sending households and not the migrants themselves. More data and research are needed on the vulnerability and welfare of the migrants who move to find work. This is beyond the scope of these data and this study.

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## **Chapter 7 Technology and innovation**

Heidi Kaila

### **7.1 Introduction**

In this chapter, technology is studied in broad terms: we will devote a large part of the chapter to the rapid expansion of information technology, but also shed light on the development of agricultural machinery over the period 2006–14.

The focus of this chapter will be on information technology: telephones, televisions, computers, and the internet. We study which household characteristics determine adoption patterns and also investigate the adoption of these technologies over time and across regions.

Since agriculture is the single most important source of income to the households studied, we also devote a smaller part of the chapter to discussing agricultural technologies i.e. machinery—agriculture is then studied more broadly in chapter 3. Overall, we observe very small changes over time in agricultural machinery.

Alongside economic growth the adoption of information technology has been rapid, but there are still concerns related to the VARHS provinces lagging behind overall economic development in this respect. With respect to agricultural technology, the development has been very modest. Mechanizing agriculture in the VARHS provinces remains thus a policy issue for the coming years.

What we observe in studying geographical variation in the adoption is that the adoption of information technology, especially mobile phones, has



increased tremendously and there has also been convergence in coverage rates across the provinces. Different levels of technology adoption are related to factors such as income or education—households that have no mobile phones nor internet are much poorer than households with access to these technologies.

Infrastructure might have played a role in the adoption choices of these technologies during the time span studied, but in 2014 the coverage of 2G and 3G is universal and hence infrastructure constraints cannot fully explain these differences (Viet Nam Post and Telecommunication Group 2015)

Throughout the chapter we use the balanced panel of 2006–14 in order to trace the same households over time to study their adoption choices of technology. We mostly employ the durables module which was introduced to the questionnaire in 2006.

## **7.2 Geographical differences**

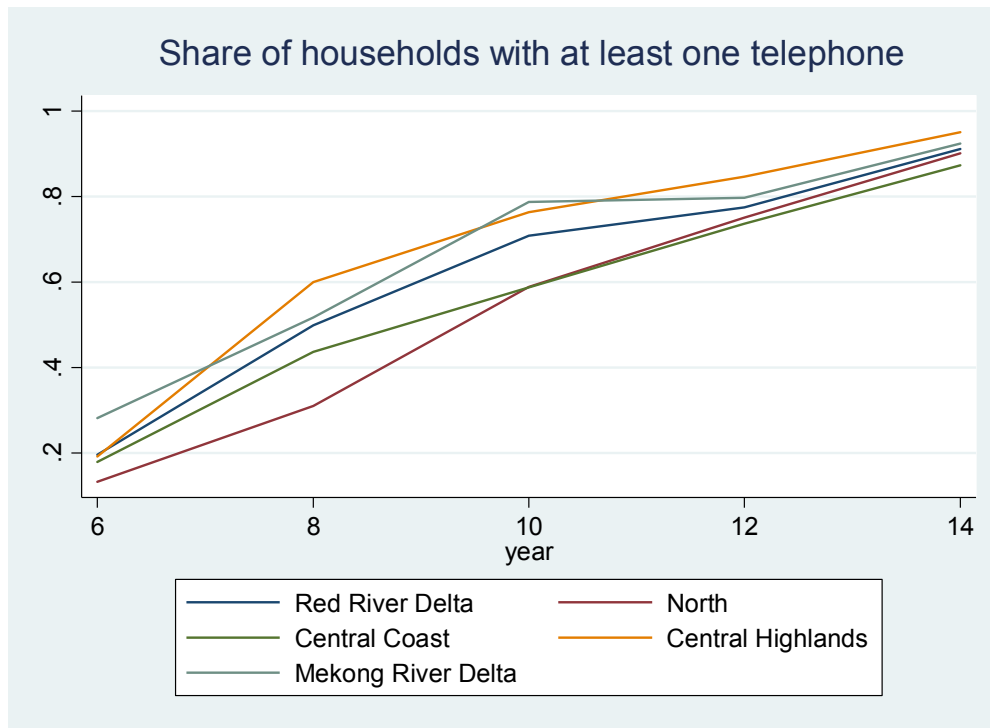
In this section we investigate geographical differences related to adopting new technologies. We have grouped the provinces into five categories according to their region. The categories constitute the following provinces: Red River Delta (Ha Tay), North (Lao Cai, Phu Tho, Lai Chau, and Dien Bien), Central Coast (Nghe An, Quang Nam, and Khanh Hoa), Central Highlands (Dak Lak, Dak Nong, and Lam Dong), and Mekong River Delta (Long An).

Studying the development over time reveals that there have been tremendous changes in information technology, for instance of nearly zero to full coverage of phones, but we do not observe this pattern with respect to internet and computers. Changes in agricultural technology are very small, which raises the concern that economic growth has not translated into more mechanization in agricultural production.

### *7.2.1 Information technology*

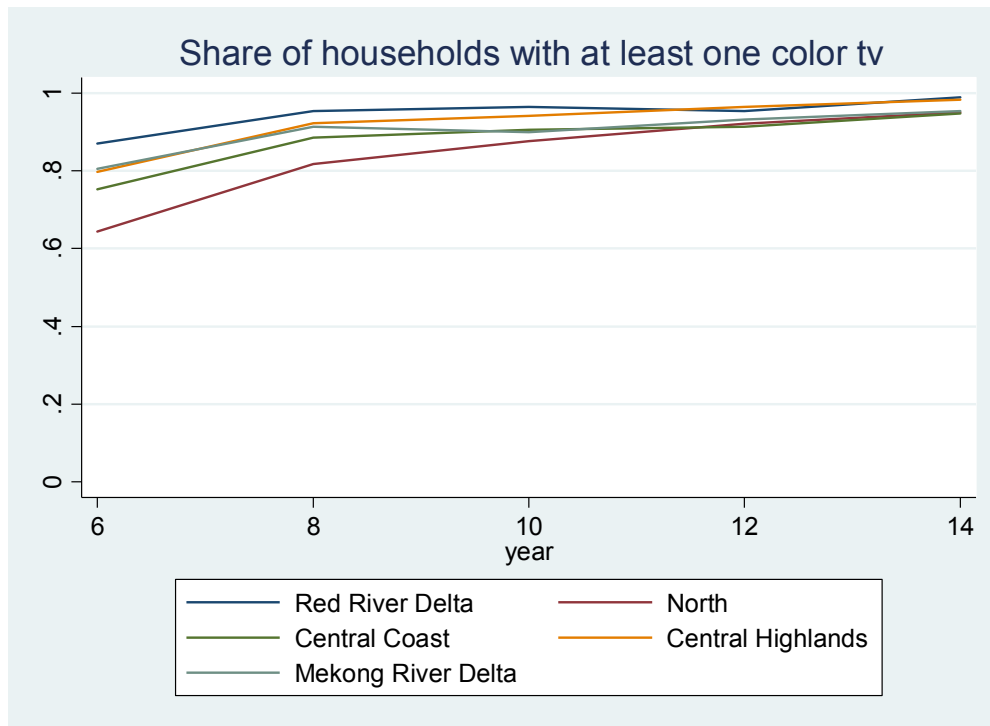
There has been a significant increase in the number of telephones and also convergence between regions in telephone ownership. Figure 7.1 shows the average share of households per region that have either a fixed-line phone or a mobile phone. In 2006 the share of households with phones varied from only 13 per cent in the northern provinces on average to 28 per cent at the Mekong River Delta (Long An province). The gap has narrowed: 87 per cent in the Central Coast provinces to 95 per cent in the provinces in the Central Highlands. Hence, particularly the northern provinces have experienced a great increase in the number of telephone owners but the increases have been tremendous in all of the provinces across the country, with a near universal coverage in the provinces in the Central Highlands in 2014.

Figure 7.1: Share of households with at least one telephone



A similar pattern (Figure 7.2) can be seen in the adoption of televisions, both with respect to convergence and the tremendous increase. The provinces in the north in particular have caught up with the rest of the provinces.

Figure 7.2: Share of households with at least one colour television

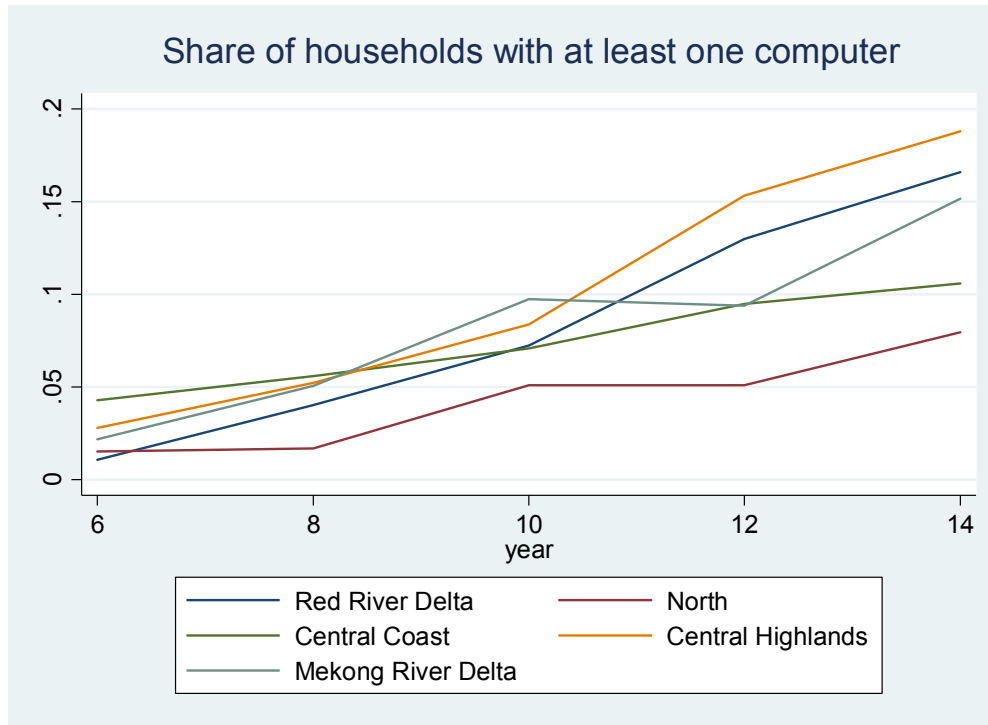


Internet and computer adoption is presented in Figures 7.3 and 7.4, in which convergence patterns do not emerge. Owning computers is still quite uncommon in the provinces studied. In 2006 there were nearly no computers in any of the provinces. There have been slight increases in computer ownership in all of the provinces, with the most rapid increases taking place in the provinces in the Central Highlands and Red River Delta. In the northern provinces the increase has been much slower. In all of the areas the share of households with at least one computer is less than 20 per cent, so the development has overall been very moderate compared to telephones.

What we observe with computer ownership can in fact be considered as a lower bound of computer use. Internet cafés, work, and education provide households with opportunities for computer use, even when they do not own a computer themselves. Therefore, studying access to the internet, a

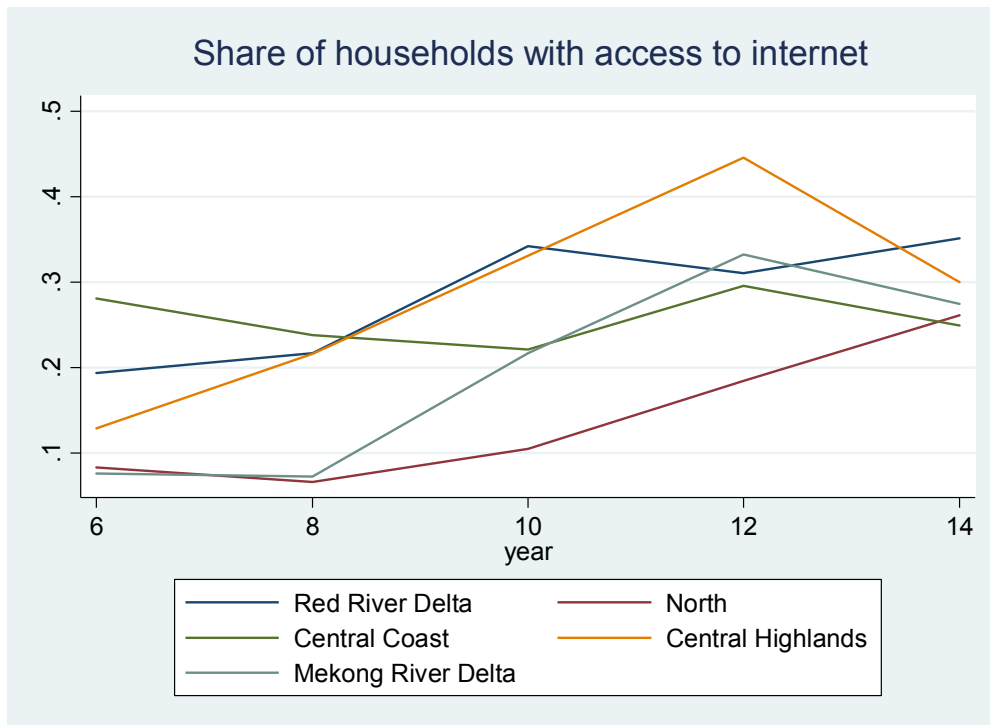
variable which also takes into account use from work and from an internet café, might give us a more realistic view of computer use.

Figure 7.3: Share of households with at least one computer



Development in internet access (limited to categories 'home', 'work', or 'internet café') is presented in Figure 7.4. The variation across provinces is hard to analyse: there seems to be quite a lot of transition in and out of internet use, which is of course plausible, especially if internet is used from an internet café or work. The sharpest and most steady increase has been in the northern provinces, where there was nearly zero access in 2006. Measurement error might also explain the large variation and especially the downward development from 2012 to 2014 in the Central Highlands, Central Coast, and Mekong River Delta provinces. Using internet from a phone has become more common, but this is not captured in our data.

Figure 7.4: Share of households with internet access (home, work, or internet café)



### 7.2.2 Agricultural technology

Geographical variation in the use of agricultural technology is likely to vary because of geography itself. Geography determines the choice of crops used, which then affects the relevant machinery used for each crop. Of course, other household and farm characteristics such as land size and income certainly play a role, but that discussion is left out of this chapter.

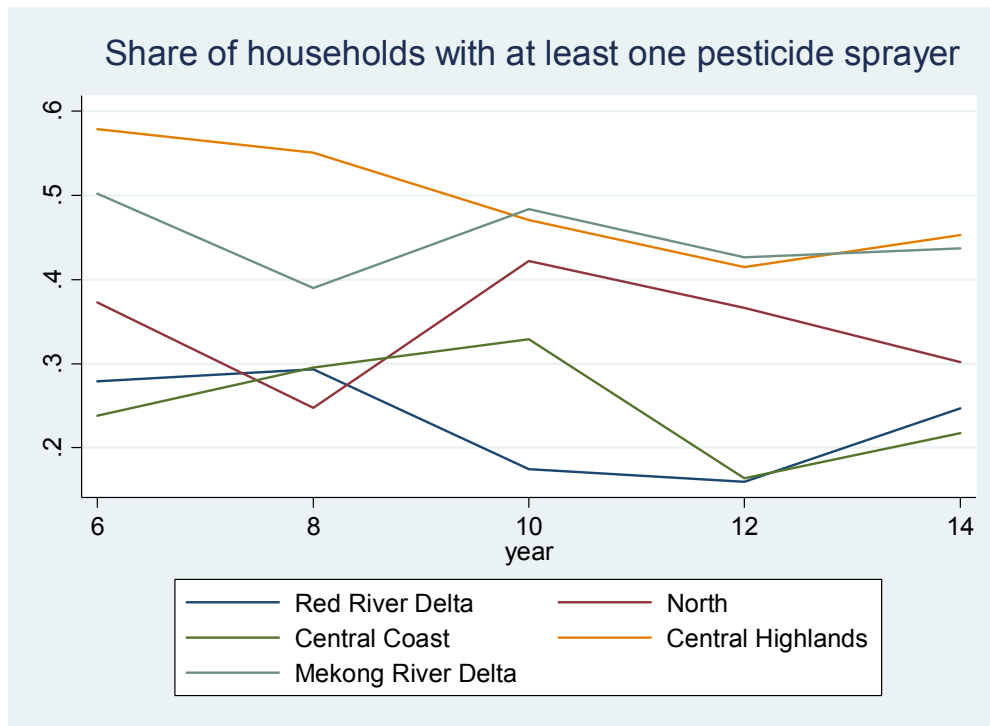
In the northern provinces, rice production dominates the agricultural activities, alongside maize and cassava production. In the South, production focuses more on perennial crops such as fruits. Coffee production is predominant in the Central Highlands, complemented by fruit and cashew nuts as well as some rice and maize growing (Markussen et al. 2013).

According to a United Nations Centre for Sustainable Agricultural Mechanization (CSAM) report (Duc Long 2013), the development of agricultural mechanization in Viet Nam is still at a preliminary stage, the highest degrees of mechanization being at the Mekong River Delta areas. Mechanization is needed for two main purposes, namely, to improve yield and quality of main crops, and to reduce post-harvest losses ensuring quality and food safety (Duc Long 2013). Our study on machinery ownership can be seen as related to improving the yield and quality.

On a national scale, the increase in the horsepower of the engineering equipment used has increased by 33 per cent at the national level (Duc Long 2013), which implies an increase in the machinery employed. Within the VARHS provinces, we do see mechanization occurring in the form of machinery rented. Both the total amount of machinery and machinery per household have stayed at very similar levels throughout the period studied.

In the case of pesticide sprayers there is large variation across the time period studied, so one has to be cautious in interpreting the development. This development is presented in Figure 7.5, which shows the development of pesticide sprayer ownership over 2006–14. We do observe that the share of households with at least one pesticide sprayer has either decreased or stayed at more or less the same level since 2006. The decrease seems to be higher the larger is the initial share of households having a pesticide sprayer in the area. In the Central Highlands provinces, the share of households with pesticide sprayers has decreased from 58 per cent to 45 per cent and in the Mekong River Delta the change has been from 50 per cent to 43 per cent.

Figure 7.5: Share of households with at least one pesticide sprayer



The exact numbers might be subject to measurement error and should be interpreted with caution. The volatility could be a result of measurement error, but we cannot rule out the possibility that households are buying and selling pesticide sprayers which might also affect the emergence of this pattern. In any case, the overall downward trend is still clear from the figure. We do not observe similar volatility in the ownership of other agricultural machinery.<sup>1</sup>

The decrease in pesticide sprayer ownership could be due to the national concern that there has been overuse in pesticides (Meisner 2005; Duc Long 2013). Overuse of pesticides has had a negative impact not just on the environment but also on farmers' health (Dasgupta et al. 2007). Pesticides

<sup>1</sup> Figure 7.6, which presents the share of households with at least one tractor, is the only figure we have added of other machinery and the volatility in other machinery is quite similar to that of tractors. Hence, we have presented the development just for the years 2006 and 2014 in Tables 7.1 and 7.2 for all of the machinery across all of the regions.



occur in water, soil, and sediments of fields and canals, which is a concern when surface water is used as drinking water. Pesticides occurring in water can also have a detrimental effect on fisheries (Klemick and Lichtenberg 2008; Toan et al. 2013). The studies are focused especially on the Mekong River Delta, where we also see the sharpest decrease in pesticide sprayer ownership.

With respect to other agricultural technology, there seems to be very little changes in ownership over time. In Figure 7.6, we can see that tractor ownership has not changed during the period studied. It is still significantly highest in the provinces in the Central Highlands and close to zero elsewhere.

Figure 7.6: Share of households with at least one tractor

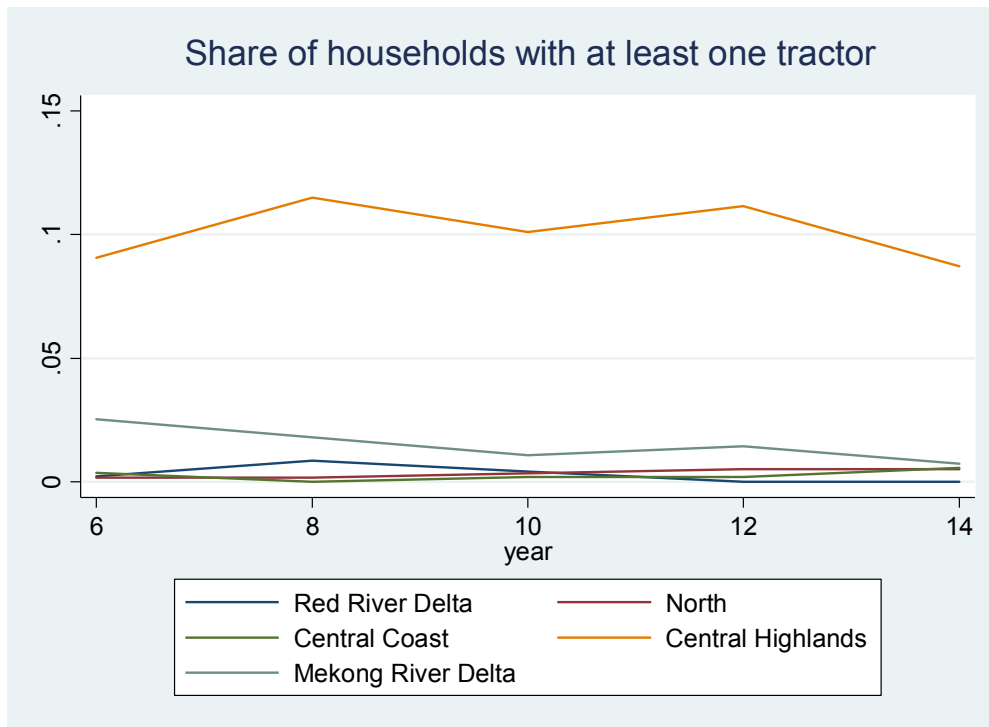
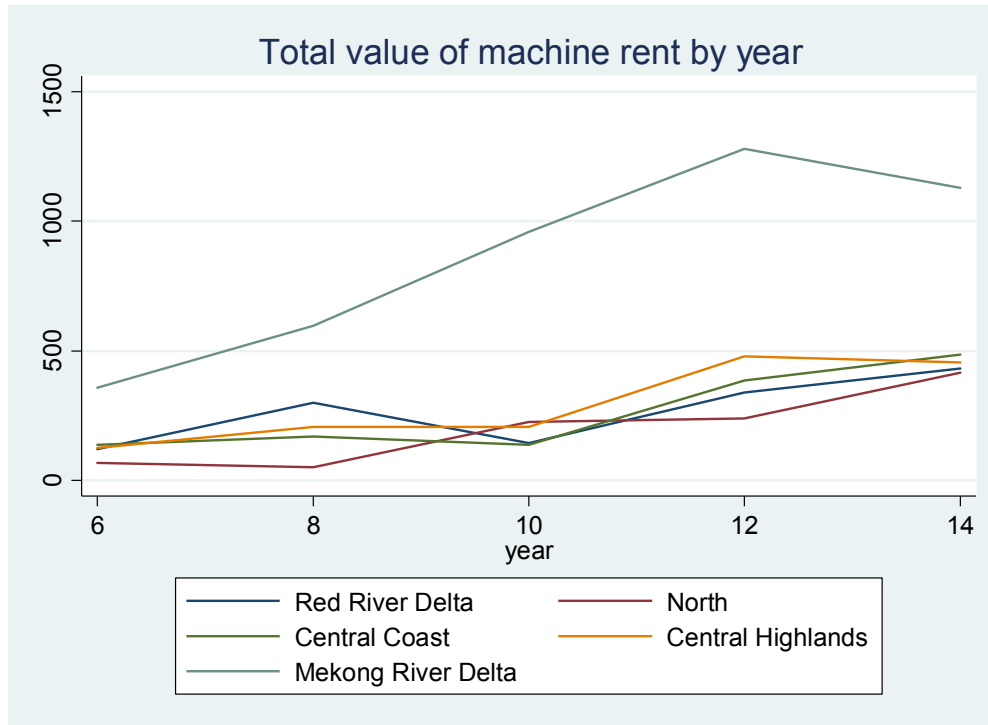


Figure 7.7: Total value of rental of asset, machinery, equipment, and means of transport for cultivation of crops, (million VND)



The ownership of assets and machinery does not give a full picture of the use of machinery in agriculture. As we can see from Figure 7.7, the rental value of machinery has increased in all the provinces, particularly in Long An province in Mekong River Delta, where the total value of assets rented has grown nearly threefold during the period studied. A much slower increase has also taken place in other provinces.

Has the renting of machinery then replaced the renting of cattle or hiring of outside labour? Figure 7.8 depicts the development in the total value of cattle rental by region and Figure 7.9 the development of outside hired labour.

To begin with, we can see that the value of cattle rented is much lower, around one-tenth of that of assets rented. Renting cattle is also much less common in general than renting assets and machinery. Therefore, the large variations in Figure 7.8 are due to changes in the behaviour of quite few

households and therefore it is hard to conclude much from the development.

When it comes to hired labour, we do not really find evidence of substituting hired machinery with hired labour. The amount of labour hired has stayed relatively constant in all other areas except in the northern provinces.

Figure 7.8: Total value of rented cattle for ploughing, (million VND)

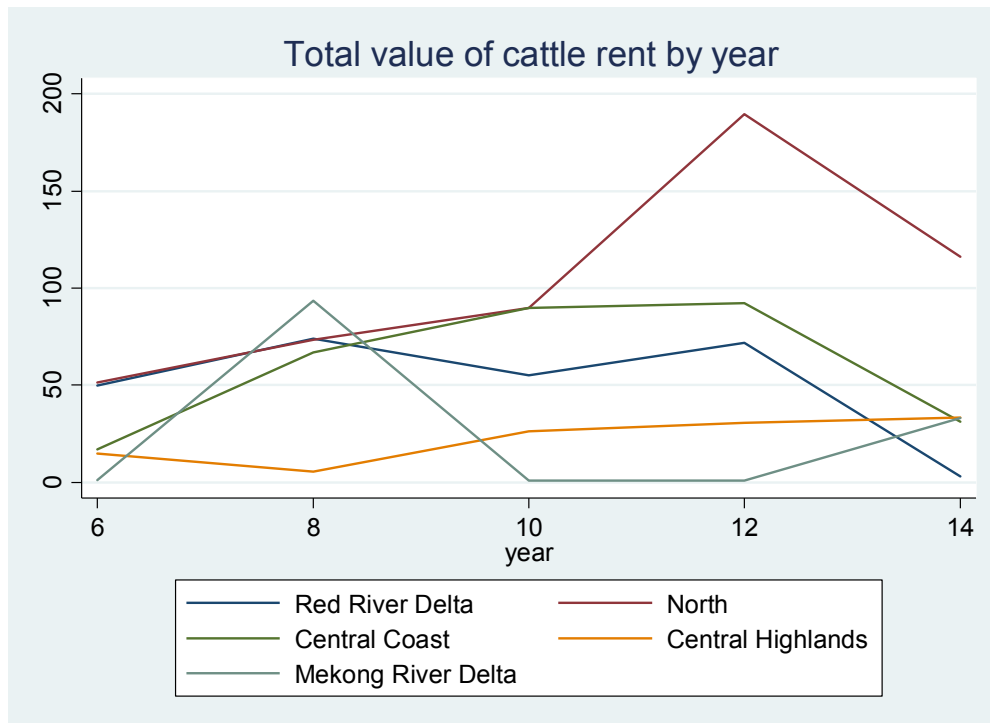


Figure 7.9: Total value of hired labour for crop production, (million VND)

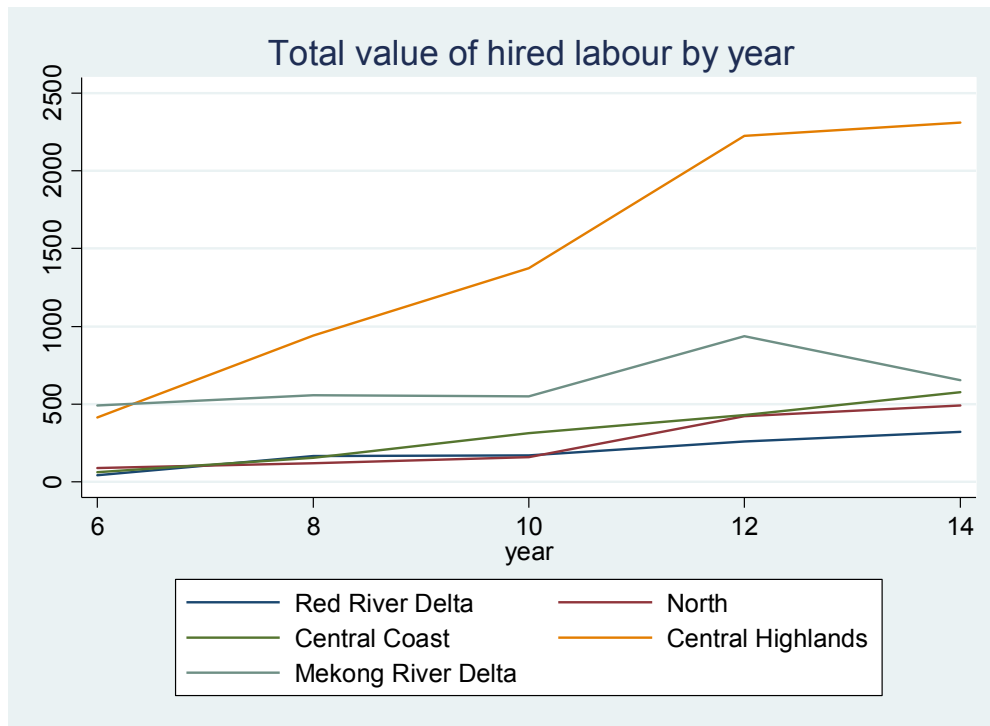


Table 7.1 presents the development of the ownership in all types of machinery in 2006 and 2014. Changes are also small in grain-harvesting machine ownership, which has overall slightly declined. It is noteworthy that the levels are low to begin with: there have been no regions in which over 10 per cent of households own a grain-harvesting machine. The same finding also applies to rice-milling machines. Ownership of the machines has been low to begin with and there is very little change in the development of the machines.

Table 7.1: The percentage of households with at least one agricultural durable in 2006 and 2014, by region

		Pesticide sprayer	Plough	Tractor	Grain-harvesting machine	Rice-milling machine	Feed-grinding machine
Red River Delta	2006	27.87	1.06	0.21	2.13	2.34	0.43
	2014	24.68	0.43	0.00	1.06	0.64	1.91
North	2006	37.29	1.86	0.17	6.78	6.78	1.36
	2014	30.17	2.88	0.51	3.73	6.10	1.53
Central Coast	2006	23.79	0.37	0.37	5.95	0.74	0.00
	2014	21.75	1.12	0.56	6.13	0.74	0.19
Central Highlands	2006	57.84	18.47	9.06	4.18	2.09	0.35
	2014	45.30	16.38	8.71	3.48	0.70	0.00
Mekong River Delta	2006	50.18	5.78	2.53	3.61	0.00	0.72
	2014	43.68	3.25	0.72	1.81	0.00	0.00

The result that the number of households having at least one of each of the machines has stayed fairly constant does not rule out the possibility that the total amount of machinery might have increased, if farms that already have machinery purchase more of it. This is why we have presented the total amount of machinery owned by the households in 2006 and 2014 in Table 7.2. We can see that the total amount has developed similarly to the amount of households owning machinery. Hence, we can say that it is unlikely that there are large distributional differences that are driving these results. It might be that farms in these areas have already been well equipped in 2006 and technological progress is driven by factors other than buying more machinery. We can also see that the numbers observed for all machinery except pesticide sprayers are so low, that we cannot really infer much from these changes. The only large change is the increase of feed-grinding machines in Red River Delta.

Table 7.2: The total amount of agricultural machinery in 2006 and 2014, by region

		Pesticide sprayer	Plough	Tractor	Grain-harvesting machine	Rice-milling machine	Feed-grinding machine
Red River Delta	2006	145	7	1	10	11	3
	2014	129	5	0	5	3	29
North	2006	238	11	1	40	50	8
	2014	185	17	3	22	36	9
Central Coast	2006	140	2	2	32	4	0
	2014	118	6	3	33	4	1
Central Highlands	2006	178	64	36	13	6	1
	2014	144	48	25	10	2	0
Mekong River Delta	2006	149	16	8	10	0	2
	2014	130	13	2	6	0	0

Overall, we can conclude that apart from a mild decline in the number of pesticide sprayers, which might be due to the decline in the overuse of pesticides, there are very little changes in the possession of agricultural machinery.

The modernization of agriculture is a target of the Vietnamese officials, and it has been recognized that modernization should be carried out so that environmental challenges such as climate change are understood (Duc Long 2013). The lack of mechanization of the agricultural sector is indeed a concern in the VARHS provinces and should be given attention in the policy-making processes. However, it is important to highlight that solutions need to be ecologically sustainable.

Finally, it is worth pointing out that given the moderate change in the ownership of machinery, it is likely that much of the machinery used in 2006 is the same that is still employed in 2014. Even though we do not directly observe whether old machinery has been replaced with new machinery, for instance if we look at the steady constant trend of tractor ownership, it would be surprising if there were large changes in replacing old tractors with new ones. On the contrary, the more volatile development

in pesticide sprayers might suggest that there might be more market interaction going, if not just measurement error.

All in all, we do not observe the quality of the machinery used. If there is replacement from old machinery to new, it could be the case that quality improvements in agriculture have contributed to an increase in agricultural productivity.

It is not surprising that the possession of agricultural machinery has not followed similar patterns as information technology, since the increases in information technology are a result of the structural transformation from a rural to an urban society that has taken place during the 2000's. Therefore, in section 7.3 we will investigate more thoroughly the new economy by focusing on the rapid expansion of information technology. However, given the stagnant total number of machinery possessed, there is room for improvements in mechanizing agricultural production.

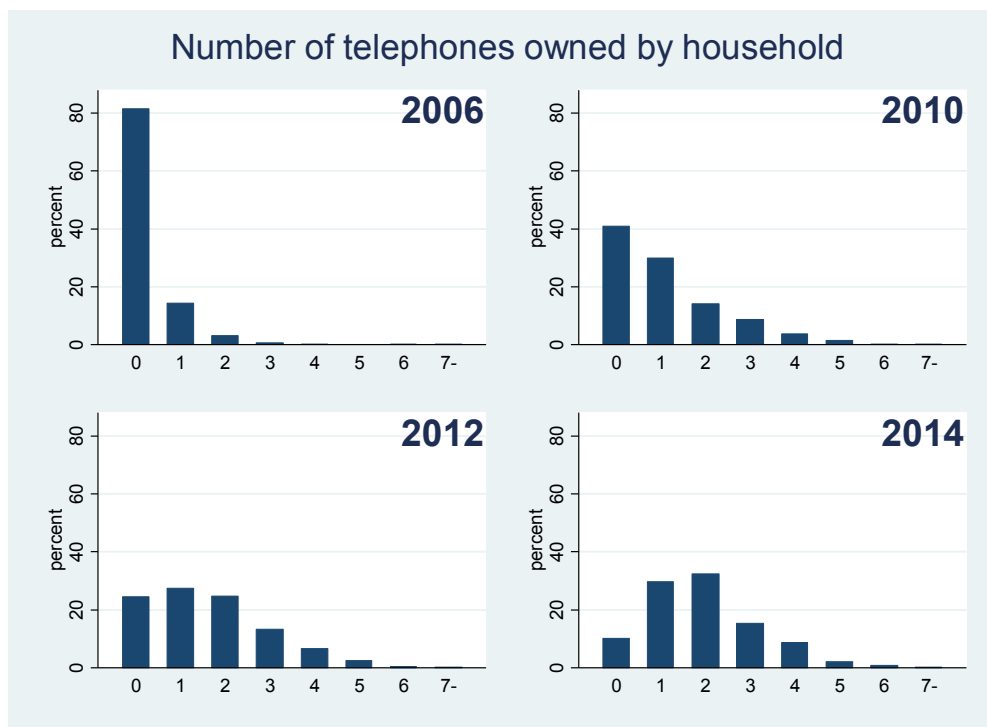
### **7.3 Determinants of adopting information technology**

There are surely several factors that determine the choice of adopting new information technology. In the early stages, infrastructure plays a key role, since is often a necessary condition for the adoption of a specific information technology: for instance, electricity or a telephone grid are necessary conditions for the adoption of a television and a landline telephone. In this section we study how households differ in terms of access to infrastructure, wealth, income composition, and other characteristics with respect to owning a telephone or having internet access. We find that in 2014, when infrastructure should no longer impose large constraints to these adoption decisions, poverty and education separate households with and without information technology.

### 7.3.1 Phones

From all the technologies studied in our dataset, the expansion of mobile phones has been the most striking one. Figure 7.10 illustrates a tremendously rapid expansion of phone ownership over 2006–14. In 2006 the median number of phones owned by households was zero—in 2014 it was two. In fact this change has taken place over just four years. Between 2006 and 2008 households started purchasing phones. Between 2006 and 2008 the share of households that had at least one telephone doubled from 18.6 per cent to 38 per cent. In 2014 there is almost full coverage, the share of household with at least one phone being 89.8 per cent.

Figure 7.10: Number of telephones owned, by household



In VARHS we cannot differentiate between a fixed-line phone and a mobile phone. The General Statistics Office (GSO) of Viet Nam (2015a) provides national level subscription rates of both fixed-line connections and mobile



phones to which we can compare our figures. According to GSO, on a national level the number of fixed-line connections has increased by just 9 per cent between 2006 and 2012. Over this same period of time the share of fixed-line subscriptions of all subscriptions has decreased from 30.7 per cent to 6.7 per cent. This would suggest that the vast majority of the increases in phones in VARHS provinces is attributable to the increase in mobile phones, not fixed-line connections.

In VARHS, the total number of any kind of telephones per household has increased from 0.25 in 2006 to 1.61—that is almost sevenfold—in 2012 and to 1.94 in 2014—almost eightfold. According to the national statistics, the increase in the amount of telephone subscriptions has not been quite as rapid: the total number of telephone subscriptions has increased from 28.5 million in 2006 to 141.2 million in 2012—nearly fivefold nationally. The number of mobile phone subscriptions has gone up from 19.7 to 131.7 million, during the same period—that is over sixfold. So we can see, in fact, that the adoption of mobile phones has been more rapid in VARHS provinces than in Viet Nam in aggregate.

It is thus possible that VARHS provinces have been catching up with the rest of the country in mobile phone adoption: the total number of telephone subscriptions being 28.5 million in 2006 corresponds to roughly 0.34 subscriptions per capita (author's calculations based on GSO 2015a and 2015b) compared to 0.25 phones per household in 2006 in VARHS provinces. Hence, we can draw the conclusion that mobile phones have indeed been more common in the country on average than in the VARHS provinces in 2006. If we compare these same numbers for the most recent period available—2012— we can see that the number of phone subscriptions was 1.59 per capita on a national level in 2012 (author's calculations based on GSO 2015a and 2015b) when at the same period it was 1.61 per household in the VARHS provinces (and 1.91 in 2014). Since the average size of a household in VARHS is 4.4 members, we can clearly conclude that

the VARHS provinces still have not caught up mobile phone penetration rates to the national average.

Another aspect that we do not observe in the data is the quality of the mobile phones used, whether they are newer smartphones or traditional mobile phones. Fortunately, we have some anecdotal evidence to shed light on the quality of phones owned. Smartphones have a very special luxury status in Viet Nam; Apple experienced its largest increase in iPhone sales in the world in Viet Nam in the first half of 2014. Sales of iPhones in Viet Nam have increased nearly threefold (Fortune Magazine 2014). Compared to the increases of 55 per cent and 28 per cent in India and China respectively, the development has really been extremely rapid. Apple holds a dominant position in the country, unlike in China where the local cheaper brands dominate the market.

Hwang et al (2009) investigate the determinants of mobile phones services diffusion in Viet Nam. Their conclusion is that policies taken to open the market for competition has been a significant factor determining the diffusion of mobile phone services, due to new service providers entering the markets and the subsequent decrease in prices. Their analysis with aggregated data covers the years 1995–2006 thus extending to the beginning of our dataset. This evidence is in line with standard economic theory and is, in broad terms, an evident policy recommendation. For poor households in remote areas, what is essential is the availability of the infrastructure and accessibility in terms of low prices of these products. As the 3G and 2G have a nationwide coverage in Viet Nam (Viet Nam Post and Telecommunication Group 2015), the infrastructure constraints should no longer play a large role in the purchasing decision of a phone in 2014.

Table 7.3 describes the differences between households that still do not have a phone in 2014 with those that have one. As coverage is almost universal, the amount of households with no phone in 2014 consists of only

10 per cent of the sample, 203 observations, when the amount of households with a phone is as high as 1959.

Table 7.3: Mean comparison across households with and without a phone, 2014

	No phone	Phone	Difference
Household size	2.70	4.28	-1.58***
Female hh head	0.47	0.22	0.26***
Education per capita	4.45	8.56	-4.12***
Number of children <15	0.44	0.77	-0.33***
Total area owned	5243.38	7475.80	-2232.42**
Total area owned per capita	1698.87	1855.74	-156.88
Monthly income per capita	1316.54	2167.49	-850.95***
Crop production last year per capita	3525.82	8884.96	-5359.15***
Classified as poor	0.39	0.10	0.29***
Income share wage	0.20	0.36	-0.16***
Income share non-farm enterprises	0.04	0.13	-0.09***
Income share crops	0.17	0.21	-0.04**
Income share private transfers	0.26	0.09	0.17***
Income share public transfers	0.20	0.08	0.12***
Electricity	0.94	0.99	-0.05***
Toilet	0.78	0.91	-0.13***
Good water	0.81	0.86	-0.05*
household has access to internet	0.06	0.31	-0.25***
Number of motorcycles	0.42	1.47	-1.06***
Number of motorcycles per capita	0.13	0.36	-0.23***
Number of colour TVs	0.81	1.08	-0.27***
Number of colour TVs per capita	0.44	0.31	0.13***
Number of computers	0.02	0.16	-0.14***
Number of computers per capita	0.00	0.04	-0.03***
Distance all-weather road	1.90	1.82	0.08
Distance People's Committee	2.34	1.97	0.37*
Distance public health care	2.30	1.95	0.35*
Distance private health care	7.38	5.36	2.02*
Distance primary school	1.90	1.72	0.19
Distance crop buyer	1.25	1.15	0.10
Trust (positive)	0.90	0.90	-0.00
Trust (negative)	0.56	0.47	0.09**

Number of households with a phone 1,959, without 203.

We can see that households vary tremendously over phone ownership. When we look at household characteristics, we can see that households with at least one phone are typically much larger than households without a phone. Households without a phone are very small, on average just 2.7 members, when households with a phone have on average 4.3 members, which is not far from the whole sample average which is 4.13. The differences are also striking with respect to gender of the household head. Almost half of the households without a phone are female-headed, compared to the households with a phone, where the share of female household heads is just 22 per cent. A striking difference is also that education in years per capita in the households is just half of that of households with phones.

The income differences are also tremendous. The income per capita in households without a phone is just 61 per cent of the income per capita in households with a phone. We can also see that almost 40 per cent of the households without a phone are classified as poor by the authorities against 10 per cent of households with a phone.

When we look at income composition we can see that households with no phones rely heavily on transfers, both public and private. Transfers account for nearly half of the incomes of these households when the respective figure for the phone owners is 17 per cent. Of the actual income-generating activities, households' wage-earning activities are the most important source, and selling their own crop is the second most important. Income share of own non-farm enterprises is just 4 per cent compared to the 13 per cent in households with phones.

Finally, we have also investigated whether infrastructure and a remote location distinguish households with and without a phone from each other. We do observe that households without a phone are less likely also to have electricity, but the difference is rather small, electricity being almost

universal in 2014. A similar difference in both magnitude and statistical significance is also apparent with respect to access to good water.<sup>2</sup> Households with no phone are also 13 per cent less likely to have a toilet.<sup>3</sup>

Distance to public services, such as health care facilities, all-weather roads, schools and People's Committees can be regarded as proxies for remoteness, but we do not observe large differences here, even though it is noticeable that households without a phone are somewhat more remotely situated.

3G being universal, infrastructure constraints should not play a large role in the purchasing decision of a phone. It might still be that very remote areas do have a weaker signal. On the other hand, if a phone is mostly used to keep in touch with other family members, it is possible that smaller households just have less demand for phones. However, given that these households are also significantly poorer, it might also be that the households just consider that they have not had the means for this kind of purchase.

We have also investigated phone ownership and ownership of other durables or information technology to study the assumption that being 'tech-savvy' plays a role in the purchase decision, but this is of course related to an income effect as well. We can see that households without a phone do own on average 0.42 motorcycles. This is just a third of the number of motorcycles that households with a phone own. However, these households do own on average 0.8 colour televisions. Given the differences in household sizes, this is not a remarkably strong difference. However,

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<sup>2</sup> Good water is a dummy variable taking value one, if the water comes from either of the following sources: tap water (private or public), tank, bought water, water from deep drilled wells, or hand-dug and reinforced wells. Any other kind of source of water gets value zero.

<sup>3</sup> Variable toilet gets the value one if household has a toilet, otherwise zero.

households without a mobile phone are also 25 per cent less likely to use the internet.<sup>4</sup> Just 6 per cent of households without a phone report having access to the internet, and almost none of them own a computer.

Given that households without phones are slightly more remotely located, owning a phone might be actually very beneficial if we assume that a phone can be used to gain market information or information about public services. Also since we observe that households that do not own a phone very rarely have access to the internet or own a personal computer, these households are then not having the means to benefit from possibilities given by information technology.

Since a telephone functions as a means to keep contact with one's community, we have also investigated whether there are differences with respect to social capital. We have clearly found that phone owners are significantly wealthier than those that do not own a phone, so this supports the hypothesis that a phone inherits such properties that are common to any kind of durables and luxury items. Since a phone is also a means of keeping in contact with one's community, and its ownership is already very common, it is plausible that those that do have some kind of a central role in a social network, or have stronger ties to their community, are more likely to own a phone. Our data has two variables related to trust, which enable us to study whether households not owning a phone do have less trust in their own community, and might therefore be less inclined to purchase the kind of technology that allows them to keep contact with their community.

The variable trust (positive) is a dummy that takes a value one if the respondent agrees with the statement 'most people are basically honest

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<sup>4</sup> Internet use is a dummy getting value one with using internet either from home, work, or internet cafe.

and can be trusted'. We observe no difference with respect to this general perception of trust, 90 per cent of respondents in both groups agree with this statement. However, we do observe a significant difference in the variable trust (negative), which takes value one if the respondent agrees with the statement 'in this commune one has to be careful, there are people you cannot trust'. Therefore, households without a phone do tend to have slightly less trust in their community than phone owners; over a half of the respondents in this group agree with this statement. Hence it is possible that lower social capital also plays a role in the purchasing decision of a phone. Of course, lower trust might also be related to lower income, education, or a number of other factors.

In Table 7.4 we have investigated the determinants of phone ownership over 2008–14, where the dependent variable is the number of phones in a household. The first four columns show ordinary least squares (OLS) results, controlling for year fixed effects, and the fourth column keeping commune characteristics constant. The fifth column displays the results with household fixed effects and therefore the coefficient estimates should be understood as the effect of the changes in the explanatory variables to the change in the number of phones.

Interestingly, when controlling for a number of household characteristics, neither the income level nor the change in household income has very little effect on the number of mobile phones or on the purchasing decision.<sup>5</sup>

The main driving forces seem to be related to household size. However, controlling for household size, having more children has a negative effect

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<sup>5</sup> We also did the analysis so that we split the income measure to different income sources (not reported here). The effects were qualitatively very similar—positive but very close to zero.

on the number of phones. Hence, the number of adult members in a household affects positively the number of phones.

Even when we do not control for commune fixed effects, the remoteness of the households is not significant. Also, land size does not seem to play a role. What is interesting is that the ownership of other technology: computer, internet, television, or motorcycle, has a large effect on the amount of mobile phones and on the adoption decision. Hence, being 'tech-savvy' seems to play a large role in the ownership of mobile phones, even when controlling for income. To conclude, we can say that VARHS provinces have indeed been catching up the Vietnamese average in mobile phone coverage, the adoption of mobile phones has been faster than in the country on average. However, we can say that there are still less phones per head in the VARHS provinces than in Viet Nam on average. Since infrastructure exists, the constraints to mobile phone adoption are plausibly financial in 2014. This is supported by the fact that households not having phones are much poorer than households with a phone and rely heavily on transfers. However, overall phone ownership is very strongly associated with the ownership of other technology. Households that have technology seem to also be the ones that are buying more phones.

A mobile phone can be seen as a luxurious good, which is also the case in Viet Nam. Nevertheless, it has become a universally adopted technology and people are substituting old means of keeping in contact with mobile phones. As households that already have technology seem to be acquiring more of it, it might be that the barriers to adopting technology are related to not knowing about its benefits. A phone can be used to acquire and spread information. Therefore, households without a phone might be at risk of being excluded from economic activity and have less means to make economic choices. A mobile phone could serve as a means of empowerment. Therefore, it is crucial that households can afford to keep up with this level of information technology.



Table 7.4: Dependent variable: number of phones

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	OLS	HH FE
Household size	0.2105*** (0.0173)	0.1249*** (0.0119)	0.1264*** (0.0118)	0.1214*** (0.0125)	0.1467*** (0.0158)
Education per capita	0.1149*** (0.0051)	0.0648*** (0.0043)	0.0637*** (0.0044)	0.0605*** (0.0048)	0.0365*** (0.0071)
Female hh head	-0.0951*** (0.0367)	-0.0626** (0.0299)	-0.0639** (0.0299)	-0.0601* (0.0326)	0.0534 (0.0563)
Number of children <15	-0.1654*** (0.0184)	-0.1150*** (0.0153)	-0.1144*** (0.0152)	-0.1156*** (0.0161)	-0.1361*** (0.0243)
Total area owned	0.0000** (0.0000)	0.0000** (0.0000)	0.0000** (0.0000)	0.0000* (0.0000)	0.0000* (0.0000)
Monthly hh income per capita	0.0001*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)	0.0000*** (0.0000)
Electricity	0.1351** (0.0578)	-0.0041 (0.0579)	-0.0278 (0.0577)	0.0072 (0.0576)	0.0705 (0.0717)
Toilet	0.3139*** (0.0424)	0.2017*** (0.0363)	0.1945*** (0.0357)	0.1399*** (0.0372)	0.0742* (0.0414)
Good water	0.1152*** (0.0388)	0.0382 (0.0313)	0.0335 (0.0304)	0.0212 (0.0253)	0.0288 (0.0255)
Household has access to internet		0.3042*** (0.0310)	0.3024*** (0.0309)	0.3044*** (0.0308)	0.2724*** (0.0321)
Number of motorcycles		0.3834*** (0.0295)	0.3839*** (0.0295)	0.3654*** (0.0319)	0.3033*** (0.0343)
Number of colour TVs		0.2041*** (0.0356)	0.1973*** (0.0350)	0.1745*** (0.0323)	0.0823*** (0.0311)
Number of computers		0.3947*** (0.0449)	0.3941*** (0.0448)	0.3699*** (0.0476)	0.3025*** (0.0549)
Distance all-weather road			-0.0031 (0.0020)	-0.0030 (0.0024)	-0.0028 (0.0026)
Distance People's Committee			-0.0022 (0.0032)	-0.0033 (0.0028)	-0.0052 (0.0043)
Distance public health care			-0.0001 (0.0041)	-0.0036 (0.0043)	0.0010 (0.0050)
Distance primary school			-0.0059 (0.0042)	-0.0043 (0.0040)	-0.0030 (0.0039)
Constant	-0.3408*** (0.1152)	-0.0871 (0.0863)	-0.0234 (0.0884)	0.1206 (0.0932)	0.3729*** (0.1278)
Observations	12116	12116	12116	12116	12116
Commune	No	No	No	Yes	No
Year	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$   
 Note: Using a balanced panel 2008–2014. Dependent variable is number of telephones owned by a household. In columns 1–4 pooled OLS is used, in column 5 household fixed effects is used. Standard errors are clustered at the commune level.

### 7.3.2 Computers and internet

Table 7.5 displays the ownership of personal computers for the years 2006–14. We can see that the share of households owning a computer has grown over fivefold from just 2.4 per cent in 2006 to 12.9 per cent in 2014. Compared to the development in the ownership of mobile phones, this increase is very moderate; computer ownership is far from being universal. A closer inspection to the variable also reveals that most households still have just one computer: the number of households with two computers or more was just 48 in 2014, which corresponds to 17 per cent of households with a computer in 2014.

As smartphones have become so popular in Viet Nam during the past couple of years, it is possible that smartphones do complement the functionalities of personal computers and the demand for computers has subsequently decreased.

Table 7.5: Households with at least one computer 2006–14

		2006	2008	2010	2012	2014
No	n	2 111	2 074	2 009	1 950	1 884
	%	97,64	95,93	92,92	90,19	87,14
Yes	n	51	88	153	212	278
	%	2,36	4,07	7,08	9,81	12,86
Balanced panel n=2 162						

Figure 7.11 illustrates the development of internet use. There is a large increase in the share of users, but this development is less striking than that of mobile phones. In VARHS, internet access is measured by the question ‘does anyone in your household have access to internet services? If so, where mainly?’, with the response categories given in the figure. We can see that altogether 16.1 per cent of households had internet access (from work, home, or internet café combined) in 2006, and 28.4 per cent of households in 2014. The increase is fully attributable to the increase in

access from home and workplace that has gone up from close to zero to around 9 per cent, respectively. However, simultaneously we observe a decrease in the category 'access from internet café' from 13.9 per cent in 2006 to 10.8 per cent in 2014. The overall level of access has stayed the same since 2012, after which the decrease in access from internet café has been compensated by access from home and from work.

Compared to national development in internet subscription, the VARHS provinces are really lagging behind. According to GSO, the national subscription rate for ADSL connections has increased *over eightfold* during the period 2006 to 2012. At the same time, and even going further to 2014, internet access in the VARHS provinces, as measured by our sample has increased by 57 per cent, so not even doubled. The difference is striking, even though we do have several reasons to believe that these numbers are not fully comparable.

First of all, national ADSL subscriptions take into account all the subscriptions by firms. Clearly, the demand has been higher in urban areas due to a different economic structure in large cities. It is only natural that in areas which are largely dependent on agriculture, there is less demand for ADSL than in urban areas. Even though we allow for the households to report that they have access from work, we are unable to capture all internet use from work, since respondents could have chosen another category for internet access.

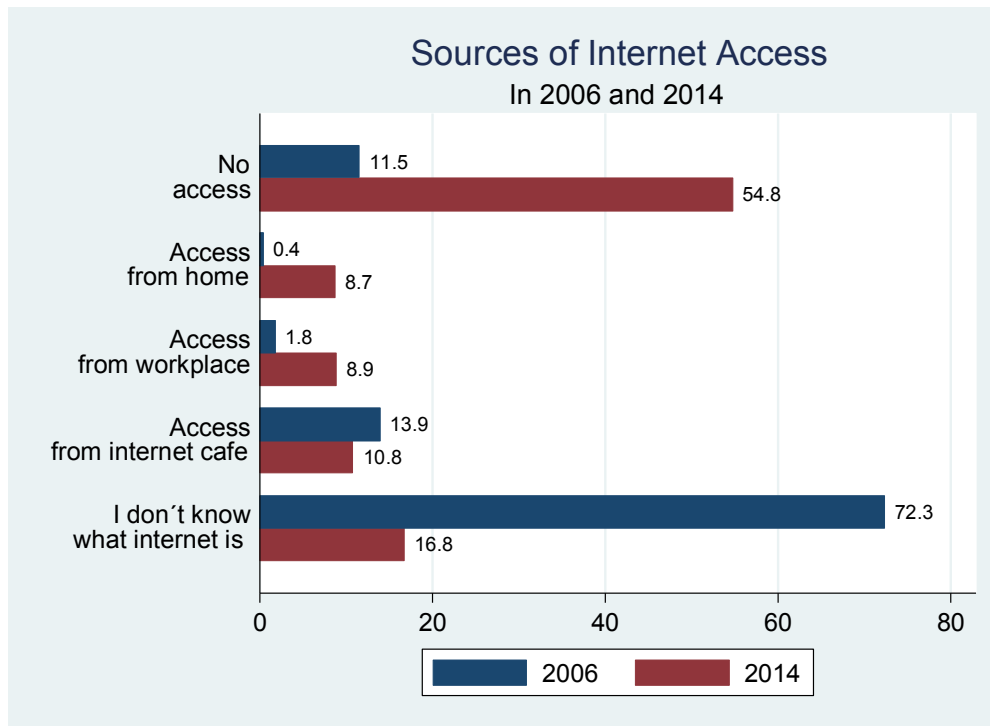
Second of all, there might be measurement error in our internet access measure due to technological changes in access. Internet access patterns have changed tremendously from 2006 since 3G is now available on a national scale and smartphones have gained popularity. Internet use from a mobile phone might also have replaced internet cafés to some extent. As we do not observe any kind of access via mobile phone, whether it was

through a subscription or through wifi, it is reasonable to assume that our measure of internet access is biased downwards.

Even considering all these caveats, the difference between the eightfold increase in national ADSL subscriptions, compared to the 57 per cent increase in internet access together with the low level of computer ownership, does raise the concern that VARHS provinces are lagging behind in the overall development in internet access and information technology in general.

Even though internet use has increased relatively moderately, we can observe from the data that knowledge about what internet is, has increased tremendously over 2006–14. In 2006 over 70 per cent of respondents chose the category 'I don't know what internet is' and only 11.5 per cent reported that they 'don't have access'. In 2014 the share of respondents that chose the former was just 16.8 per cent and of the latter 54.8 per cent. So it seems as if knowledge about the internet had indeed increased, even though the households would not have any of the forms of access specified in the question.

Figure 7.11: Sources of internet access in 2006 and 2014



Finally, we investigate differences across households in internet access in 2014 in Table 7.6, studying the same variables as with mobile phones. The share of households with internet access was 28 per cent, that is 615 households, and the number of households without access was 1,547.

As households with no mobile phone represent a small fraction of the households that have not caught up with overall economic development, the households without internet access are still a large majority. However, the differences between the users and non-users of these two technologies are somewhat qualitatively similar.

Households without internet access are also smaller and more often female-headed than households with internet. These differences are however very small compared to the difference in phone ownership. The gap in education per capita is also strikingly large here, over three years. Also, income

differences are very large: households with internet earn nearly twice as much as households without internet. Again, we also observe that the value of crop production in per capita terms is larger for households with internet access.

Table 7.6: Mean comparison across households with and without internet access, 2014

	No Internet	Internet	Difference
Household size	3.95	4.58	-0.62***
Female hh head	0.26	0.20	0.06***
Education per capita	7.40	10.13	-2.73***
Number of children <15	0.76	0.66	0.10**
Total area owned	7186.91	7465.62	-278.72
Total area owned per capita	1898.56	1696.25	202.32
Monthly income per capita	1787.87	2841.54	-1053.67***
Crop production last year per capita	7775.76	9906.14	-2130.38*
Classified as poor	0.16	0.05	0.11***
Income share wage	0.30	0.46	-0.15***
Income share non-farm enterprises	0.10	0.17	-0.06***
Income share crops	0.22	0.17	0.05***
Income share private transfers	0.12	0.06	0.06***
Income share public transfers	0.10	0.06	0.04***
Electricity	0.99	0.99	-0.01
Toilet	0.88	0.96	-0.09***
Good water	0.84	0.90	-0.06***
Number of telephones	1.74	2.81	-1.06***
Number of telephones per capita	0.48	0.64	-0.16***
Number of motorcycles	1.16	1.93	-0.77***
Number of motorcycles per capita	0.30	0.44	-0.14***
Number of colour TVs	1.01	1.18	-0.17***
Number of colour TVs per capita	0.33	0.29	0.05***
Number of computers	0.03	0.45	-0.42***
Number of computers per capita	0.01	0.11	-0.10***
Distance all-weather road	2.04	1.29	0.75***
Distance People's Committee	2.10	1.78	0.32***
Distance public health care	2.10	1.69	0.41***
Distance private health care	6.37	3.50	2.86***
Distance primary school	1.80	1.58	0.21**
Distance crop buyer	1.27	0.86	0.41**
Trust (positive)	0.89	0.92	-0.02
Trust (negative)	0.48	0.48	-0.00

Number of households with internet access 615, without 1,547

Income share of wages is almost half in households with internet access, compared to just 30 per cent in households with no internet access. This difference is due to non-user households having a far larger share of households not having any wage labour than user households.<sup>6</sup> We can also see, that households without internet access are more dependent on transfers and also rely slightly more on agriculture as an income source than households with internet access.

With respect to infrastructure, we see again that the differences between households with and without internet access differ more, relative to the distance to public services and markets than households with and without a mobile phone. Households without internet access are more remotely located than households with access. An explanation might be simple: in 2014 not having a phone seems to be associated more heavily with poverty, whereas not having internet access is certainly related to lower income, but maybe also generally to relying more on agriculture as a source of income. Of the households without internet access only 16 per cent have a poverty status, compared to 5 per cent of households with internet access. This difference is significant, but not nearly as large as the difference in poverty status in phone ownership. Hence, having internet access might be most associated with a more urban lifestyle than just income.

With respect to infrastructure, we observe very similar results to those with phone ownership: households without access to internet are also lacking

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<sup>6</sup> In several of the income share variables the difference is largely due to the difference in the share of households that have zero income of a specific source. All of the variables have a peak at zero, the relative shares of households with zero income in any of the income share variables seems to determine much of the variation. For instance with respect to wage income, the distributions are almost uniform in the positive values for both households with and without access to internet, but the share of households with no wage income at all, is much larger among households with no internet access.

access to electricity and good water and are less likely to have a good toilet. This might be both due to income differences, but also because of more rural location.

When we look at the ownership of other technology, we have again more support for the hypothesis that there are 'tech-savvy' households that tend to own all kinds of technology more than others. Households without internet access have over one mobile phone less on average than households with access, and the difference is significant even in per capita terms. Also, motorcycle ownership is significantly smaller, and unsurprisingly, also the number of computers. Households with internet access have on average 0.45 computers at home compared to almost zero in households without access.

Finally, with respect to trust measures, we cannot say that households with and without internet access differ at all. Internet access might thus be related to being more urban, working outside agriculture, and also to having higher income and education—factors that are surely correlated with each other as well.

In Table 7.7 the determinants of internet access are studied over the period 2008–14. The first columns show the results from pooled OLS, the last one with controlling for commune specific time invariant characteristics. Column 5 is a random effects model and column 6 a probit model with random effects (marginal effects reported). We can see that the determinants of internet adoption are somewhat similar to the number of phones. Owning other type of technology has a strong positive impact on having internet access; unsurprisingly owning a computer is the most important one. Larger households are also more likely to have access (especially those with more adult members) and education also seems to be a driving factor.



Even though households that do not have internet access are more remotely located, when controlling for other household characteristics, the distance measures are no longer statistically significant.

As the take-up of internet has not been as rapid in the VARHS provinces as in the country overall, the question of how to make the internet lucrative and accessible to the rural population arises.

As more and more citizens are gaining access to the internet, they are also using it increasingly as a source of information, in communication, and as a platform for working. The rural areas should not be left out of this development—internet and IT in general could also open up possibilities in the rural economy if the infrastructure and knowledge is there. Moreover, as internet cafés are losing their popularity and internet access is happening more and more through mobile phones and gadgets, easy ways of accessing the internet should be available for households, who do not have the means to purchase these technologies, and households with lower education levels, since education is also an important determinant for internet access. Obtaining IT skills or access through the public education system could remove barriers from households with low education or lower income to adopt information technology.

Table 7.7: Dependent variable: internet access

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	RE	RE PROBIT
Household size	0.035*** (0.004)	0.018*** (0.003)	0.018*** (0.003)	0.019*** (0.003)	0.019*** (0.002)	0.023*** (0.003)
Education per capita	0.032*** (0.002)	0.020*** (0.001)	0.020*** (0.001)	0.018*** (0.002)	0.019*** (0.001)	0.022*** (0.001)
Female hh head	0.015 (0.011)	0.013 (0.010)	0.013 (0.010)	-0.006 (0.011)	0.012 (0.009)	0.008 (0.009)
Number of children <15	-0.041*** (0.006)	-0.030*** (0.005)	-0.030*** (0.005)	-0.029*** (0.005)	-0.030*** (0.004)	-0.038*** (0.004)
Total area owned	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Monthly income per capita	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Electricity	-0.004 (0.009)	-0.007 (0.010)	-0.007 (0.010)	-0.023* (0.012)	-0.017 (0.015)	0.017 (0.022)
Toilet	0.023** (0.009)	0.005 (0.008)	0.005 (0.008)	0.002 (0.009)	0.003 (0.009)	0.015 (0.010)
Good water	0.031*** (0.009)	0.021** (0.008)	0.021** (0.008)	0.015* (0.009)	0.021** (0.008)	0.027*** (0.009)
Number of telephones		0.039*** (0.004)	0.039*** (0.004)	0.039*** (0.004)	0.039*** (0.003)	0.024*** (0.003)
Number of motorcycles		0.020*** (0.006)	0.020*** (0.006)	0.017*** (0.005)	0.019*** (0.004)	0.013*** (0.004)
Number of colour TVs		0.000 (0.007)	0.000 (0.007)	-0.008 (0.007)	-0.000 (0.008)	0.013* (0.007)
Number of computers		0.334*** (0.014)	0.334*** (0.014)	0.313*** (0.013)	0.322*** (0.011)	0.199*** (0.010)
Distance all-weather road				0.000 (0.000)	-0.000 (0.000)	-0.002** (0.001)
Distance People's Committee				0.000 (0.001)	-0.000 (0.002)	-0.000 (0.002)
Distance public health care				-0.001 (0.001)	-0.002 (0.002)	-0.002 (0.002)
Distance primary school				0.001 (0.001)	0.001 (0.001)	0.002 (0.001)
Observations	12116	12116	12116	12116	12116	12116
Commune FE	No	No	No	Yes	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$   
 Note: Using a balanced panel 2008–2014. Dependent variable is internet access, 1=yes, 0=no. In columns 1–4 pooled OLS is used, column 5 uses a random effects model. In column 6 a probit model with random effects is used, the coefficients reported are marginal effects. Standard errors are clustered at the commune level.

### *7.3.3 Information sources*

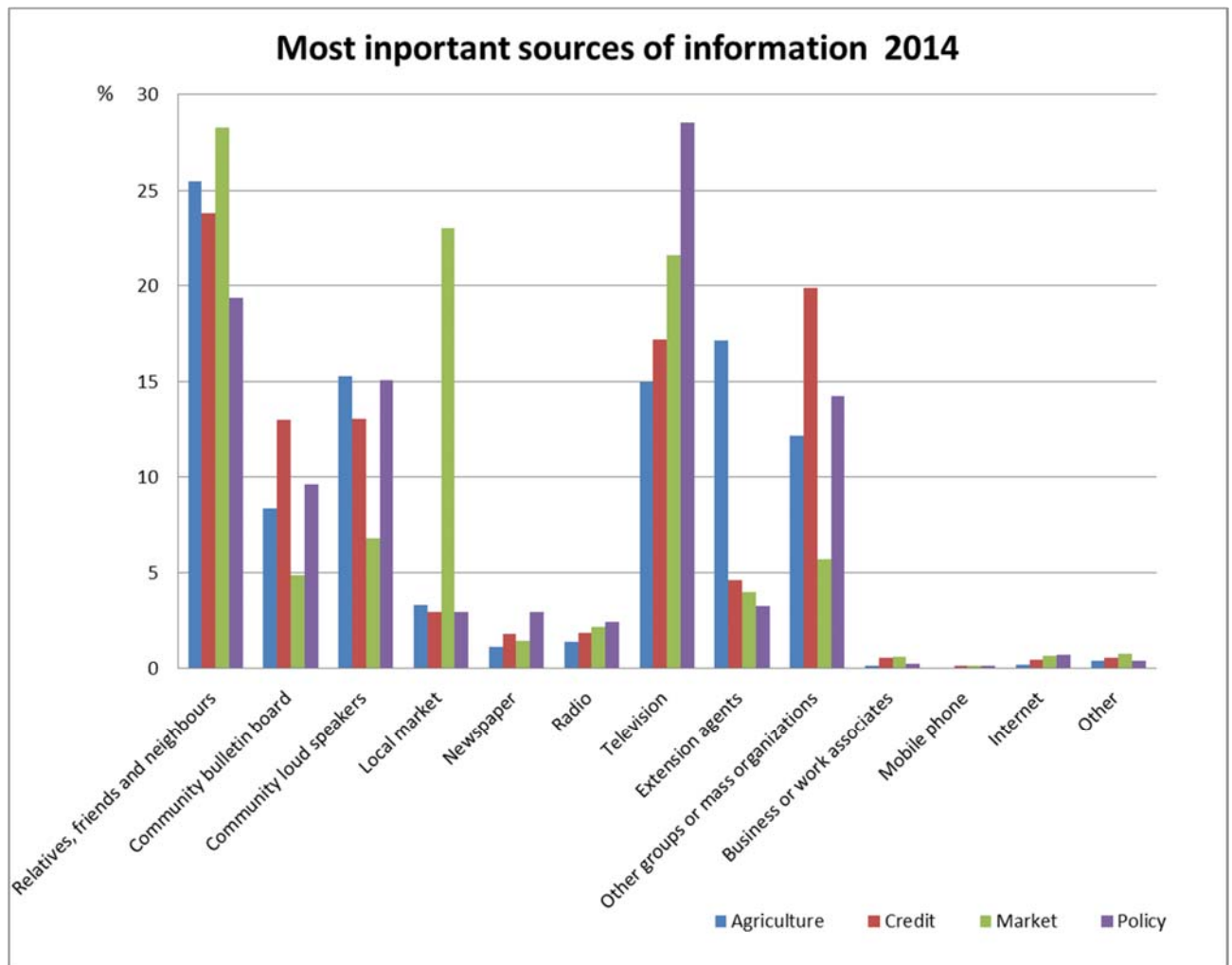
Even though the adoption of ICT and mobile phones in particular has been rapid, we still know very little about which purposes these media are used for. Figure 7.12 illustrates the answers to the question: 'Which sources of information are important for you? Regarding the following issues, list up to three for each issue'. Hence, each household has often named more than one information source.

The full descriptions of the categories are: agricultural production and extension; sources of credit and insurance; market information, such as jobs, prices of goods, or crops; and Government policy changes.

We can see that the internet still plays a very minor role as one of the most important information sources, as do mobile phones. However, both of the mediums can operate as a source of communication, just not obtaining information from outside sources. For instance it is possible that mobile phones are used to acquire information from friends, relatives, and neighbours.

The social network—friends, relatives, and neighbours—is the most important information source for agriculture, credit, and market information. For government policy, television is the most important source and it is also used extensively to acquire other information. For information about agriculture, the local market is an important source. For all the categories, more traditional channels of information-spreading, community bulletin boards, community loud speakers, and other groups and mass organizations, are still very relevant.

Figure 7.12: Most important sources of information, 2014



## 7.4 Conclusions

Technological development has followed very different patterns in the VARHS provinces over 2006–14. The increase in the ownership of mobile phones has been extraordinary and probably even more rapid than in the country as a whole—households have moved from a median of zero to two phones in just eight years.

Despite the large relative increases in internet access and computer ownership, the VARHS provinces are lagging behind the national average.

As phones become more sophisticated, phone ownership might aid this issue in the future, provided that smartphones are also gaining popularity in the VARHS provinces and becoming more accessible also for poor households.

In 2014 the households that still do not own phones are much more likely to be female-headed, poor, and less educated than households with phones. Moreover, internet access might be more associated with a more urban lifestyle than the ownership of a phone in 2014. The determinants of purchasing a new phone or obtaining internet access are quite similar: over 2006–14 we observe that education seems to be an important factor driving IT adoption. Also households that already have technology are more likely to acquire more. There seem to be some households that simply are more 'tech-savvy' than others, even when controlling for income, education, location etc.

Even though there has been a rapid increase in the number of mobile phones and also internet in 2014 VARHS households still did not report using mobile phones or the internet for acquiring information about agriculture, markets, credit, and policy. More traditional channels are still used in spreading this information. However, when information technology becomes part of people's everyday lives, the technologies can be exploited in various realms of life in ways which were unimaginable before. Being excluded from this development can possibly be harmful for an individual, for instance in terms of acquiring information. Therefore, having access to technology can be seen as a means to empowerment.

It is crucial that access to technology and knowledge of its use are an essential part of the education system and poor households are given possibilities to use new technologies. In a growing economy, knowledge about technologies could bring about possibilities that are still beyond our current imagination.

With respect to agricultural technology the picture is very different from that of IT. The amount of machinery owned has stayed very close to constant, except for pesticide sprayers, where the numbers have slightly declined, possibly due to the response of systematic overuse. What we do observe is the increased renting of machinery, and that development has been especially rapid in the Long An province. Hence, we find that rapid economic growth has aided the mechanization of agriculture especially in Long An province, but in the other provinces the development has been much slower. Mechanization of agriculture hence remains to be a concern for policy makers, since it is a means to improve the livelihoods of the rural population, given that environmental concerns are addressed properly.

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## Appendix 7

### *Clarification on data cleaning*

Most of the variables used are from the durables module. When restricting the sample on the balanced panel 2006–14 there were no missing values. There were a few observations that took non-integer values. They were recoded to the closest integer value.

*In Tables 7.3 and 7.6* income share variables are calculated so that, first, all income variables are censored from below to zero. This affected the income measures of crops, livestock, household enterprises, and land rental, in which negative income has been reported. The total income measure used is the sum of the censored variables, hence also not taking negative values. The shares are then calculated using these censored variables.

*In the regressions, Tables 7.4 and 7.7* the balanced panel for 2008–2014 was used. The sample was further restricted to take away households with missing observations, then balanced again. Most of the missing observations were in the distance measure variables.

The variable 'monthly income per capita' used in Tables 7.3 and 7.5 is the one that was commonly agreed to use ( $\text{rhhincome} = (\text{hhincome}/12)/\text{hhsiz}$ ). This variable also takes negative values and is hence not the one that has been used to calculate the income shares.

The variable 'value of crop production per capita' is adjusted with household size, the variable does not take negative values.



## **Chapter 8 Social and political capital**

Thomas Markussen

### **8.1 Introduction**

This chapter investigates the evolution of different dimensions of social capital in rural Viet Nam between 2006 and 2014 and also models the relationship between social capital and income at the household level. Social capital is defined as trust, norms and networks that facilitate collective action (Putnam 1993). The literature on social capital distinguishes between three types of social ties: bonding (within-group ties), bridging (between-group ties), and linking (ties to people in power). Linking social capital is sometimes referred to as 'political capital' and we adopt this terminology here (Woolcock and Narayan 2000).

There is a complex, two-way relationship between economic development and these different dimensions of social capital. First, social capital affects development. Some types of social capital facilitate economic growth and sophistication, while others are barriers to development. In particular, bridging social capital facilitates interactions between strangers and thereby helps to develop a sophisticated division of labour (e.g. Knack and Keefer 1997). On the other hand, bonding and linking social capital may strengthen exclusivism and create biases in access to economic resources (only the 'insiders' get a piece of the action), which in turn slows down economic growth. Second, economic development affects the structure of social capital. The growing need to interact with people from outside one's own community leads to a strengthening of bridging relative to bonding social capital. Formalized associations (political parties, trade unions, sports

clubs etc.) tend to partly replace informal associations (kinship ties, neighbourhood relations etc.).

The ambiguous effects of social capital on development are to some extent reflected in previous studies of social capital in Viet Nam, based on VARHS. While Newman et al. (2014) show positive effects of social capital measured as information sharing and membership of the Women's Union on household savings (and thereby possibly on development), Markussen and Tarp (2014) show that 'linking' social capital, in the form of informal ties between farmers and local government officials, distorts the distribution of credit, monetary transfers, and agricultural investment. Similarly, Newman and Zhang (2015) report that politically connected households have easier access to public benefits than other households, and Kinghan and Newman (2015) find that politically connected families are more likely than others to establish a non-farm enterprise.

This chapter first presents descriptive statistics on the distribution of different dimensions of social capital across regions and socio-economic groups and how this distribution has developed over time. It then goes on to present regression analyses of the relationship between social capital and household income.<sup>1</sup> These analyses show significant effects of several different aspects of social capital on household income. For example, Communist Party membership, trust in strangers, and informal connections all affect income positively. On the other hand, we find no effect of membership in mass organizations, such as the Women's and Farmers' Unions.

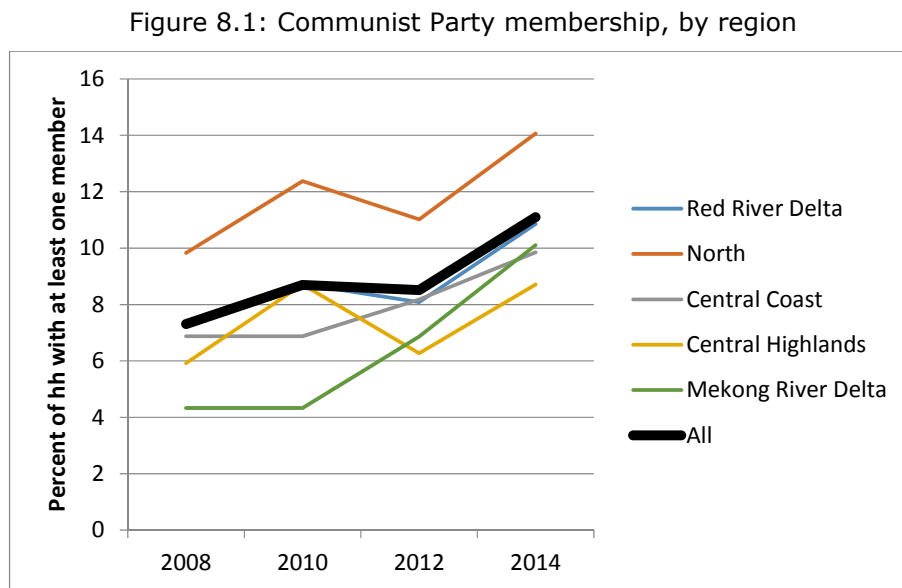
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<sup>1</sup> Analyses are based on the 2006–14 panel households.

## 8.2 Communist Party membership

As discussed above, Markussen and Tarp (2014) find that personal connections to local government officials, a form of political capital, strengthen land property rights and access to credit and transfers. This section focuses on another, primary source of political capital in Viet Nam, namely membership of the Communist Party. In a one-party, highly activist state ('totalitarian' in many ways still seems an adequate description), the potential importance of Party membership is obvious (see Markussen et al. 2014 for an analysis of the effects of Party membership on subjective wellbeing).

Figure 8.1 shows the share of households with at least one Party member across five different regions and over time.

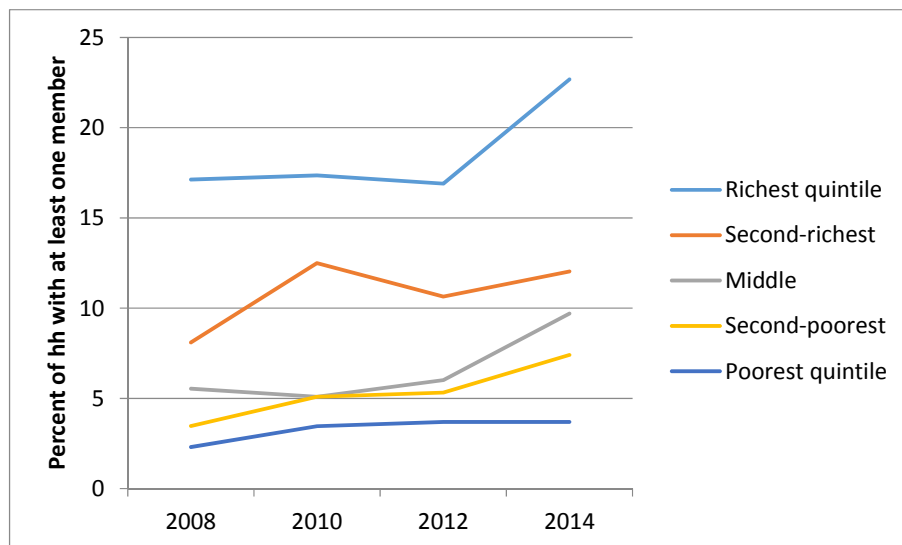


Note: N = 2,162 households.<sup>2</sup>

<sup>2</sup> Each household is observed four times, so the total number of observations is  $4 \times 2,162 = 8,648$

The VARHS questionnaire section on membership of the Party and other groups was changed between 2006 and 2008 and for that reason results for 2006 are omitted. The figure shows that the share of households with Party members increased from a bit more than 7 per cent in 2008 to 11 per cent in 2014. This partly reflects the fact that households are growing older and that this increases the probability of membership. However, even when the age of the household head is controlled, the difference between average membership in 2008 and 2014 is still significant, indicating that the Party has somewhat expanded its membership base. Party membership is significantly more prevalent in the North than in other regions. This is not surprising since the North is the traditional heartland of the Party but it is interesting to note that the strongest rate of growth between 2008 and 2004 is observed in the Mekong River Delta, where the share of households with Party members more than doubles.

Figure 8.2: Communist Party membership, by income quintile



Note: N = 2,162 households. Quintiles are calculated on the basis of per capita income and are defined 'within year', i.e. divides the sample in five groups of equal size within each year.

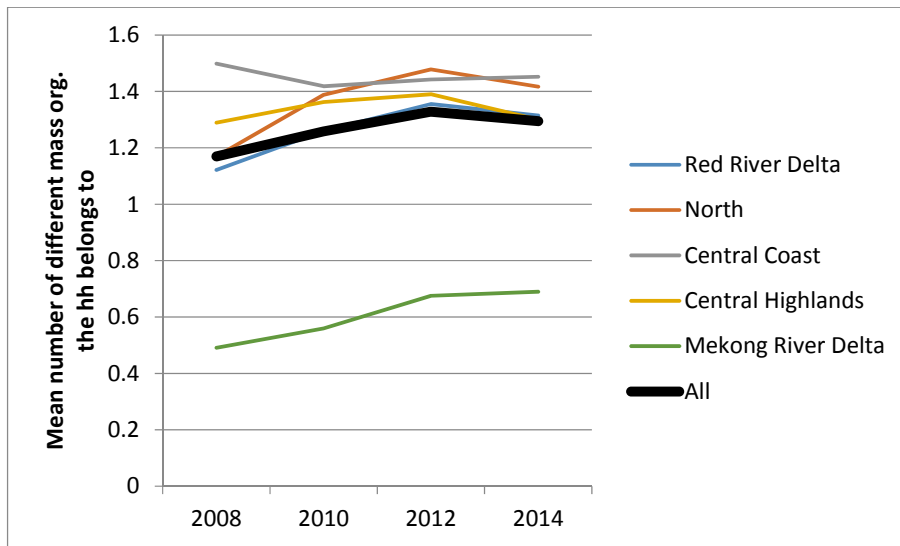
Figure 8.2 shows the distribution of Party membership across income quintiles. The figure reveals an extremely strong income gradient in Party

membership. Membership is four to seven times more common in the richest quintile than in the poorest, with no convergence between 2008 and 2014 (if anything, the 2014 results indicate the opposite). There may be different reasons for this. Certain personal characteristics, such as education and entrepreneurship, may affect both income and Party membership. Alternatively, income may be a formal or informal criterion for Party membership, and/or Party membership is a cause of high income. The regression analysis below throws more light on these issues. For now, it is sufficient to note the tension between the egalitarianism of communist ideology and the socio-economic profile of Party members in rural Viet Nam.

### **8.3 Mass organizations**

Apart from the Party, the most important type of formal associations in rural Viet Nam are the so-called 'mass organizations, which include the Women's Union, Farmers' Union, Youth Union, and Veterans' Union. Membership is voluntary, but mass organizations are closely linked with the state and sometimes participate in local government decision-making. For example, Women's and Farmers' Unions in some communes participate in screening applicants for government-sponsored loans, for example from the Bank for Social Policies (VBSP). If we distinguish between 'state', 'market', and 'civil society' as the primary spheres of social activities outside the family, social capital can be viewed as a measure of the strength of civil society. However, due to the strong links between mass organizations and the state, it is probably more relevant to view vibrant mass organizations as indicating a strong state, rather than a strong civil society. Nevertheless, group activities may well be a source of bridging as well as linking social capital and the evolution and distribution of mass organization membership is therefore interesting to investigate. Figure 8.3 shows the average number of different mass organizations households belong to, by region and over time.

Figure 8.3: Mass organization membership, by region



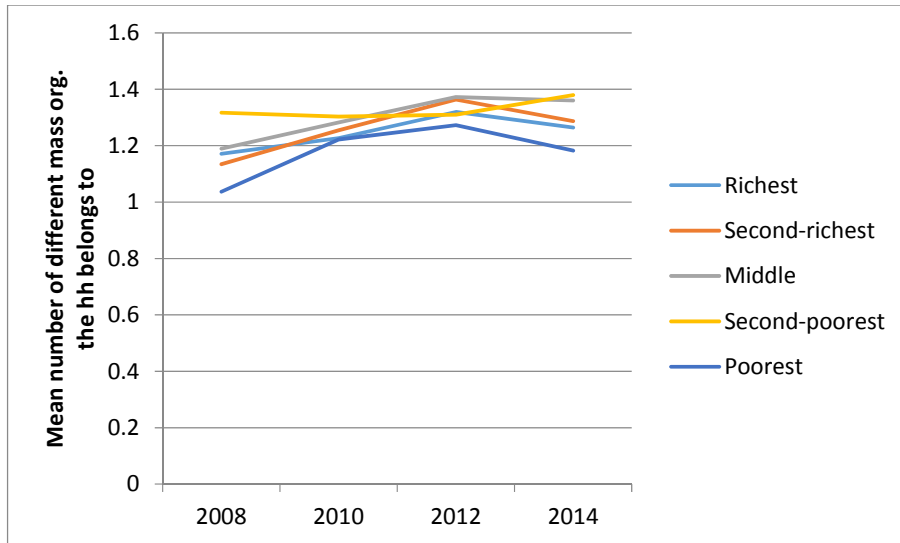
Note: N = 2,162 households.

The figure shows that households are, on average, members of about 1.3 different mass organizations, with a slight increase from 2008 to 2014. About 75 per cent of households are members of at least one mass organization. The Mekong River Delta stands out as the region with by far the fewest mass organization memberships. Again, the most obvious interpretation is to view this as a legacy of the different histories of the communist movement in the North and the South. However, it is interesting to note that there were important differences in the social structure of villages in the northern and the southern deltas even before the advent of communism (in fact, even before colonialization). In particular, because of much lower population densities in the Mekong than in the Red River Delta, migration was more common in the South, which in turn meant that villages were less tightly knit communities and that values were more individualistic (Gourou 1936; Popkin 1979). It is possible that these historical differences are to some extent reflected in current social activities.

Figure 8.4 shows mass organization membership by income quintile. In marked contrast with the results on Party membership (Figure 8.2), there

is no strong income gradient in membership of mass organizations. The Party is exclusive, mass organizations are inclusive.

Figure 8.4: Mass organization membership, by income quintile

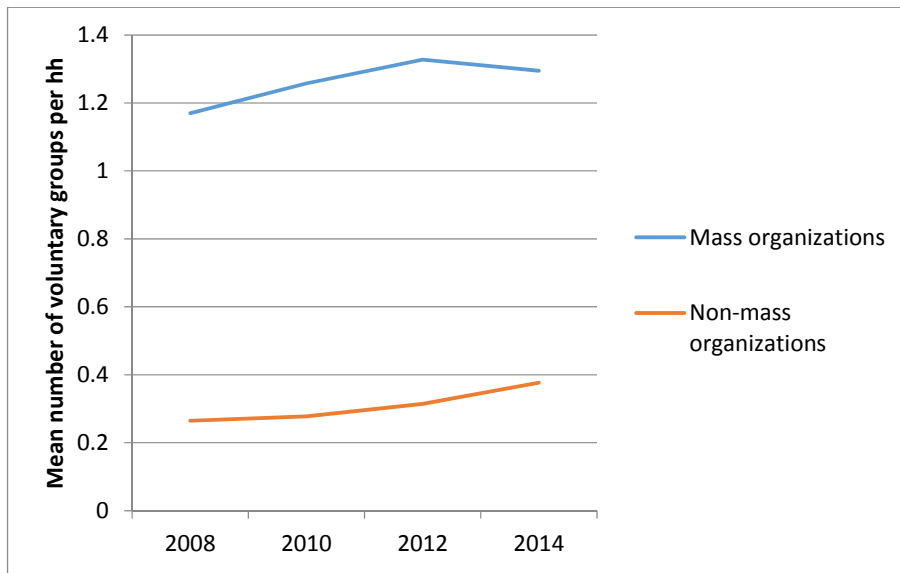


Note: N = 2,162 households.

#### 8.4 Other voluntary associations

Now consider voluntary groups *other* than mass organizations. These include business associations, credit groups, religious groups, sports and cultural groups, groups for the elderly, and a number of other groups. Figure 8.5 compares frequency of membership in, respectively, mass organizations and other voluntary groups.

Figure 8.5: Membership of mass organizations and other voluntary groups



Note: N = 2,162 households.

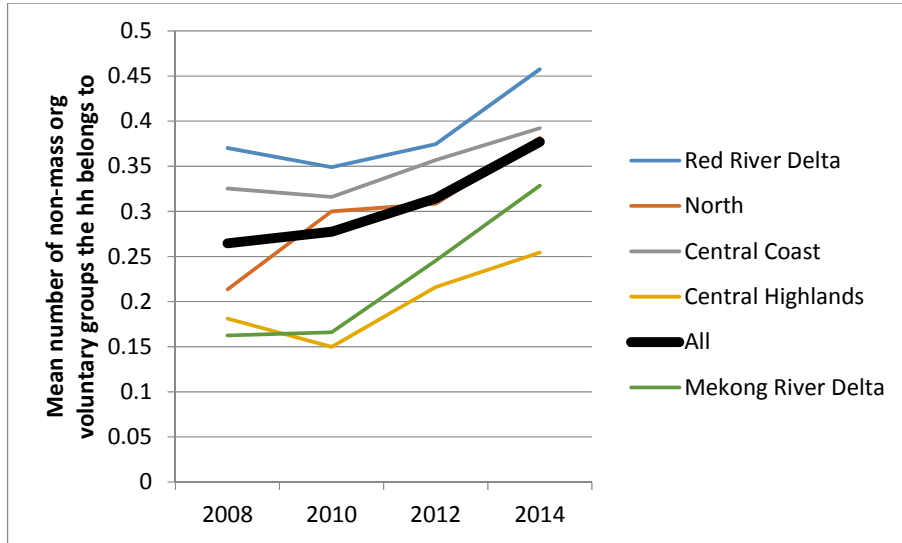
The figure shows that membership of mass organizations is more common than membership of other groups by an order of magnitude, documenting that mass organizations continue to dominate associational life in rural Viet Nam.

However, the relative increase in non-mass organization (non-MO) membership from 2008 to 2014 (42 per cent) is much higher than the increase for mass organizations (11 per cent). Hence, some amount of convergence is perhaps underway. This is potentially very interesting, since the growth of non-MO voluntary groups could represent an important step in the development of an independent, civil society in Viet Nam. However, it is important to note that the growth in non-MO membership since 2008 is largely the result of growing membership in 'groups for the elderly'. This growth is only partly explained by ageing of respondents. In a linear regression, which controls for age of the household head, membership of non-mass organization groups is still significantly higher in 2014 than in 2008. Hence, the observed growth in non-MO membership is genuine. Still, it is unclear whether these groups are able, for example, to play a role in



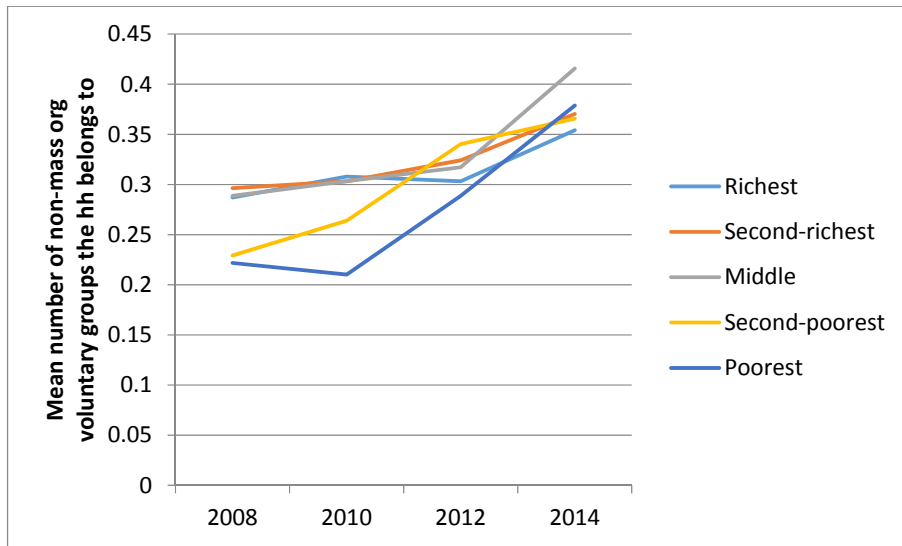
holding government accountable, similar to the function of civic associations in northern Italy that Putnam (1993) famously described.

Figure 8.6: Non-mass organization membership, by region



Note: N = 2,162 households.

Figure 8.7: Non-mass organization membership, by income quintile



Note: N = 2,162 households.

Figures 8.6 and 8.7 show the development of non-MO membership by region and income quintile, respectively. It is notable that the average number of memberships has increased in all regions. Non-MOs are more

common in northern than in southern areas. Since these associations are not directly controlled by the communist movement, this can be said to go against the view that associational activities are driven only by the degree of communist dominance, which is surely stronger in the North than in the South. On the other hand, it is well in line with the view that northern villages are more 'communitarian' than southern villages, (see the above discussion of pre-communist North-South differences).

Figure 8.7 shows that in 2008 and 2010, membership of non-mass organization groups was more common in richer than in poorer households. However, this difference appears to have disappeared in 2012 and 2014, perhaps because the expanding groups for the elderly cater to poor as well as to rich households.

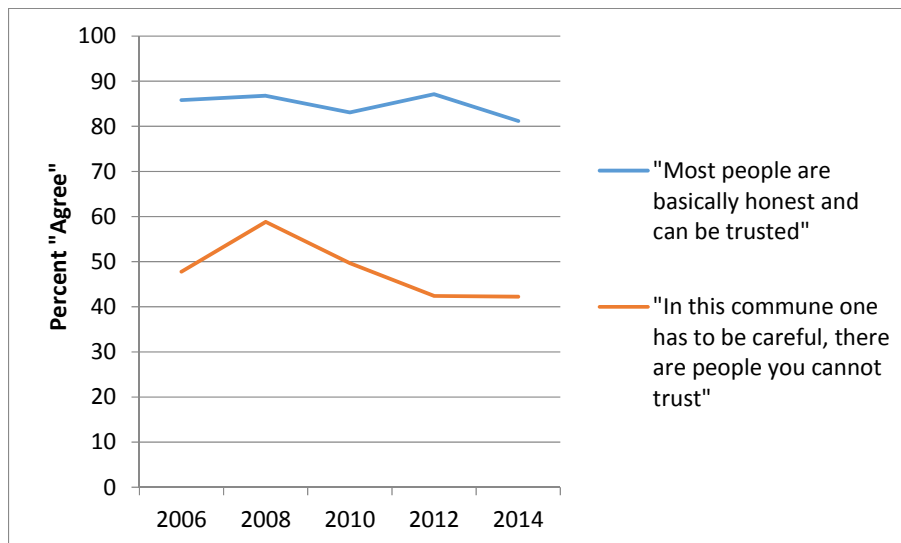
## **8.5 Trust**

As discussed above, it is unclear whether levels of voluntary group activity in Viet Nam are valid measures of social capital, because of the strong links between the biggest groups and the state. Therefore, attitudinal measures, such as those measuring 'trust' are particularly interesting to investigate in a country such as Viet Nam. Measures of 'generalized trust', i.e. trust in unspecified 'strangers', rather than specific groups or individuals, are commonly used as measures of bridging social capital (e.g. Knack and Keefer 1997; Alesina and Ferrara 2002). The VARHS contains two such questions. The first asks respondents whether they agree with the statement 'most people are basically honest and can be trusted'. The second asks about the statement 'in this commune one has to be careful, there are people you cannot trust'. Because the second question refers to 'this commune', it is perhaps debatable whether it measures bridging or bonding social capital (generalized or group-specific trust). However, since the number of inhabitants in a commune is about 5,000 on average, most residents in one's commune are 'strangers' in the sense that the respondent

does not personally know them well. Therefore, we regard the question as a measure of generalized trust and in some analyses combine answers to the two questions in an index of trust.

Figure 8.8 shows the share of respondents who agree with each of the statements described above. Note that in 2006, two questions were inserted into the questionnaire between the first and the second of the questions shown here. These inserted questions were removed in 2008 and in later years. This may affect answers to the second question. In particular, the increase in the share who 'agree' with the second statement from 2006 to 2008 may reflect this.

Figure 8.8: Generalized trust and mistrust



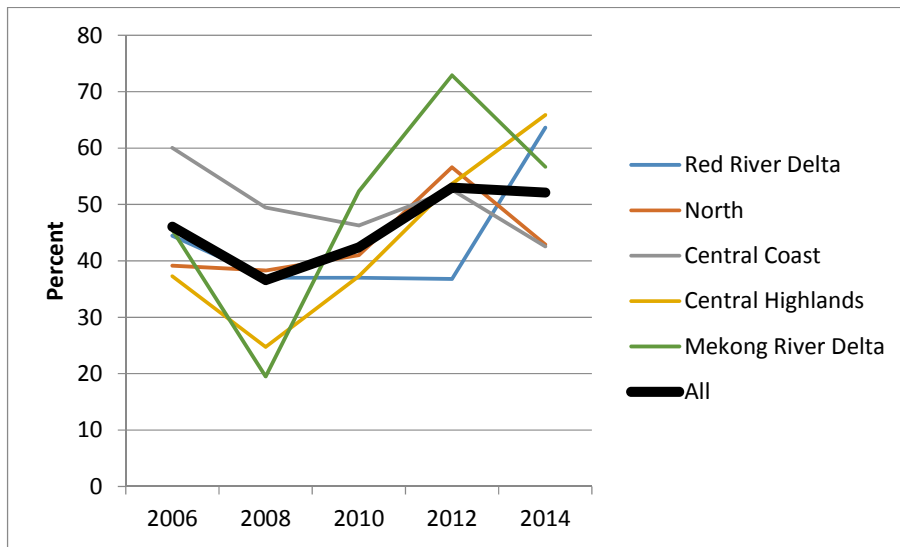
Note: N = 2,162 households.

In general, the results show a very slight decrease in the share of respondents agreeing with the first statement ('people are basically honest and can be trusted') and a stronger decline, especially since 2008, in the share agreeing with the second statement ('one has to be careful...'). Overall, this may be taken as evidence of a moderate increase in generalized trust. As discussed above, this may either be a cause or an effect of economic development, but in any case it should be viewed as

good news. Generalized trust paves the way for economic specialization and development.

In Figure 8.9, the two trust measures are collected in an index. The figure shows the share of respondents who agree with the first statement *and* disagree with the second, by region and over time. Results again show an overall increase in trust, especially since 2008. The difference between 2008 and 2014 is highly, statistically significant. The pattern across regions is rather messy, with no clear trends emerging.

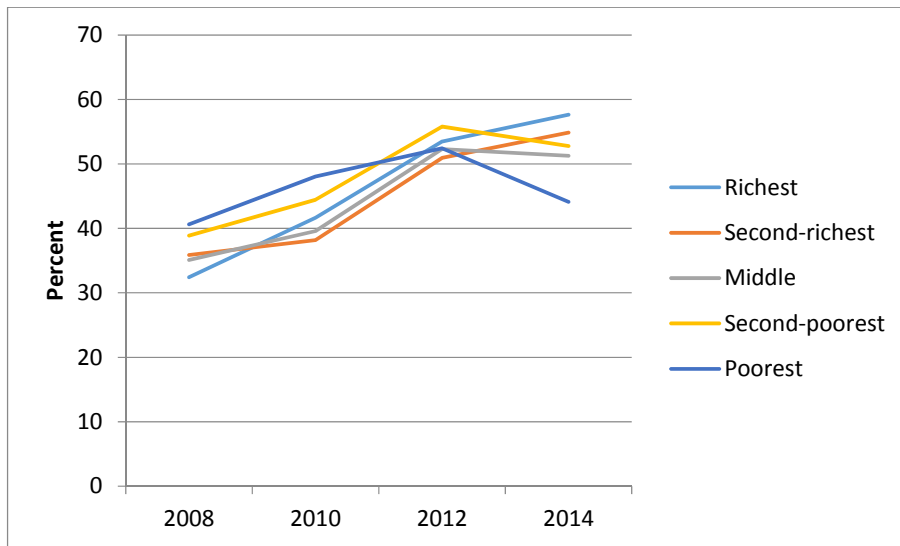
Figure 8.9: Generalized trust, by region



Note: N = 2,162 households. The figure shows the share of respondents who a) agree with the statement 'most people are basically honest and can be trusted', and b) *disagree* with the statement 'in this commune one has to be careful, there are people you cannot trust'.

Figure 8.10 shows the average score on the generalized trust index by income quintile. There is no strong correlation between income and trust. It is curious that the order of the richest and poorest groups is completely reversed between 2008 and 2014, but it is probably too early to draw strong conclusions from this result.

Figure 8.10: Generalized trust by, income quintile



Note: N = 2,162 households. The figure shows the share of respondents who a) agree with the statement 'most people are basically honest and can be trusted', and b) disagree with the statement 'in this commune one has to be careful, there are people you cannot trust'.

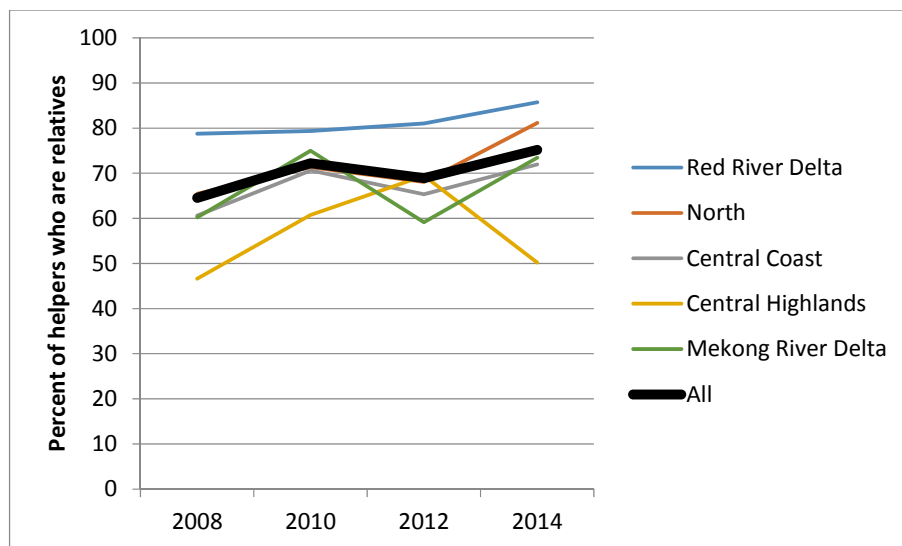
## 8.6 Family ties

It is well documented that family ties are strong in Viet Nam. For example, the 2001 World Values Survey in Viet Nam asked respondents about the importance of different 'life domains'. 82 per cent of respondents say that the family is 'very important'. Some 57 per cent regard 'work' as being in the same category, while only 22 per cent rank 'friends' as very important (Dalton et al. 2002). Results from VARHS show that transactions with relatives play a large role in, for example, land rental markets and in terms of getting access to emergency funding (see below). This suggests that stocks of 'bonding social capital' are high in rural Viet Nam. This is a strength, for example when it comes to insuring households against negative shocks. However, as the economy develops, there is a growing need to interact with strangers and other non-kin. Therefore, we would expect a gradual decline over time in the importance of family ties for economic transactions, as bonding social capital is replaced or supplemented by a growing stock of bridging social capital. This section

tests whether there is any support for this hypothesis in two types of transactions: a) emergency loans; and b) land rentals.

The VARHS survey asks respondents 'if you were in need of money in case of an emergency who outside of your household could you turn to who would be willing to provide this assistance?'. A bit more than 90 per cent list at least one such person. Respondents are asked to provide details about the three most important helpers, for example whether they are relatives or not. Figure 8.11 shows the average share of financial helpers who are relatives of the household, focusing on the three most important helpers, for whom we have data. Again, changes in question formulation lead us to leave out results for 2006.

Figure 8.11: Share of financial helpers who are relatives of the respondent, by region



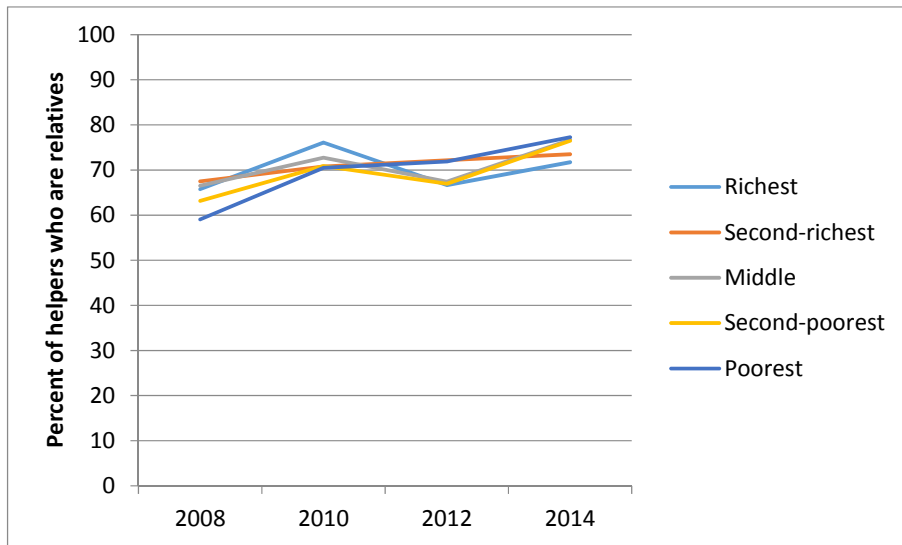
Note: N = 2,014 financial helpers in 2006 (slight deviations from this in later years).

Results show that the share of financial helpers who are relatives is about 70 per cent and, more importantly, that there is no decline in this share over time. In fact the share of helpers who are relatives increases from 65 per cent in 2008 to 75 per cent in 2014, a statistically significant difference, also when age of household head is controlled for in a linear regression (not shown). Reliance on relatives for financial assistance is highest in the Red

River Delta and lowest in the Central Highlands (in three out of four years), possibly because many residents in the Central Highlands are migrants, who live far away from their relatives.

Figure 8.12 shows the share of financial helpers who are relatives by income quintile. Results show that there is virtually no correlation between income and the importance of relatives for financial assistance. So, reliance on relatives for informal insurance is not a peculiar characteristic of poor households or backward regions, nor does this type of reliance show any signs of declining over time.

Figure 8.12: Share of financial helpers who are relatives of the respondent, by income quintile



Note: N = 3,849 financial helpers in 2008 (slightly more in in later years).

In Figure 8.13, we turn to the land rental market and consider the share of tenants who are relatives of their landlord. This analysis is conducted at the land plot level. About 8 per cent of the plots owned by households are rented out. For the plots rented out, the figure shows the share with a tenant who is a relative of the landlord. The figure distinguishes between rental agreements where a strictly positive rental fee was paid (in cash or kind), and arrangement where the land was lent out for free. Because the

number of plots rented out is relatively small, we do not break these results up by region and income quintile. Results show that family ties are of primary importance in land rental markets. Unsurprisingly, this is especially true for plots lent out for free. About 80 per cent of such agreements are between relatives. It is more remarkable that even for genuine, rental agreements, where a rental fee is charged, more than 50 per cent of contracts are between relatives. Even more remarkably, there is no detectable decline in this share over time.

Figure 8.13: Share of rented plots where the tenant is a relative of the landlord



Note: This analysis is conducted at the plot level. N = 261 plots rented out, 294 plots lent out for free in 2006; 539 plots rented out and 497 plots lent out for free in 2014 (intermediate numbers of observations in 2008–12).

Hence, we find no support for the hypothesis of declining reliance on family ties in economic transactions. The importance of kinship relations in rural Viet Nam appears to be remarkably robust to economic development and we may cautiously predict that the structure of economic transactions will continue to be shaped by family ties for a long time to come.



## 8.7 The private returns to social capital

One of the more straightforward and comprehensive ways to study the economic effects of social capital with household survey data is to model the effects of the various dimensions of social capital on household income, as in the much-cited paper by Narayan and Pritchett (1999) titled 'Cents and Sociability'. This section does that. Social capital may increase income through several different channels. First, social capital helps groups solve collective action problems, such as maintenance of irrigation systems, coordination of crop choice, joint marketing of agricultural output, and so on. This increases income for all group members. At the individual level, networks potentially help households get access to good jobs or to cheaper supplies of credit and labour, thereby increasing their ability to invest and to profit from their businesses. Social capital is often a source of insurance. Well-insured households are more willing to undertake risky investments, which may increase their income. Markussen and Tarp (2014) show that political capital increases the security of land property rights, which in turn is an important driver of agricultural investment and income.

Several caveats are in order. First, the model below estimates the private returns to social capital. Private returns do not necessarily equal social returns. For example, a positive return to Communist Party membership does not imply that overall economic growth could be increased by expanding membership. More likely, such an effect picks up redistribution from non-members to members (although of course the Party may also be a forum that facilitates solutions to collective action problems and thereby yield a positive, social return). On the other hand, it is difficult to imagine negative externalities to higher levels of generalized trust. Therefore, a positive, individual level effect of trust is more likely to reflect a positive, aggregate level effect also. Second, social capital may affect household welfare through other channels than private income. First, strong social ties are a goal in themselves and not simply a means to material gain. Second,

social capital may increase production of collective goods (e.g. crime prevention, public infrastructure), which is not included in measures of private income. Third, social capital may allow people to access consumption goods at lower prices than otherwise (as when neighbours share a harvest of fruit), leading to a direct effect of social capital on household consumption.

These things being said, total income is a relatively comprehensive measure of the economic success of the household and it is interesting to see how this measure depends on the different aspects of social capital.

We estimate models of the following type:

$$\ln Y_{it} = S'_{it}\beta + X'_{it}\gamma + \alpha_i + \varphi_t + \varepsilon_{it}$$

where  $Y_{it}$  is real per capita income in household  $i$  in year  $t$ .  $S$  is a vector of social and political capital measures.  $X$  is a set of control variables.  $\alpha_i$  is a household fixed effect and  $\varphi_t$  is a year-dummy.  $\varepsilon_{it}$  is an error term, allowed to be correlated within communes, the primary sampling unit of the VARHS.  $\beta$  and  $\gamma$  are vectors of parameters to be estimated. In the set of social capital measures, we include the variables discussed above: Communist Party membership, membership of MOs and other voluntary groups, the number of individuals willing to lend money in case of an emergency ('financial helpers') and score on the trust index discussed above. Based on the findings in Markussen and Tarp (2014), Kinghan and Newman (2015), and Newman and Zhang (2015), a measure of having a household member, relative or friend who is a local government official is also included. As discussed above, this is a measure of linking social capital, or political capital.

In the set of control variables, we distinguish between exogenous variables (age, gender, schooling, and ethnicity of the household head) and

potentially endogenous variables (number of working age household members (those between 15 and 65) and household assets). The set of asset variables includes, first, the amount of irrigated land. Irrigated rather than total land holdings are used because quality of land is often at least as important as quantity, and access to irrigation is a main determinant of land quality. Second, holdings of a number of non-land assets are also included (numbers of, respectively, cows, buffaloes, telephones, bicycles, motorbikes, pesticide sprayers, and cars). Assets and household size are potentially endogenous in the sense that effects of social capital on income may operate *through* these variables. For example, social capital may ease access to credit, which in turn leads to faster asset accumulation. Social capital may affect the number of working age household members by affecting the possibilities for and incentives to move out of or into the household. Therefore, these variables are omitted from most of the regressions presented below. On the other hand, these factors may also be viewed as omitted third variables that affect both social capital and income and for that reason they are included in some regressions.

One of the main difficulties of estimating the returns to social capital is that households with high and low stocks of social capital potentially differ in a number of ways that are difficult to observe. For example, households with high social capital may be more entrepreneurial, extroverted or risk-loving than other households, and this may affect both social capital and income, and generate spurious correlations between our variables of interest. In this respect, the VARHS survey is highly attractive because the panel dimension of the dataset allows us to control for such unobserved household characteristics by including household fixed effects (household dummies) in regressions. To the extent that household characteristics do not change systematically over time, they are taken into account by household fixed effects.

Other identification issues are more difficult to solve. Most importantly, causality may in some cases run from income to social capital rather than, or in addition to, running from social capital to income. As discussed above, we cannot rule out that income is used as a criterion for Party membership, for example. We cannot fully resolve these issues in this context and therefore it is prudent to view regressions as 'descriptive' rather than 'structural'. Results are interesting nonetheless, as detailed below.

The different aspects of social capital potentially affect each other in complex ways. For example, high levels of trust may increase people's willingness to participate in social groups. On the other hand, group participation may in itself also generate trust. Therefore, it is complicated to separate the effects of different dimensions of social capital on income from each other. Our approach is to first present regressions where each social capital measure is entered alone, along with the set of exogenous control variables (Table 8.1) and then also estimate models where all variables are entered together (Table 8.2). Table 8.1 presents only fixed effects regression (note that bivariate relations between social capital measures and income are shown in the figures above that present results by income quintile). Table 8.2 presents random as well as fixed effects models. While random effects models do not take account of unobserved, fixed household characteristics, they allow us to exploit inter-household variation in social capital and other variables and may therefore also be considered interesting, especially in terms of estimating effects of variables that vary little over time, such as ethnicity of the household head. Random effects models include province dummies (not shown).

Consider now the results in Table 8.1, where social capital measures are entered one by one (with the exception of the measures of mass organization and non-mass organization membership, which are entered together).

The tables shows positive and significant effects of Party membership, connections with government officials and informal, economic networks (measured by number of potential 'financial helpers'). On the other hand, there are no significant effects of membership in MOs or other groups (in contrast with the findings on group membership in Narayan and Pritchett 1999). The effect of trust is also just insignificant ( $p = .143$ ).

Table 8.1: Social capital and income, simple models

	Dependent variable: Real income per capita (ln)				
	FE	FE	FE	FE	FE
Party member	0.104*** (0.036)				
Official (hh member, friend or relative)		0.043** (0.019)			
Number of mass organizations			0.000 (0.011)		
Number of other voluntary groups			0.004 (0.020)		
Number of financial helpers				0.009*** (0.001)	
Trust					0.026 (0.018)
Years of schooling, hh head	0.014*** (0.005)	0.014*** (0.005)	0.015*** (0.005)	0.015*** (0.005)	0.014*** (0.005)
Age of hh head	0.025** (0.010)	0.025** (0.010)	0.026** (0.010)	0.024** (0.011)	0.025** (0.010)
Age squared/100	-0.028*** (0.009)	-0.028*** (0.009)	-0.028*** (0.009)	-0.027*** (0.009)	-0.028*** (0.009)
Female hh head	0.123** (0.054)	0.122** (0.054)	0.120** (0.054)	0.122** (0.053)	0.120** (0.054)
Kinh	0.211 (0.149)	0.209 (0.150)	0.207 (0.149)	0.199 (0.147)	0.211 (0.148)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	8,298	8,298	8,298	8,298	8,298
Number of household	2,162	2,162	2,162	2,162	2,162

Note: Standard errors adjusted for commune level clustering. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Now consider Table 8.2, where all social capital variables are entered together. Regressions 1 and 3 include random effects, while regressions 2 and 4 are fixed effects models as in Table 8.1. Regressions 3 and 4 include number of working age household members and asset variables along with the control variables used in Table 8.1.

Communist Party membership is significant and positive in all models. The estimated return to Party membership is in the order of 10 per cent. This is consistent with the findings of a strong correlation between income and Party membership in Figure 8.2 above. Compared with the figure, the regression results allow us to rule out that the correlation is entirely driven by underlying, unobserved, fixed household characteristics that drive both income and Party membership. The results are consistent with the view that Party membership leads to higher income. They are also consistent with the view that the Party uses income as a criterion for membership. Both interpretations invite further investigations into the functioning of the Communist Party at the local level. Markussen and Quang (2015) attempt to conduct such analyses. Compared with Table 8.1, the effect connections with government officials is significant in random but not in fixed effects models. This may indicate that connections with officials proxy for Party membership in Table 8.1. Alternatively, the effect of connections with officials may operate *through* Party membership. It is quite conceivable that personal connections with officials, or being an official oneself, eases access to Party membership.

Table 8.2: Social capital and income, comprehensive models

	Dependent variable: Real income per capita (ln)			
	RE	FE	RE	FE
Party member	0.256*** (0.034)	0.103*** (0.035)	0.210*** (0.033)	0.087** (0.034)
Official (hh member, friend or relative)	0.067*** (0.018)	0.028 (0.019)	0.058*** (0.018)	0.024 (0.018)
Number of MOs	-0.018* (0.010)	-0.006 (0.011)	-0.016* (0.009)	-0.002 (0.011)
Number of other voluntary groups	0.000 (0.017)	-0.005 (0.020)	-0.023 (0.017)	-0.014 (0.021)
Number of financial helpers	0.010*** (0.001)	0.009*** (0.001)	0.008*** (0.001)	0.008*** (0.001)
Trust	0.025 (0.017)	0.030* (0.018)	0.031* (0.017)	0.036** (0.018)
Years of schooling, hh head	0.040*** (0.003)	0.014*** (0.005)	0.032*** (0.003)	0.012** (0.005)
Age of hh head	0.035*** (0.006)	0.024** (0.010)	0.041*** (0.006)	0.026** (0.011)
Age squared/100	-0.030*** (0.005)	-0.026*** (0.009)	-0.036*** (0.005)	-0.029*** (0.009)
Female hh head	0.077*** (0.029)	0.123** (0.053)	0.069** (0.027)	0.122** (0.055)
Kinh	0.425*** (0.049)	0.208 (0.146)	0.331*** (0.046)	0.219 (0.145)
Irrigated land, ln(x+1)			-0.002 (0.003)	0.002 (0.004)
Number of buffaloes			-0.013 (0.013)	0.008 (0.013)
Number of cows			-0.021** (0.010)	-0.006 (0.015)
Number of telephones			0.089*** (0.009)	0.055*** (0.009)
Number of motorcycles			0.129*** (0.018)	0.066*** (0.015)
Number of bicycles			-0.014 (0.009)	-0.006 (0.005)
Number of pesticide sprayers			0.002 (0.016)	0.022 (0.018)
Number of cars			0.348*** (0.070)	0.290*** (0.076)
Working age hh members, ln			-0.280*** (0.029)	-0.238*** (0.036)
Year fixed effects	Yes	Yes	Yes	Yes
Observations	8,298	8,298	8,298	8,298
Number of household	2,162	2,162	2,162	2,162

Note: Province dummies included in random effects regressions. Standard errors adjusted for commune level clustering. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

There are no significant, positive effects of mass organization membership or of membership in other voluntary groups (in fact, the effect of mass organization membership is weakly, significantly negative in random effects models). This means that there is no apparent, private economic return to activities in these groups. As discussed above, this does not rule out that group membership affects other aspects of household welfare, or that there is a positive, social return to group activities. For example, groups may produce public goods (such as provision of information about agricultural production techniques) that benefit members and non-members alike. To test for such effects, commune level analyses may be useful.

The effect of informal, economic networks (number of financial helpers) remains positive in all models. One interpretation is that individuals who may provide emergency funding are also useful in other types of economic transactions, for example as trading partners or as providers of credit for investment purposes or working capital.

The trust variable is now significant in three out of four models, including both fixed effects models. High-trust households are estimated to earn about three per cent higher income per capita than other households. This is a moderate effect, but it is remarkable nonetheless because it is reasonable to expect that the social returns to trust are higher than the private returns (a household may benefit from being trusting because trust induces it to engage in profitable but risky transactions. However, the partners of these transactions also benefit, leading to a positive externality).

Overall, results are consistent with hypotheses of positive, private returns to bridging social capital (trust), bonding social capital (financial helpers, which as shown above are most often relatives of the respondent) and political capital (Party membership and connections with officials). This supports the notion that social networks and attitudes have important,



economic effects. These factors cannot be ignored if we have a comprehensive understanding of the factors behind household welfare and economic development.

Now briefly consider the effects of control variables. All models estimate a significant, positive return to schooling. Note that in fixed effects models, variation in schooling of the household head is mostly driven by changes in the identity of the head. This is even more so for the gender, age, and ethnicity variables. Random effects estimates may therefore be equally or more interesting than fixed effects estimates for these variables. The estimated return to an additional year of schooling is 3–4 per cent in random effects models and about 1.4 per cent in fixed effects models. As expected, the effect of age is inversely U-shaped in all models. In the random effects model, the peak is 57–58 years. The effect of female headship is significantly positive in all models, which is somewhat surprising. The explanation may be that the most common reason for women being household heads is widowhood. The death of a husband leads to a drop in the denominator of the 'income per capita' variable. If the husband was old or sick, he may not have contributed strongly to income generation in recent years, and the corresponding drop in the numerator resulting from his death is perhaps not very large.

Ethnicity of the household head varies very little over time and it is therefore not surprising that the effect of being Kinh (the majority ethnic group in Viet Nam, see Chapter 12) is insignificant in fixed effects models. In random effects models, there is a strong (33–43 per cent) and highly significant, positive effect of belonging to the ethnic majority. Since the random effects models include province fixed effects, this effect is not driven by regional differences. It starkly highlights the disadvantaged, economic position of ethnic minorities. Among the asset variables, it is perhaps surprising that land holdings are not significant (the same is true if total, rather than irrigated, land holdings are entered). One plausible

interpretation is that there are now a number of other viable livelihood strategies than agriculture, even in rural areas and that focusing on wage labour or non-farm enterprises is often at least as profitable as farming (cf. Ravallion and van de Walle 2008). Among non-land assets, only holdings of motorcycles and telephones are significant. These variables are potentially endogenous and estimates should not be regarded as causal. The effect of the number of working age household members is negative. This implies diminishing, marginal return to labour (the dependent variable being *per capita* income) and indicates the presence of frictions in the labour market.<sup>3</sup>

## **8.8 Conclusions**

This chapter has documented the evolution of various aspects of social capital over time and the distribution of social capital across regions and socio-economic groups. It has also explored the private, economic returns to social capital. Results reveal a very strong correlation between Communist Party membership and household income. Party membership is more common in the North than in other regions. Membership of mass organizations (MOs) is less common in the South than in the North but there is no income gradient in mass organization membership. MOs are much more widespread than other, voluntary groups, but non-MOs are growing faster than MOs. This development is driven primarily by the growth of groups for the elderly. A moderate increase in generalized trust was observed between 2008 and 2014. This indicates a strengthening of 'bridging' social capital in Viet Nam, which is an important prerequisite for continued, economic development. While bridging social capital may be growing, 'bonding' social capital also continues to play an important role.

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<sup>3</sup> With perfect labour markets, people can always find work at the going wage rate, implying constant returns. On the other hand, if workers are to some extent constrained to working on family farms or in other family businesses, diminishing returns are expected.

In particular, family ties play a very strong role in economic transactions such as emergency lending and land rentals. There are no signs that reliance on family ties in economic transactions is declining over time.

Income regressions reveal positive effects of 'political capital', measured by Communist Party membership and connections with government officials. This is consistent with the view that patronage relations are important in Vietnamese politics and highlights the importance of increasing the accountability of political elites (cf. Appold and Phong 2001; Gillespie 2002; Gainsborough 2007; Markussen and Tarp 2014). There are also positive effects of informal networks and of generalized trust, indicating the importance of, respectively, bonding and bridging social capital. On the other hand, membership of MOs and other voluntary, social groups has no effect on household income. This does not rule out that there is a positive, social (community level) economic return to activities in these groups, or that groups have positive effects on other aspects of household welfare than income.

Future studies should, for example, take further steps to identify the causal effects of political capital on income, estimate social as well as private returns to social capital, and further investigate the role of family networks in the Vietnamese economy.

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## **Part III**

# **Welfare Outcomes and Distributional Issues**

## **Chapter 9 Welfare dynamics in rural Viet Nam, 2006 to 2014**

Andy McKay and Finn Tarp

### **9.1 Introduction**

The VARHS surveys which have been conducted since 2006 have collected a wide range of information on the households interviewed, which among other things enables the construction of different measures of household welfare.<sup>1</sup> Data is available on households' consumption of key commodities; on household income from different sources; and on their ownership of a wide range of assets. Each of these can be considered as a welfare measure in its own right, and taking advantage of the panel feature of the data set, it offers an important opportunity to examine the dynamics of welfare in rural Viet Nam. The fact that three separate measures are available further enriches the picture as well as providing cross checks.

This chapter focuses on these three measures to look at the dynamics of household welfare over the five waves of the panel data set. The data set provides an excellent opportunity to identify cases of consistent progress, cases of regress, and cases of volatility in living conditions, and to understand the factors which are associated with this. In doing this analysis it is also important to be mindful of the presence of attrition in the panel data set, which may be systematic in nature. This chapter therefore also takes this into account in the analysis.

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<sup>1</sup> The survey was first conducted in 2002, but the first round of the survey did not collect the data to construct a comprehensive measure of household welfare.

An extensive literature has looked at poverty dynamics based on household survey data and these have included a number of studies for Viet Nam, the latter drawing on the panel data sets available from the different rounds of the Viet Nam Household Living Standards Survey (VHLSS) or the previous Viet Nam Living Standards Surveys. Examples of such studies include Glewwe and Nguyen (2002), Justino et al. (2008), Baulch and Dat (2011), Imai et al. (2010), and Coello et al. (2010) among others. The focus here though is rather on welfare dynamics without making reference to any specific poverty line. Quite a lot of literature has examined this question as well, but in this case mostly in countries other than Viet Nam; examples include Fields et al. (2003), Dercon (2004), Jalan and Ravallion (2004), Lokshin and Ravallion (2006), Beegle et al. (2011) and Hirvonen and de Weerd (2013). Other studies have sought to model asset dynamics, including Lybbert et al. (2004), Carter and Barrett (2006), and Barrett et al. (2006). The analysis in this paper draws insights from this literature.

This chapter is structured as follows. The next section explains the construction of the welfare measures and presents some initial characteristics of the data. Section 9.3 then analyses the structure of income in more detail. The main welfare dynamics analysis is then presented in Sections 9.4–9.6; Section 9.4 presenting a further descriptive analysis, Section 9.5 examining the issue of attrition, and Section 9.6 presenting an econometric analysis. Section 9.7 offers some conclusions.

## **9.2 Measuring household welfare with the VARHS data**

As noted in the introduction, there are three different ways of assessing the welfare levels of households based on the VARHS survey data, based on food consumption, income, and assets. Information is collected on household consumption over the preceding four weeks (from purchases, own production, or other sources) of main food commodities. On household income, households are asked in all five waves questions about their



summary income from different main sources (agriculture, wage, non-farm non-wage, transfers etc.). In both cases these measures were expressed on a per capita basis, and then adjusted for price differences over time and between the different provinces in Viet Nam. The over time price adjustment for the income measure is made using the rural value of the consumer price index for Viet Nam at the province level; for the food consumption measure the over time adjustment is made using the province level value of the food price index from the CPI. Both indices were supplied by the Government Statistics Organization. The spatial adjustment is made from the eight regional spatial price index for Viet Nam computed from the 2010 round of the VHLSS.

In the case of household assets, information on ownership of a wide range of different types is available in the data set. Asset prices are either not available or clearly unreliable, so we need a summary measure. This is done here by constructing an asset index using factor analysis following the principles set out by Sahn and Stifel (2000). The asset index is constructed to include: land and productive assets owned by the household; consumer durable goods; human capital; and measures of social capital. The precise form of the index is presented in Appendix 9.1.

Summary statistics for the different welfare measures for the households included in the panel for the five waves are presented in Table 9.1 and kernel density plots for the same variables are presented in Figure 9.1. Both the mean and median value of the real food consumption measures increase between each wave and the next. The median value of the asset index also increases consistently over this period and the mean value also increases in most periods. The pattern with real income is a bit different; the mean and median both increase consistently between 2006 and 2010, and strongly between 2008 and 2010, but then they fall between 2010 and 2012 before rising again in 2014. In all cases though, the overall pattern is of the welfare levels being much higher in 2014 than was the case in 2006.

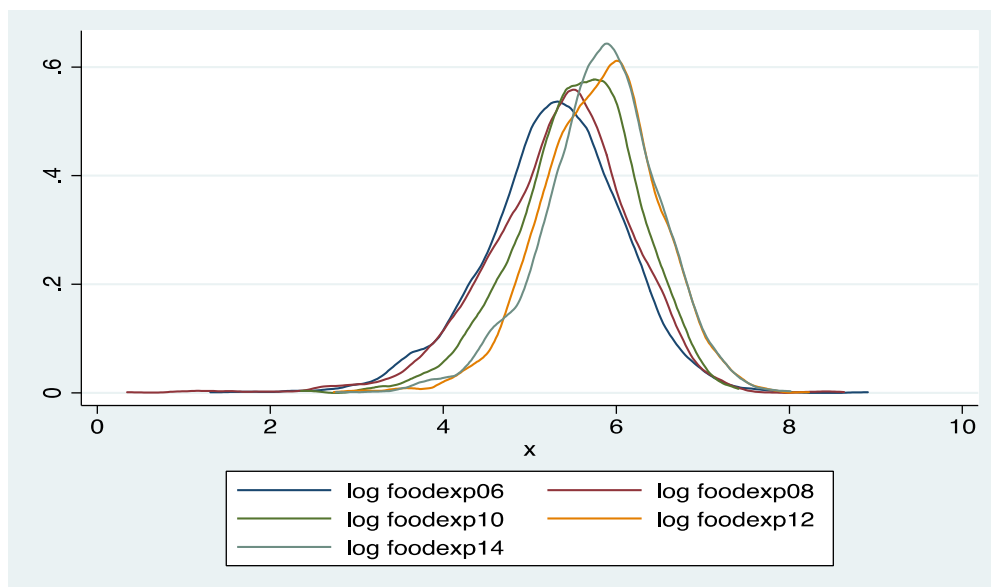
The kernel density plots show a pattern of shifts to the right over time, again demonstrating the large increase in income between 2008 and 2010. In many cases though, the later distributions are not always consistently to the right of the earlier distributions.

Table 9.1: Summary properties of VARHS welfare measures

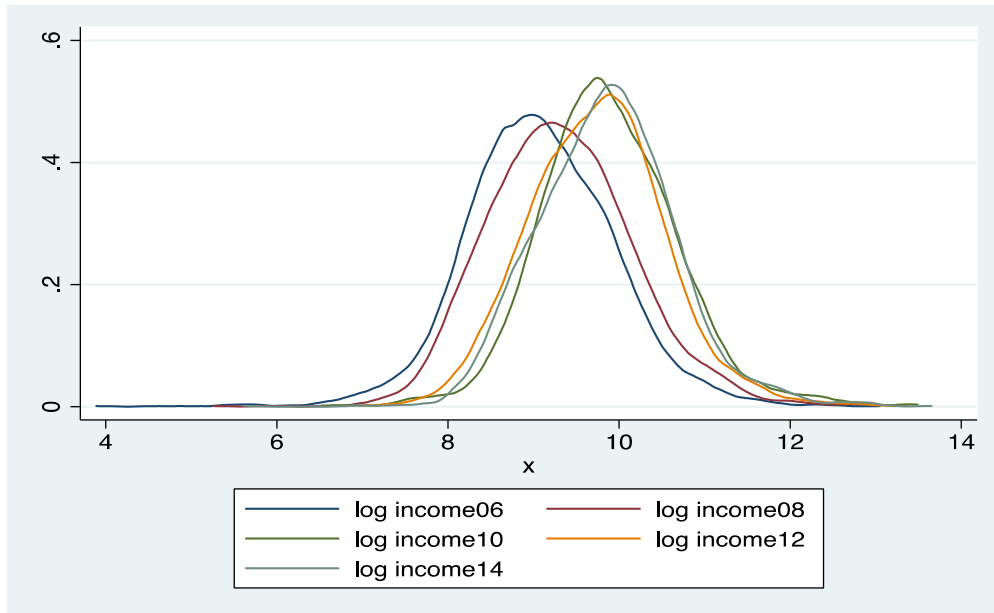
Variable		2006	2008	2010	2012	2014
Asset index	mean	0.042	0.040	0.198	0.320	0.346
	standard deviation	1.068	1.084	1.092	1.082	1.082
	median	-0.032	-0.005	0.136	0.290	0.327
Food consumption	mean	265.9	284.9	319.7	411.6	416.1
	standard deviation	276.3	274.0	214.6	293.8	291.3
	median	200.0	223.8	268.0	339.8	345.7
Household income	mean	13067.5	16982.9	28516.7	24090.1	27376.3
	standard deviation	19223.7	25446.6	42742.9	31094.9	37679.5
	median	8613.9	10754.6	18822.2	16963.8	18954.3

Figure 9.1: Kernel density plot for welfare measures in different waves

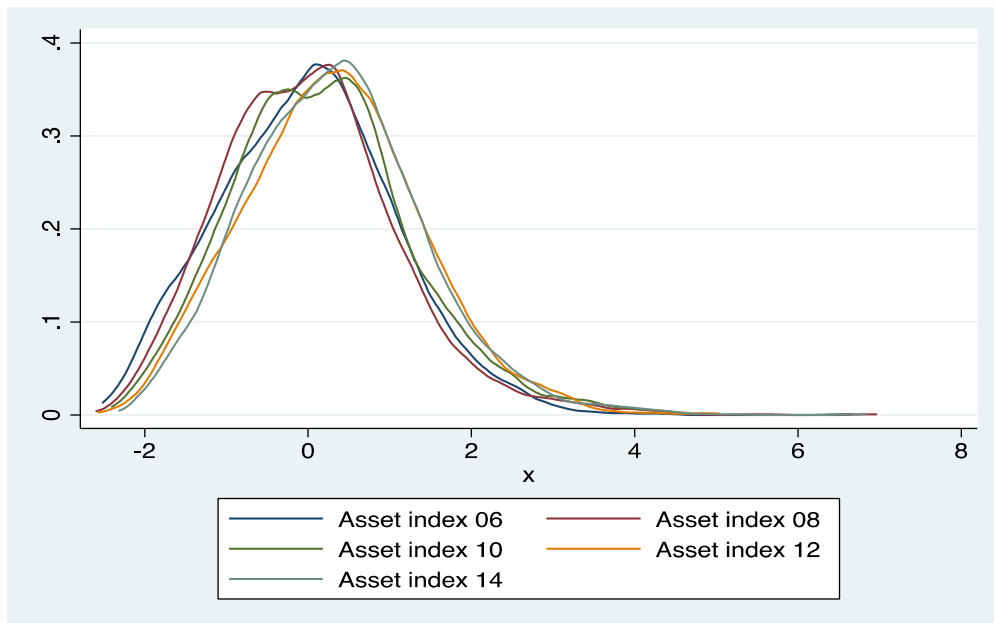
(a) Log of food consumption



(b) Log of household income



(c) Asset index



For the most part the different welfare measures show very similar patterns of change over time, the only notable difference being between the income

measure and the others. It is, however, fully expected that income is likely to be somewhat more volatile over time, reflecting short-term factors contributing to variations, than the food consumption or asset measures, so this difference is not surprising. It is also though, the case that income may be less accurately measured than the other two measures, in particular as households were asked to report their overall income from different sources (including agriculture and business income) and the measure was computed as a sum of these.

### **9.3 Household sources of income**

Before turning to analyse welfare dynamics in detail, we first consider the sources from which households derive their incomes. The summary household income was estimated as a sum of reported income from each of several main sources; the percentage composition of total income for the five years of the panel is reported in Table 9.2.

Table 9.2: Composition of household income using summary income measure

	2006	2008	2010	2012	2014
Wage	25.8%	27.6%	27.5%	31.7%	34.8%
Agriculture	31.9%	36.5%	33.6%	27.5%	26.9%
Common property resources	2.2%	2.3%	2.4%	1.9%	1.1%
Non-farm non-wage	19.8%	20.2%	21.0%	18.6%	20.3%
Rental	1.3%	0.8%	1.1%	2.1%	0.7%
Other	19.0%	12.5%	14.5%	18.2%	16.1%
<i>6 mainly agricultural provinces</i>					
Wage	20.3%	16.4%	18.6%	21.0%	22.5%
Agriculture	54.1%	62.8%	53.9%	50.9%	50.0%
Common property resources	1.9%	3.0%	2.8%	3.2%	2.2%
Non-farm non-wage	13.5%	10.4%	14.7%	10.3%	14.4%
Rental	1.5%	1.0%	1.0%	2.9%	0.2%
Other	8.7%	6.3%	9.0%	11.6%	10.8%
<i>6 less agricultural provinces</i>					
Wage	27.5%	31.3%	29.5%	35.6%	38.8%
Agriculture	24.8%	27.5%	28.5%	19.7%	20.0%
Common property resources	2.2%	2.1%	2.3%	1.5%	0.9%
Non-farm non-wage	22.3%	23.4%	22.4%	21.3%	21.7%
Rental	1.1%	0.7%	1.1%	1.7%	0.9%
Other	22.1%	14.9%	16.2%	20.2%	17.7%

The two most important sources of income are agricultural income and wage income; between 2006 and 2014 the relative importance of wage income has gradually increased and that of agricultural income has gradually fallen, but both sources of income remain important over the full period. The vast majority of households earn income from agriculture; for instance 90 per cent of the panel households earned at least some income from agriculture and this proportion was not much lower in 2006 and 2008. While this proportion fell slightly over time, even by 2014 nearly 84 per cent of the panel households reported some income from agriculture.

All other income sources are earned by a smaller proportion of households; for instance by no more than 65 per cent of households reported earning

wage income and for the other income sources the proportions were smaller. Agriculture therefore continues to play a central role in the livelihood of most of these rural households in Viet Nam. But almost all households combine agricultural income with other sources. Fewer than 4 per cent of households earned their livelihood from agriculture only in 2008 and this proportion was lower in all other years. Wage income and the other earnings categories (much of which is accounted for by transfers) are the next most important sources for most households; smaller amounts are earned on average from a household business activity or from common property resources.

Returning to the amounts of the earnings, consistently more than 60 per cent of earnings come from agriculture and wages combined, but over time the share of wages increases and that of agriculture falls. The increase in wage income partly reflects that over time more households have a member engaged in wage work, but also reflects an increase in earnings. The other two important income sources are household businesses and the other income category (chiefly transfers). Only a minority of households have businesses but for many that do this is a good income source; many more households receive transfers but the amounts are typically smaller. The other components of income reported in this table are very small on average, though they can be important for some individual households.

The lower panel of Table 9.2 shows a disaggregation between the six provinces of the 12 where agricultural livelihoods remain very important, and the other six where non-agricultural livelihoods are becoming increasingly important over time.<sup>2</sup> The former provinces are those in the highlands in the north of the country or in the Central Highlands; the latter

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<sup>2</sup> The first six provinces are: Lao Cai, Lai Chau, Dien Bien, Dak Lak, Dak Nong, and Lam Dong. The second six provinces are Ha Tay, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, and Long An.

groups together provinces close to major cities and/or located on the coast. The table shows important differences between these groups. In the former group, agriculture accounts for the majority of income on average, though its share has been slowly declining since 2008; wage income only accounts for around one-fifth of the total business income for 10–15 per cent, and the share of other income is relatively small. The share of wage income is increasing since 2008 but still remains much less important than agriculture. In the second group of provinces, wage income is the biggest source throughout, and is growing over time; however, agriculture still makes a significant contribution but much less than in the former group. In this group of households both business income and income from transfers are more important than in the former group of provinces.

In addition to the summary measures of income reported to date, the last four rounds of the survey collect more detailed information enabling the computation of more precise and more disaggregated components of household income. As well as providing more detail, this may also be a more accurate estimate of household income. Table 9.3 reports mean values of per capita real income defined in this way. First, the levels are quite similar to the summary measures presented above; the overall shares of the main income components are quite similar. The greater detail which is available here shows that private transfers seem to be the most important form of other income as defined above, and among agricultural income from crops dominate with livestock and aquaculture making much smaller contributions on average.

Table 9.3: More detailed analysis of household income composition, 2008–14

	2008	2010	2012	2014
Crops	27.3%	17.5%	19.8%	18.7%
Livestock	4.5%	3.0%	5.1%	5.1%
Common property resources	2.7%	2.9%	2.1%	1.3%
Household business	21.2%	24.5%	19.8%	21.2%
Wages	27.1%	30.5%	32.3%	35.4%
Private transfers	9.2%	10.4%	9.1%	8.0%
Public transfers	5.4%	7.1%	6.2%	7.0%
Other	2.6%	4.2%	5.6%	3.2%
Per capita household income	15842.68	19848.3	22738.36	25051.1

To date the analysis has focused on changes in aggregate and on patterns of income here and how they change over time. But the principal interest in this chapter is in changes in welfare over time, the issue to which this chapter now turns.

#### **9.4 Descriptive analysis of changes in household welfare**

Section 9.2 reported the aggregate change in the three welfare measures considered in this chapter, but given the likelihood of diversity of experience within the panel, a much more disaggregated analysis is called for. This is the focus of the remainder of this chapter, beginning here with a detailed descriptive analysis and then leading into an econometric analysis which will be discussed in section 9.6 following a discussion of the possible impact of attrition within the panel in section 9.5.

We begin by summarizing the patterns and trends in real per capita food expenditure among the households, reported in Table 9.4 disaggregated according to different criteria, some of which will be considered again in the multivariate analysis of section 9.6. The average level of food expenditure is seen to be significantly lower in the provinces of the North East and North West (Lao Cai, Lai Chau, and Dien Bien) than anywhere else. Focusing on changes, across the sample there is a large average growth of food



expenditure at an annualized average of 5.7 per cent. Figure 9.1 showed that the 2014 distribution clearly lies to the right of the 2006 distribution, suggesting growth across much of the distribution, though that does not imply that consumption grew for all individual households. Among most provinces, average levels of expenditure tend to fluctuate from one year to another, but the fastest growth over the 2006–14 period is experienced in Ha Tay, Quang Nam, and Long An, all provinces located close to important urban centres.

Table 9.4: Levels and changes in real per capita food consumption in the 2006-14 VARHS panel, disaggregated by different criteria (VND '000s)

	2006	2008	2010	2012	2014	Annualized growth rate 2006-14
By province						
Ha Tay	252.5	291.2	350.7	487.7	477.2	8.3%
Lao Cai	230.7	163.1	140.1	215.3	286.7	2.8%
Phu Tho	290.5	322.8	376.2	475.6	365.0	2.9%
Lai Chau	161.8	186.2	176.3	231.8	198.7	2.6%
Dien Bien	186.7	177.5	265.3	273.6	285.2	5.4%
Nghe An	236.2	304.9	271.9	396.6	316.6	3.7%
Quang Nam	262.9	305.5	315.7	402.0	498.7	8.3%
Khanh Hoa	392.3	271.5	481.0	386.8	509.3	3.3%
Dak Lak	276.4	297.4	262.2	347.5	371.5	3.8%
Dak Nong	335.6	341.4	334.8	444.0	387.4	1.8%
Lam Dong	339.2	206.1	327.9	320.0	432.8	3.1%
Long An	293.4	303.7	362.2	461.3	526.5	7.6%
By education quartile						
Lowest	180.6	194.2	221.7	279.0	296.2	6.4%
2	237.3	244.7	297.8	382.5	400.4	6.8%
3	285.6	302.0	358.4	430.3	457.4	6.1%
Highest	378.2	408.3	412.6	565.5	514.2	3.9%
By size of household						
1 or 2	327.5	329.6	367.7	445.0	474.5	4.7%
3 or 4	303.9	322.9	363.9	471.3	462.3	5.4%
5 or 6	230.5	255.8	283.6	369.7	386.0	6.7%
More than 6	189.5	188.2	242.6	299.7	292.2	5.6%
By ethnicity						
Kinh	290.6	311.3	351.3	450.6	455.5	5.8%
Non-Kinh	170.2	171.2	195.5	250.2	253.4	5.1%
By remoteness status						
Non-remote	282.7	295.6	340.0	430.1	426.3	5.3%
Remote	231.7	257.0	276.7	368.3	392.3	6.8%
By illness status						
Not ill	275.2	299.8	325.3	434.4	425.1	5.6%
Suffered illness	253.6	259.2	314.3	375.6	401.8	5.9%
By migrant status						
No migrants	264.2	277.8	324.9	394.1	388.2	4.9%
Migrants	272.9	295.6	313.8	443.0	466.0	6.9%
Total	267.1	284.0	321.0	411.6	416.1	5.7%

Both the levels and growth rates of food consumption are higher for households from the majority Kinh population compared to non-Kinh households, and for households that have a member who migrated out of the household compared to households without migrants. Education, household size, and incidence of illness all correlate with the level of food consumption in expected ways, but the growth rates do not differ systematically across these groups.

A corresponding analysis in terms of household real per capita income shows broadly similar patterns. Income grows at an annualized average growth of 9.6 per cent over the period. Levels are again generally lowest in the same three northern provinces as food consumption, with Dak Nong, Long An, and Ha Tay being provinces with quite high income levels over the period. Income growth rates are lower in Lao Cai and Lam Dong than other provinces, most of which record quite high-income growth. As with food consumption, income growth is lower for ethnic minority headed households and households without migrants. In relation to assets, the index also increases by a large magnitude over the period. Here, growth is much slower in Lao Cai than elsewhere, but in this case there are no obvious differences by ethnicity or the presence of migrants.

Table 9.5: Percentage of households experiencing significant increases and reductions in food expenditure and income over the period of the surveys

	% increasing 20% or more	% falling 20% or more	% increasing 20% or more	% falling 20% or more
By province				
Ha Tay	77.0	9.8	79.1	10.0
Lao Cai	54.1	21.2	55.3	32.9
Phu Tho	57.6	23.2	75.8	9.4
Lai Chau	61.7	26.2	72.9	12.2
Dien Bien	63.6	25.3	68.7	16.2
Nghe An	62.2	21.3	76.6	11.7
Quang Nam	77.3	6.8	84.9	5.4
Khanh Hoa	57.8	12.7	80.6	4.2
Dak Lak	57.7	26.9	65.7	17.6
Dak Nong	53.9	33.0	73.9	17.4
Lam Dong	53.1	31.3	67.2	18.8
Long An	72.8	14.9	76.5	9.8
By education quartile				
Lowest	68.0	17.3	73.8	12.9
2	69.3	16.2	74.3	12.2
3	66.8	17.1	79.2	9.5
Highest	62.6	20.4	75.5	11.9
By size of household				
1 or 2	61.4	22.8	62.2	16.3
3 or 4	63.3	18.6	76.0	12.9
5 or 6	72.0	14.9	78.6	9.0
More than 6	67.2	18.1	78.6	10.9
By ethnicity				
Kinh	67.6	16.2	76.6	10.6
Non-Kinh	63.7	23.6	72.3	15.8
By remoteness status				
Non-remote	66.1	18.2	76.1	11.7
Remote	68.4	16.3	75.0	11.3
By illness status				
Not ill	66.7	17.5	76.8	11.4
Suffered illness	67.0	17.8	74.2	12.0

By migrant status				
No migrants	64.4	18.9	72.0	13.4
Migrants	71.1	15.4	82.5	8.3
Total	66.8	17.6	75.8	11.6

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In using the panel data the question of mobility over time is of much greater interest. Given inevitable measurement error in the data, it makes sense to focus on large changes; Table 9.5 reports the percentage of households experiencing either a 20 per cent or greater increase in real per capita food consumption or income between 2006 and 2014, or a 20 per cent or larger reduction, disaggregated according to the same categories as above. Overall nearly 67 per cent experienced increases of 20 per cent or more in their food consumption over the period, and nearly 76 per cent an increase in their income. A majority of households in all categories saw increases of 20 per cent or more in both variables over the period, though in some instances such as the case of Lao Cai only just over half of the households saw increases of this magnitude in their food consumption or income.

But what is also striking is that 17.6 per cent of households, more than one in every six, saw their food consumption levels falling by 20 per cent or more even when the average increase was 5.7 per cent a year over eight years. A non-negligible number of households have been getting significantly worse off, while around them many households are improving their living conditions substantially. This is much more common in some provinces (often Northern or Central Highlands) and is higher among ethnic minority households. The results for household income also show 11.6 per cent of households experiencing sizeable reductions over this period; these proportions are again significantly higher among ethnic minority households and also in Lao Cai compared to other groups.

## 9.5 Attrition

Panel data are inevitably subject to attrition. Households interviewed in a previous round of the survey may not be available in a later round. This can arise due to refusal to be interviewed, or death of all household members, both of which are very rare in the VARHS sample. It may also be due to migration of the entire household which is more common. In this case, tracking and revisiting entire households that moved out of the survey area was not possible for budgetary reasons. Households which moved outside the area were not re-interviewed, so these drop out of the panel. It is important therefore to check that these migrating households are not systematically different from those that remain. There was, however, a questionnaire to collect information on migrating households, asking local authorities why and where absent households moved, and whether they were poorer or richer than average within the community. The survey also enquired about their current occupation and standard of living.

The analysis of attrition includes 2,322 households interviewed in 2006. The size of the subsequent samples is reported in Table 9.6, reporting the number of cases of attrition in each round. The rate of attrition between one wave and the next varies between 1.6 per cent and 2.5 per cent and the attrition over the full four waves is 7.4 per cent. Given that there are five waves, this is not a substantial rate of attrition but as noted it needs to be verified whether this displays a systematic pattern.

Table 9.6: Extent and nature of attrition in the VARHS 2006–12 panel

	Sample size	Number attrited	Mean: attrited	Mean: non-attrited	t test for NA-A=0
Summary income					
2006 base	2322				
2006-8 panel	2264	58	13234	13125	-0.36
2006-8-10 panel	2223	41	14102	13107	-0.33
2006-8-10-12 panel	2185	38	12096	13124	0.33
2006-8-10-12-14 panel	2150	35	18012	13068	-1.28
Food consumption					
2006 base	2322				
2006-8 panel	2264	58	279.8	266.8	-0.04
2006-8-10 panel	2223	41	316.1	265.9	-1.16
2006-8-10-12 panel	2185	38	284.4	266.2	0.4
2006-8-10-12-14 panel	2150	35	291.8	265.9	-0.47
Asset index					
2006 base	2324				
2006-8 panel	2266	58	-0.628	0.184	4.53
2006-8-10 panel	2225	41	-0.376	0.026	2.38
2006-8-10-12 panel	2187	38	-0.595	0.036	3.61
2006-8-10-12-14 panel	2152	35	-0.464	0.042	2.36

The absent household questionnaire suggests that the vast majority of moves were due to migration. Around two-thirds of attrited households were believed to have moved permanently, while for one-third the move is thought to be temporary. The dominant reasons given for the move are economic or to be with other family members. The moves were predominantly non-local, the majority being to either another province or a non-bordering district within the same province. A higher proportion moved to another rural area rather than an urban area. Importantly those moving were predominantly reported to be of a similar standard of living to others in the commune or slightly poorer.

The absence of a systematic difference between households that left and those that remained is confirmed by an analysis of the baseline values of the different welfare measures of attrited households at each stage

compared to those that remain in the panel (Table 9.6). There is no significant difference in their baseline food expenditure or income in any of the sub-panels presented there. However, there are significant differences between attrited and retained households in relation to their asset holdings, with, in every round, attrited households having less assets than those that remain. Having fewer assets may relate to the life cycle stage for the household, but it does seem that those with fewer assets are more likely to migrate.

Overall though, the extent of attrition in the panel is small, a testament to both the thoroughness of the survey and to the limited household migration in rural Viet Nam.

## **9.6 Econometric analysis of welfare change**

We now move on to conduct a multivariate analysis of welfare change in the panel to properly identify the factors associated with positive and negative changes. In so doing, we focus first on the food consumption and income measures discussed above, and we consider two different approaches: examining changes between the beginning and end of the panel for households present in all five waves; and then looking at wave-to-wave changes for all households present for the two waves in question.

What is being estimated here is effectively a growth model at the micro level, where the change in the logarithm of these welfare measures is regressed on its level in the previous period and different household characteristics in the previous period, including fixed effects which are variously done at the province or district level. In this model the previous period value of the welfare measure is highly likely to be endogenous, so that instrumental variables are needed for this; for both income and consumption this is done here through various physical assets owned by the household. In the case of assets, the issue of endogeneity of the level



of the base previous period asset values is perhaps less a matter of concern. In addition it is difficult to identify an instrumental variable for this variable; so this model is simply estimated by OLS.

Table 9.7 presents values for the change in the welfare measures between the beginning and end of the period, while Table 9.8 shows the wave on wave changes within the panel. All these models are estimated with district level fixed effects. In the cases of food consumption and income, the base period levels of these variables are clearly shown to be endogenous according to the Wu-Hausmann test; household ownership of motor cycles and telephones in the base period clearly function as strongly significant instrumental variables in each case. The first stage F statistics are comfortably above the standard thresholds and there is no evidence of over-identification.

Table 9.7: Regression results for changes in welfare measures from 2006-14 (with district level fixed effects)

	Food consumption		Income		Asset index	
	Coef.	z	Coef.	z	Coef.	t
Food cons, 2006	-0.5443	-8.24				
Income 2006			-0.4118	-6.01		
Asset index 2006					-0.329	-4.94
Time worked			-0.0004	-4.97	0	-0.55
Hh size	-0.0693	-1.83	-0.0725	-1.64	-0.0756	-1.35
Females < 5 years	-0.0014	-0.03	0.0726	1.15	0.0662	0.86
Males < 5 years	-0.0137	-0.27	0.0769	1.26	0.1131	1.53
Females 5-15 years	0.0409	1.01	0.1159	2.34	0.2172	3.68
Males 5-15 years	0.0997	2.47	0.1267	2.59	0.2995	5.07
Females 15-59 years	0.0665	1.65	0.0975	1.99	0.0431	0.73
Males 15-59 years	0.0558	1.49	0.1495	3.28	0.1466	2.61
Females 60 and above	0.0506	0.86	0.0975	1.4	0.0502	0.58
Education per capita	0.0062	0.92	0.0176	2.31	0.0402	4.54
If household has business	-0.0115	-0.37	0.0019	0.05	-0.0573	-1.28
If had natural shock	-0.058	-1.03	0.0513	0.77	0.2032	2.44
If had pest attack	0.0269	0.74	0.0396	0.92	0.0002	0
If had economic shock	0.058	0.33	0.228	1.1	0.1197	0.46
If had illness shock	-0.0495	-1.39	-0.0629	-1.5	-0.0287	-0.56
Number of groups	-0.0441	-1.66	-0.0255	-0.83	-0.1778	-4.07
Number of political groups	0.0442	1.49	0.0364	1.05	-0.0469	-0.97
If female-headed	-0.0182	-0.49	-0.0313	-0.72	-0.1996	-3.64
If has redbook	-0.044	-0.98	-0.0411	-0.79	0.0842	1.28
If remote	0.0215	0.65	-0.0289	-0.74	-0.034	-0.69
If from ethnic minority	-0.0861	-1.03	-0.1724	-1.77	-0.0319	-0.26
Minority*education	0.0051	0.44	0.0073	0.54	0.0033	0.19
If have absent household member	0.1693	5.79	0.1858	5.32	0.0979	2.27
Constant	3.4708	8.59	4.3478	6.47	0.7713	2.01
F stat (first stage)	18.4		22.5			
R square	0.4271		0.4953		0.3883	
Number of observations	2153		2148		2153	

In all cases the lagged level of the welfare measure is significant and negative, as expected in a growth model. Beginning with the regressions, comparing the welfare outcomes at the start to those at the end, education is strongly significant in relation to household income and assets, though

surprisingly not in the case of food consumption. The fact that the household has had migrants has a large and strongly significant positive influence on all three measures of welfare; though in these models the fact of being from an ethnic minority is only significant in the income model. This variable though was also significant in relation to food consumption in the equivalent model including province level fixed effects; the district level fixed effects have made this variable insignificant in this model. Household composition variables are often significant in these models, with households having more members in the 15–60 and sometimes 5–15 range often having a significant positive influence on changes in these welfare measures. But overall, household size has an unsurprisingly significant negative association with changes in per capita food consumption and income. Time spent working in the base period is negatively associated with income growth, and a natural shock experienced in the base period is positively associated with asset accumulation, perhaps as a subsequent reaction to this shock.

Table 9.8: Regression results for changes in welfare measures within the VARHS panel (with district level fixed effects)

	Food consumption		Income		Asset index	
	Coef.	z	Coef.	z	Coef.	t
Food cons, 2006	-0.3184	-6.91	-0.2213	-6.13	-0.3554	-12.61
Income 2006						
Asset index 2006						
Time worked	-0.0001	-2.61	-0.0003	-6.68	0.0001	2.83
Hh size	-0.0084	-0.37	-0.0095	-0.41	0.0886	3.52
Females < 5 years	-0.0153	-0.48	0.044	1.29	-0.1253	-3.45
Males < 5 years	-0.0838	-2.63	-0.0049	-0.14	-0.1254	-3.47
Females 5-15 years	-0.0222	-0.93	0.0039	0.15	-0.0566	-2.09
Males 5-15 years	-0.0099	-0.41	0.0116	0.45	-0.0471	-1.73
Females 15-59 years	0.022	0.95	0.0571	2.28	-0.0158	-0.6
Males 15-59 years	0.0248	1.15	0.0641	2.77	0.0091	0.37
Females 60 and above	0.0312	0.94	0.0344	0.97	-0.0285	-0.75
Education per capita	0.0089	1.98	0.0152	3.5	0.0446	10.29
If household has business	0.0069	0.37	-0.0532	-2.66	-0.0603	-3.04
If had natural shock	-0.0077	-0.38	0.0668	3.05	-0.0053	-0.23
If had pest attack	0.036	1.99	0.0292	1.52	-0.0495	-2.42
If had economic shock	-0.0089	-0.24	0.003	0.08	-0.1167	-2.82
If had illness shock	-0.0235	-1.06	-0.047	-2	-0.0666	-2.63
Number of groups	-0.044	-3.76	0.0277	2.31	-0.1314	-8.58
Number of political groups	0.0304	2.37	-0.03	-2.21	-0.0615	-3.49
If female-headed	-0.0382	-1.8	-0.0432	-1.93	-0.1801	-7.45
If has redbook	-0.0634	-2.63	0.0183	0.74	0.0271	1.01
If remote	-0.0248	-1.34	-0.026	-1.33	0.0034	0.16
If from ethnic minority	-0.1496	-2.8	-0.0923	-1.64	-0.0444	-0.73
Minority*education	0.0154	2.36	0.0024	0.34	0.0084	1.13
If have absent household member	0.0278	1.61	0.0276	1.51	0.0989	5.04
Constant	1.9196	6.99	2.243	6.11	0.0524	0.3
F stat (first stage)	58.0		98.0			
R square	0.2958		0.2895		0.2956	
Number of observations	8715		8699		8730	

Perhaps of greater interest are the results relating to the entire panel data set (Table 9.8). Again, the instrumental variables strongly pass the test for weak instruments. Some similar results are observed here of what was seen

in the model comparing 2006 and 2014, but there are also some significant differences. Education is significantly positively associated with welfare change in all three models. Again some household composition variables are relevant. Household size has a positive association with asset accumulation (this variable is measured at a household level), but having more young boys in the households is negatively associated with the growth in food consumption; having more younger people in the household also tends to be associated with reduced asset accumulation. The household head being from a minority group is now associated with a large negative influence on food consumption and quite a large negative effect on income, despite the presence of district level fixed effects in the model, though in the case of food expenditure this is increasingly offset as the level of education increases. However, the association with migrants here is small (in terms of the coefficient) and less significant, except in relation to assets where there is a large positive effect. Female-headed households have significantly lower levels of increase in all three welfare measures, with the effects of this being particularly large in relation to assets. Negative shocks experienced in the previous period have a negative impact on asset accumulation. This model obviously captures more shorter-term influences on wellbeing.

Clearly the model highlights the beneficial effects of education and of the presence of migrants in the households as strong positive influences of improvements in wellbeing, with the former effect being stronger in the short term and the latter being stronger in the longer term. It also clearly highlights the disadvantages of being from an ethnic minority (or from a district where ethnic minorities are concentrated), as well as the short-term disadvantages faced by female-headed households. Some of these results were apparent from the descriptive analysis, though others were not.

## 9.7 Conclusions

The aim of the VARHS survey is to document the wellbeing of rural households in Viet Nam focusing, in particular, on access to and the use of productive resources. Many of the characteristics of the rural households surveyed over the period 2006–14 do not change over time as one would expect given that the same households are surveyed in each year. Nevertheless, some notable differences exist. The number of surveyed households classified as poor by the Ministry of Labour, Invalids and Social Affairs (MOLISA) has declined. This suggests that, overall, living conditions have in general improved for the surveyed households. This is confirmed in this study based on three measures of welfare: (i) food consumption, (ii) household income, and (iii) household ownership of assets. These three measures all bear witness to the considerable progress that has taken place in Viet Nam in the period under study.

However, this is not consistently the case across all areas of the country. The welfare measures often show quite a lot of volatility from one survey to another, even in indicators such as food expenditure and assets that should be thought to be quite stable. The most striking finding from the analysis of the welfare measures is the failure of Lao Cai to make significant progress over this period, a period over which most provinces, including some initially poorer ones from the north-west, advanced significantly. This is true throughout each of the two-year sub-periods as well. It is clearly important to seek to understand the factors which have contributed to a failure of progress in Lao Cai over this period.

The data though, also show that even in provinces where average living conditions improved a lot, the situation deteriorated for a substantial minority of households in almost every case. Thus, while the aggregate story confirms the pictures from VHLSS surveys and elsewhere of significant poverty reduction in rural Viet Nam, the analysis in this paper

confirms that for a lot of households the situation has clearly worsened over this period. It is important to understand this diversity of experience, and the multivariate analysis provides insights into this. Having a sufficient level of education is associated with a greater likelihood of becoming better off, as does having more prime-age household members (and fewer dependents), and migration of some household members appears to have a very positive impact on the remaining household members over the longer term. Being of non-Kinh ethnicity is significantly associated with smaller increases in food consumption and income. The ethnic differential story is well known in Viet Nam, but has also been the subject of many high profile policy interventions. The results in this paper suggest strikingly that being of a non-Kinh ethnicity remains a substantial disadvantage in rural Viet Nam. The key policy message emerging is that while much has been achieved in Viet Nam in terms of growth and poverty reduction, important challenges remain to ensure inclusive progress in the years to come.

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## Appendix 9

Table 9A.1: Factor index weights for asset index

Variable	Weight
Years of education per capita	0.171
Number of active household members	0.105
Number of plots owned	0.051
Total area owned	0.035
Irrigated area owned	0.049
Number of cows	0.039
Number of buffaloes	0.000
Number of pigs	0.024
Number of chickens	0.027
If household has a business	0.032
Number of colour TVs	0.074
Number of videos/DVDs	0.074
Number of telephones	0.061
Number of motorcycles	0.094
Number of bicycles	0.079
Number of pesticide sprayers	0.041
Number of cars	0.034
Number of groups attended	0.391
Number of political groups	0.407
Area of dwelling	0.054
If has a good lighting source	0.050
If has a toilet	0.067
If has a good drinking water source	0.042

## Chapter 10      Gender

Carol Newman

### 10.1 Introduction

Over the last two decades, a number of changes have been made to Vietnamese law to improve the rights and economic situation of women. The 2003 Land Law allowed for the joint titling of land which primarily affected women in allowing them to be named on their husband's land title. The gender equality law implemented in Viet Nam in 2006 aimed to ensure equal rights of women in all aspects of economic and political life. These changes were partly driven by efforts to attain Goal 3 of the Millennium Development Goals (MDGs) which was to 'Promote Women and Empower Women'. With the end of the timeframe for completion of the MDGs upon us, examining gender disparities and how they have evolved over the last decade is timely. In this chapter we examine gender differences in rural Viet Nam for the period 2008 to 2014.

Other studies have found that the economic situation of women in Viet Nam has improved, but that gaps still remain. In 2011, for example, the World Bank *Viet Nam Country Gender Assessment* pointed to significant progress in relation to poverty and wellbeing, employment and livelihoods, and political participation (World Bank 2011). This report highlighted a number of gender differences that still remained including wage disparities (although much improved), the over-representation of women in more vulnerable jobs, vulnerability of older women, particularly in rural areas, and a lack of voice among women in public positions. More specifically in relation to changes in the Land Law, Menon et al. (2013) and Newman et al. (2015) find positive impacts of land titling, and in particular joint land

titling where women are included in the land registration, on welfare outcomes for women and households more generally. Indeed, it is now widely acknowledged that promoting gender equality within households and in particular putting resources under the control of women, can significantly improve welfare and progress the development process (Duflo 2003). As such, in addition to gender equality being an end-goal in itself, promoting gender equality will also contribute to development through the impact that female empowerment has on the welfare of families and, in particular children, in relation to, for example, nutrition and education.<sup>1</sup>

In this chapter we consider the two distinct groups of women living in rural Viet Nam. We first examine female-headed households the majority of which are widows (68 per cent). These account for around 20 per cent of the VARHS sample and so represent a significant proportion of rural households. Using the balanced panel of 2,181 households, we compare the economic situation of female-headed households with their male counterparts and find that they are a very different socio-economic group that are particularly vulnerable. Second, we focus our analysis on individuals rather than households. We make use of the rich data collected through VARHS on each individual within each household. We examine the economic status of women (adults) relative to men and examine how the welfare of each group, relative to each other, has evolved over the 2008 to 2014 period. We focus on three sets of outcomes namely: health, education, and economic activities, and use a cohort analysis which allows us to compare the characteristics of women and men within given age brackets over time.

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<sup>1</sup> See van den Bold et al. (2013) for an overview of the evidence linking female empowerment and child nutrition and Doss (2013) for an overview of the literature linking female empowerment to children's education.

We conclude our analysis with an examination of the extent to which female empowerment has taken place in Viet Nam and whether this has led to increased household welfare outcomes. This analysis is motivated by the literature mentioned above which proposes that resources held in the hands of women are good for economic development and in particular for household and child welfare outcomes. We measure female empowerment using three measures: the proportion of income that a woman earns from waged employment (on the assumption that this income is more likely to be kept by the woman), whether or not the woman is in charge of managing the household land, and whether or not the woman has joint property rights to the land that she and her spouse farm. Using the full panel dataset from 2008 to 2014, and excluding female-headed households, we examine the relationship between these empowerment indicators and household consumption.

The chapter is structured as follows. In section 10.2 we examine the characteristics of female-headed households in terms of socio-economic characteristics, income and vulnerability. In section 10.3 we present a cohort analysis using the individual level data focusing on four cohorts: 18–30 year olds, 3–45 year olds, 46–60 year olds, and those aged 61 and over. In section 10.4 we present measures of female empowerment and relate these measures to household welfare. Section 10.5 concludes.

## **10.2 Characteristics of female-headed households**

Approximately one-fifth of households in the VARHS sample are headed by women. In this section we explore the characteristics of these households. Table 10.1 presents descriptive statistics for a variety of household characteristics disaggregated by the gender of the household head.

Table 10.1: Characteristics of female-headed households, 2008–14

Head of household	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Age	44.12	39.20***	46.40	40.68***	47.74	41.95***	50.30	44.15***
Children	0.41	0.52***	0.45	0.56***	0.40	0.51***	0.39	0.49***
HH Size	3.75	4.78***	3.47	4.57***	3.40	4.47***	3.36	4.39***
Married	0.29	0.96***	0.28	0.96***	0.25	0.94***	0.25	0.95***
Higher ed	0.10	0.18***	0.12	0.21***	0.10	0.21***	0.13	0.23***
Ethnic min	0.09	0.24***	0.08	0.24***	0.09	0.23***	0.10	0.24***
n	458	1,716	462	1,719	480	1,701	522	1,659

Note: \*\*\* indicates difference significant at 1% level.

Female-headed households are on average older than male-headed households and are less likely to have children. They are also much less likely to be married and most (68 per cent) are widows. They are also less likely to be ethnic minorities and are less likely to have third-level education than male-headed households.

Table 10.2 presents descriptive statistics on the income and assets of female-headed households compared to their male counterparts. Female-headed households are less well off than male-headed households. In all years (monthly) income levels are significantly lower. While the income levels of female-headed households grew significantly between 2008 and 2014, the gap between male- and female-headed households widened. In 2014, the income of male-headed households was 27 per cent more than female-headed households compared with a gap of 20 per cent in 2008.

Despite lower income levels female-headed households have similar levels of food expenditure per capita to male-headed households, and have even higher levels in 2010. This could reflect the smaller average household size of female-headed households. It also suggests that where women have control over resources general household welfare is higher particularly

relating to food and nutrition.<sup>2</sup> This latter explanation could also account for the fact that despite differences in household income the savings levels of female-headed households are also similar to those of male-headed households. While the actual level is lower in each year the difference is not statistically significant at conventional levels.

Female-headed households are worse off than their male counterparts in terms of other assets. The value of their durable goods<sup>3</sup> is much lower (significantly so in 2012 and 2014) and it appears that they have less access to credit with much lower loan amounts than male-headed households. They also have much smaller land holdings (about half that of male-headed households). They are, however, more likely to have a red book (land use certificate for the land that they own). This suggests that securing property rights is more important for female-headed households than male-headed households.

Table 10.2: Household income and assets and female-headed households, 2008–14

Head of household:	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Income (000 VND)	4,949	5,949***	5,823	7,058**	6,021	7,895***	6,840	8,707***
Food exp p.c. (000 VND)	321	308	372	343**	462	444	463	452
Savings (000 VND)	20,213	21,256	30,693	31,952	32,910	43,678	36,932	40,470
Loans (000 VND)	10,291	17,687	11,271	20,265***	15,961	20,765	10,021	22,884**
Durables (000 VND)	4,020	21,204	4,100	9,079	4,485	6,974***	4,320	6,468***
Land area (ha)	4,500	8,837***	4,244	8,615***	4,636	8,509***	4,302	8,288***
Red Book	0.85	0.86	0.85	0.80**	0.93	0.88***	0.94	0.90***
n	458	1,716	462	1,719	480	1,701	522	1,659

Note: \*\*\* indicates difference significant at 1% level and \*\* at 5% level.

<sup>2</sup> For evidence linking female empowerment to child nutrition see, for example, Fafchamps et al. (2009), Guha-Khasnobis and Hazarika (2006), Kennedy and Peters (1992) and Thomas (1990).

<sup>3</sup> Durable goods include TVs, radios, computers, mobile phones, household appliances, motor vehicles, and farm assets.

Table 10.3 explores the income sources of female-headed households. They are less likely to rely on agricultural income and (although to a lesser extent) income from waged employment than male-headed households. In 2008 and 2010 they are more likely to earn income from household enterprises than male-headed households, but in 2012 and 2014 they are also less likely to earn income from this source. In terms of diversification, it is clear that between 2008 and 2014 male-headed households became less specialized in agriculture and more diversified into other types of activities. There is no evidence that female-headed households exhibited a similar pattern. The decline in the participation of female-headed households in economic activities over the sample period is likely due to the ageing of this group beyond the retirement age for women in Viet Nam (55 years) making it more likely that they are not engaged in any economic activities.

Table 10.3: Sources of income and female-headed households, 2008–14

Head of household:	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Ag income	0.82	0.91***	0.79	0.88***	0.75	0.86***	0.73	0.85***
HH Ent income	0.64	0.57*	0.63	0.58***	0.61	0.62***	0.61	0.66**
Wage income	0.25	0.29***	0.19	0.30*	0.20	0.27	0.20	0.25*
Agriculture only	0.19	0.27***	0.22	0.23	0.19	0.21	0.18	0.20
Diversified	0.74	0.72	0.72	0.75	0.71	0.76**	0.71	0.77***
No activities	0.06	0.01***	0.06	0.02***	0.10	0.03***	0.11	0.03***
N	458	1,716	462	1,719	480	1,701	522	1,659

Note: \*\*\* indicates difference significant at 1% level, \*\* at 5% level, and \* at 10% level.

In Table 10.4 the vulnerability of female-headed households to income shocks is compared to that of male-headed households. In all years female-headed households are less vulnerable to natural shocks than male-headed households. This is likely due to the fact that they have less land and are less likely to engage in agricultural activities which are more affected by



natural shocks than other types of activities. There is some evidence, however, that they are more vulnerable to economic shocks, particularly in 2008 and 2014. This reflects the underlying vulnerability of female-headed households given that the majority are widowed, surviving on much lower income levels than other households.

Table 10.4: Vulnerability of female-headed households, 2008–14

Head of household:	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Nat shock	0.35	0.46***	0.34	0.45***	0.22	0.35***	0.18	0.26***
Econ shock	0.28	0.22***	0.19	0.16	0.21	0.19	0.18	0.13***
n	458	1,716	462	1,719	480	1,701	522	1,659

It is clear from the analysis presented in this section that female-headed households in the VARHS sample are distinct from other households in a number of different respects. They are low-income households typically headed by widows. They have less land and are less engaged in agricultural activities than other households. They also have fewer assets more generally. They do, however, save as much as other households and have similar per capita food consumption levels suggesting that they are equipped to cope with their lower standard of living. While the welfare of these households improved between 2008 and 2014, this has not been to the same extent as other households. This makes them a vulnerable group particularly in the face of unexpected income shocks.

### 10.3 Cohort analysis

In this section we move away from focusing on female-headed households to examine the situation of women more generally. VARHS gathers detailed information at the individual level for all household members. This allows us to explore how female household members compare to male household members on a variety of different welfare measures and how their welfare, in absolute and relative terms, has improved over time. We examine

welfare outcomes for four different cohorts: i) 18–30 year olds; ii) 31–45 year olds; iii) 46–60 year olds; and iv) individuals over 60.

We consider three broad measures of individual welfare. First, we consider health outcomes using a general health indicator which records whether or not an individual suffered from any illness in the previous two weeks. For those individuals that were ill we disaggregated by whether they suffered from a chronic illness such as heart disease, respiratory disease or cancer, a mental illness, or some temporary condition such as cold/flu or an injury. Second, we consider two education outcomes: i) whether the individual is literate; and ii) the years of education attained by the individual. Third, we consider the economic activities of individual household members. We do not have information on the individual level of income of household members but we do know the amount of time spent engaged in different types of economic activities. We consider the number of days worked on aggregate and broken down by type of activity including days spent working in agriculture, collecting common property resources, household enterprises, and waged employment. The latter two are more likely to be associated with an independent source of income for individuals and so we consider these superior from a welfare perspective.

### *10.3.1 Health outcomes*

Table 10.5 presents differences in health outcomes for men and women in the VARHS balanced panel for the 2008–14 period. The incidence of illness declined for both men and women between 2008 and 2014 across all cohorts. There is also a change in the type of illnesses reported with both chronic and mental illnesses much more common in 2014 compared with 2008. While this may be due to a higher incidence of these types of illnesses it could also be due to better detection and reduced stigma. There are few statistically significant differences between males and females in the incidence of illness and the types of illnesses reported, particularly in 2014.

In 2008, for example, males in the 31–45 year old, 46–60 year old and 60+ age groups were more likely to report that they had been ill in the previous two weeks. In 2014 there is no gender difference. In terms of the type of illness, males in the 31–45 year age group in 2014 were much less likely than females to report that they suffered from a mental illness (26 per cent of ill men compared with 44 per cent of ill women).

Table 10.5: Gender cohort analysis 2008–14, health outcomes

Individual:	18–30 year olds				31–45 year olds			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Sick	0.06	0.03	0.06	0.03	0.09	0.05	0.13**	0.06
<i>Of which:</i>								
Chronic illness	0.08	0.06	0.11	0.07	0.10	0.06	0.18	0.14
Mental illness	0.16	0.28	0.08	0.27	0.20	0.44	0.17	0.26*
Other illness	0.77	0.67	0.81	0.70	0.73	0.53	0.68	0.63
n	1,121	1,102	987	947	923	731	1,009	740
Individual:	46–60 year olds				61+ year olds			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Sick	0.15	0.12	0.19*	0.11	0.26	0.25	0.32*	0.27
<i>Of which:</i>								
Chronic illness	0.11	0.25	0.18	0.24	0.28	0.40	0.21	0.33
Mental illness	0.18	0.21	0.17	0.23	0.29	0.25	0.22	0.22
Other illness	0.72	0.59	0.68	0.65	0.46	0.46	0.64***	0.54
n	709	884	746	953	367	460	558	650
Note: *** indicates male and female outcomes statistically different at 1% level, ** at 5% level and * at 10% level								

Overall, it is clear that health outcomes improved for all between 2008 and 2014 with no evidence of gender disparities.

### 10.3.2 Education outcomes

Differences between 2008 and 2014 in education outcomes for male and female cohorts are presented in Table 10.6. In 2008 literacy rates were high for both males and females among all but the oldest cohort. In all cases, women outperformed men with significantly higher rates. Between 2008 and 2014 literacy rates did not change much in general. One exception is a large improvement in literacy rates for males over 60 years old who started out at a low rate of 63 per cent in 2008 climbing to 76 per cent in 2014. Females continue to outperform males on this measure in 2014 in all age cohorts.

Table 10.6: Gender cohort analysis 2008–14, education outcomes

	18–30 year olds				31–45 year olds			
	Female		Male		Female		Male	
Individual:	2008	2014	2008	2014	2008	2014	2008	2014
Literate	0.96	0.98	0.93***	0.94***	0.91	0.90	0.87**	0.84***
Years of ed.	9.22	10.30	8.92**	10.11	7.12	7.85	6.43***	6.96***
n	1,121	1,099	987	946	923	730	1,009	740
	46–60 year olds				61+ year olds			
	Female		Male		Female		Male	
Individual:	2008	2014	2008	2014	2008	2014	2008	2014
Literate	0.93	0.93	0.88***	0.90**	0.89	0.92	0.63***	0.76***
Years of ed.	7.22	7.94	5.87***	7.01***	5.60	6.77	2.41***	4.12***
n	709	884	746	953	366	460	557	650

Note: \*\*\* indicates male and female outcomes statistically different at 1% level, \*\* at 5% level and \* at 10% level.

There have been significant increases in the years of schooling of both men and women in all age cohorts. The most notable improvements are among 18 to 30 year olds. Significant improvements for men are evident in the 46–60 year old age group and in the over 60s. Again women outperform men on this outcome across all age cohorts in both 2008 and 2014. One exception is among the 18 to 30 year old age group where in 2014 there is

no statistical difference in the average years of schooling of men and women.

Overall, there have been significant improvements in education across all age groups for both men and women. The former began from a lower base and some of the gaps between men and women in educational outcomes were closed between 2008 and 2014, particularly for younger age cohorts.

### *10.3.3 Economic activities*

In the final part of the cohort analysis we examine differences in time use across time and gender. We focus on the days worked in different types of activities including agriculture, common property resources, household enterprises, and waged work. Summary statistics are presented in Table 10.7.

Declines in the average number of days worked by men and women in all cohorts. This is explained in large part by the decline in the number of days spent working on agricultural activities. At the same time the average number of days spent in waged employment increased for all cohorts while the number of days spent in household enterprises increased for 31-45 year olds.

Table 10.7: Gender cohort analysis 2008–14, economic activities

Individual:	18–30 year olds				31–45 year olds			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Total days work	146	139	142	123***	217	195	195***	178***
Days ag	49	26	52	26	90	54	107***	64***
Days cpr	6	3	4**	3***	8	6	6**	4**
Days HH ent	13	12	15	10	33	35	36	41
Days wage	79	98	71**	86**	87	101	48***	69***
n	1,121	1,102	987	947	923	731	1,009	740
Individual:	46–60 year olds				61+ year olds			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Total days work	192	161	175***	140***	70	60	55**	49**
Days ag	101	62	112**	69**	47	31	39	26*
Days cpr	6	5	4**	4**	2	3	2	2
Days HH ent	31	27	39*	31	12	13	10	11
Days wage	56	68	22***	36***	9	14	4**	10
n	709	884	746	953	367	460	558	650

Note: \*\*\* indicates male and female outcomes statistically different at 1% level, \*\* at 5% level and \* at 10% level.

Women work significantly more days than men across all age cohorts. The gap in the average number of days worked grew between 2008 and 2014 for the 18-30 year age cohort and the 46-60 year age cohort. Women spend significantly more days in waged employment than men. In the 18-45 year old age cohorts they also spend more time collecting common property resources although the overall number of days spent in this activity is low. Men, on the other hand, particularly those in the 31-45 year old age cohort spend more days than women engaged in agricultural activities.

It is not clear how the gender disparities in the economic activities of men and women might impact on welfare outcomes. On the one hand the fact that women work more days than men suggests that they face a greater burden of responsibility for generating income than men. Given that the

time use data does not consider the amount of time spent performing household duties the figures presented here could understate the gap between men and women. On the other hand, working for a wage could empower women by increasing the resources under their control, potentially leading to better welfare outcomes for them and their families. We explore this possibility in section 10.4.

#### **10.4 Female empowerment and welfare outcomes**

In this section we use the balanced panel of data to perform a household fixed effects analysis of the impact of female empowerment measured in various ways on household welfare outcomes. We consider three different measures of female empowerment. First, following from the analysis presented in section 10.3, we measure the extent of empowerment of female household members as the proportion of total days worked by women that are in waged employment. Second, we use an indicator variable for whether a female in the household is responsible for making decisions relating to the land that is owned by the households. Third, we use an indicator variable for whether a female's name is listed in the household red book. We restrict our analysis to households that are not headed by a female to ensure that we are capturing intra-household effects of female empowerment.

Table 10.8 presents summary statistics for the evolution of these variables among the (balanced) VARHS sample of male-headed households over the four years. Increases in female empowerment measures are evident on most indicators. In particular, consistent with the story presented in section 10.3, we find waged work makes up a greater proportion of women's income in each year. Between 2008 and 2010 the number of households where a female household member makes decisions in relation to the management of the land increased from 37 per cent to 41 per cent. There has, however, been no increase in this measure since 2010. The proportion

of households where a woman was named on the property right increases significantly between 2008 and 2012 from around 11 to 17 per cent. By 2014, however, this proportion had declined to 2010 levels. Overall, these summary indicators provide some evidence of an improvement in female empowerment since 2008 but much less so in later years of the sample.

Table 10.8: Indicators of female empowerment, 2008–14

Empowerment indicator:	2008	2010	2012	2014
Prop wage work women	32.17	34.38	36.22	39.24
Female manager	37.06	41.01	40.75	40.66
Joint property rights	10.98	11.52	17.14	11.91

n = 1,584 households in each year

In the final part of our analysis we explore the impact of female empowerment on household welfare. We use household expenditure on food as an indicator of welfare in our analysis. Food expenditure is generally considered a more reliable and accurate measure of welfare than household income given that it is less likely to be under-reported and is less likely to suffer from measurement error (see discussion in Chapter 4). The variable is constructed by aggregating the value of a set of food items consumed by the household in the previous month and is converted to real terms using a national food price index. To explore the relationship between female empowerment and household welfare on this measure we estimate the following econometric model:

$$wel_{ht} = \beta \mathbf{X}_{ht} + \delta_1 empower_{ht} + \alpha_h + \tau_t + \varepsilon_{iht}$$

where  $wel_{ht}$  is the welfare measure (food consumption per capita) for household  $h$  in time  $t$ ;  $\mathbf{X}_h$  is a vector of household specific variables including characteristics of the household head, income, land ownership, the presence of a household enterprise, and the incidence of natural and economic income shocks;  $empower$  is the measures of female



empowerment;  $\alpha_h$  are household fixed effects which absorb all time invariant household specific characteristics such as, for example, the ethnicity of the household head;  $\tau_t$  are time dummies; and  $\varepsilon_{iht}$  is a statistical noise term.

The results are presented in Table 10.9. Column (1) describes the relationship between various household characteristics and food expenditure before any of the empowerment indicators are included. Most of the results for these control variables are as expected. Household consumption per capita is lower in bigger households and higher in households with more income. Assets are also highly correlated with household consumption: both durable goods and having a land use certificate or 'red book' is positively associated with food consumption per capita. One, perhaps surprising, result is that households that experience economic shocks actually consume more per capita than other households. This suggests that the coping strategies of these households in the face of economic shocks are more than adequate to ensure consumption smoothing. It should be noted that the sample considered here excludes female-headed households which, as seen in section 10.2, are a particularly vulnerable group.

Table 10.9: Female empowerment and welfare, food consumption per capita

	(1)	(2)	(3)	(4)	(5)
<i>Empowerment measures</i>					
Prop wage work women		0.088***			0.082***
		(0.031)			(0.031)
Female manager			0.041**		0.047**
			(0.019)		(0.019)
Joint property rights				0.050**	0.048**
				(0.022)	(0.023)
<i>Household characteristics:</i>					
Age	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Married	0.016	-0.000	0.013	0.015	-0.003
	(0.067)	(0.082)	(0.067)	(0.067)	(0.082)
Children	0.028	0.035	0.028	0.027	0.036
	(0.027)	(0.028)	(0.027)	(0.027)	(0.028)
Higher ed	0.007	0.010	0.006	0.007	0.008
	(0.033)	(0.036)	(0.033)	(0.033)	(0.036)
HH Size	-0.068***	-0.074***	-0.068***	-0.069***	-0.075***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Income (log)	0.242***	0.229***	0.242***	0.242***	0.228***
	(0.016)	(0.015)	(0.016)	(0.016)	(0.015)
Loans (log)	0.002	0.002	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Land area (log)	0.027	0.012	0.027	0.027	0.011
	(0.020)	(0.021)	(0.020)	(0.020)	(0.021)
Household enterprise	0.025	0.051**	0.024	0.025	0.049**
	(0.022)	(0.024)	(0.022)	(0.022)	(0.024)
Durables (log)	0.038***	0.039***	0.037***	0.038***	0.039***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Red Book	0.104***	0.101***	0.102***	0.095***	0.091***
	(0.031)	(0.032)	(0.031)	(0.031)	(0.033)
Natural shock	0.008	0.011	0.008	0.009	0.010
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Economic Shock	0.053***	0.054**	0.052**	0.053***	0.053**
	(0.020)	(0.021)	(0.020)	(0.020)	(0.021)
Observations	6,630	6,230	6,630	6,630	6,230
Number of HH	1,775	1,718	1,775	1,775	1,718

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

In column (2) we add the first empowerment indicator namely the proportion of total days worked by women in waged employment. We find a positive and well-determined relationship which suggests that the greater the proportion of a woman's time spent working for a wage, the greater the household's level of per capita food expenditure. In column (3) the second welfare measure is considered, namely whether or not a woman in the household manages the land. A similar result emerges. In column (4) we find a similar effect of a woman in the household being included in the land title or red book. In column (5) we include all measures simultaneously and find that all three results hold, suggesting that each empowerment measure has its own independent effect on household welfare. It should be noted that each model controls for differences in income, assets, marital status, age, presence of children, exogenous shocks, general trends in household welfare, and all time invariant household characteristics. Even when these factors are controlled for, households where women are empowered have a higher level of welfare. While caution should be exercised in interpreting these results as causal, these findings provide some evidence that female empowerment and household welfare go hand-in-hand.

## **10.5 Conclusion**

Viet Nam has made significant progress in relation to gender equality. However, as this chapter reveals, significant gaps remain. Using data from the VARHS for 2008, 2010, 2012, and 2014 we examine gender differences in the welfare of Vietnamese households and individuals and how they have evolved over this period.

Our analysis reveals that female-headed households are a distinct group within VARHS with very different characteristics to other households. They are low-income households and a large proportion of them are widows. They have less land and are less engaged in agricultural activities than other households. Their welfare has improved over the period of analysis

but not to the same extent as other households. In particular, they are more vulnerable to income shocks than male-headed households.

Focusing on the panel of individuals within VARHS households we performed a cohort analysis examining differences in the welfare of women and men within specified age groups and how these changed over time. A number of interesting findings emerge. First, we find that education outcomes improved for both men and women. In general, women outperform men on literacy and years of education but this gap is closing over time. Second, we found overall declines in the number of days spent working in agricultural activities and an increase in days spent in waged employment for both men and women. This is consistent with the ongoing structural transformation in the Vietnamese economy evident throughout all of the chapters of this report. Interesting from a gender perspective, however, is that women spend more days working than men in all age cohorts mainly due to significantly more days spent in waged employment. Moreover, for 18 to 30 year olds and 46 to 60 year olds this gap has widened over the sample period.

The last part of our analysis focused on indicators of female empowerment and the extent to which there is evidence of: i) an increase in female empowerment over the 2008 to 2014 period; and ii) whether female empowerment is associated with higher levels of household welfare as measured by food expenditure per capita. We find on the basis of three empowerment indicators (proportion of time spent in waged employment, whether women are involved in land management decisions within the household, and whether land is jointly titled in a female household member's name) that, in general, women are more empowered in 2014 than in 2008 but that the empowerment indicators have remained relatively static in the last few years. We find though, a strong correlation between each indicator and household food expenditure per capita, suggesting an important link between empowering women and household welfare.

Overall, our findings suggest that efforts to promote gender equality, through, for example, the law on gender equality, should be stepped up to avoid a stagnation in the progress already made. Moreover, building capacity for the empowerment of women by providing women with more agency as well as more resources has the potential to progress economic development in a significant way.

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## **Chapter 11 Children and the youth in rural Viet Nam**

Gaia Narciso and Carol Newman

### **11.1 Introduction**

In this chapter we explore how the ongoing process of structural transformation in rural Viet Nam has impacted on the welfare of children and the youth. As incomes rise and rural households become better off, the welfare of children, like other household members is likely to improve. Improvements in the level and security of household income is likely to translate to improvements in the health, educational attainment, and life opportunities of children and young people more generally. Moreover, as households shift out of agriculture towards waged employment children are less likely to spend their time on agricultural work allowing more time for school and study. The improvements in the empowerment of women in Viet Nam over the last decade (Chapter 10) and the expansion in access to resources and economic opportunities for women is also likely to impact positively on the welfare of children.<sup>1</sup> It is also the case, however, that if the process of structural transformation has left some groups behind or there are inequalities in the distribution of the fruits of economic growth (Chapter 3), children and the youth as a particularly vulnerable group are likely to be adversely affected.

In this chapter we examine how the lives of the children and youth living in rural Viet Nam have been impacted by structural transformation. First,

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<sup>1</sup> A large literature exists which highlights how resources in the hands of women are more likely to be used to improve children's outcomes, particularly girls, than resources held in the hands of men (Duflo 2003; Pitt and Khandker 1998; Qian 2008).

we examine the characteristics of households with children compared to those without and how these have changed between 2008 and 2014. In the second part of our analysis we exploit the detailed individual level data contained in VARHS on a range of different welfare measures to compare different age cohorts over time to examine whether children in general are doing better in 2014 compared with 2008. We measure the welfare of children using information on their health, education attendance, and attainment, and engagement in labour (agricultural, household enterprise, and waged employment). We also examine whether there is heterogeneity in welfare gains along gender and ethnic lines.

In the third part of our analysis, we create a panel dataset of households that contains individual level information on children that tracks each child present in each household in 2008 through each round of the survey up to 2014. This allows us to determine the dominating household characteristics in determining the welfare of children over the period. Finally, we examine whether there is evidence that female empowerment and an increase in the resources held in the hands of women is linked with improvements for children.

Early studies have analysed the relationship between economic development and child wellbeing in Viet Nam, in particular with respect to child labour. Using data from the Viet Nam Living Standards Surveys for the period 1993–98, Edmonds (2005) shows a significant drop in child labour of about 30 per cent over a 5-year period. Given the panel nature of the data used, the author is also able to disentangle the different determinants of the reduction in child labour. The author finds that improvements in household economic status explain a stark 60 per cent of the change in child labour over the period considered. In particular, the effect of improvements in economic status on reducing child labour is found to be greater in poorer households than in wealthier ones. These results support the findings of the cross-country literature that suggests a strong relationship between GDP per capita and child labour (Krueger 1997).



Edmonds and Turk (2004) further explore heterogeneity in the incidence and drop in child labour in Viet Nam using the Viet Nam Living Standards Surveys also for the period 1993–98. In particular, girls experience a smaller decline in child labour than boys. Children living in rural areas are also found to be more likely to work than children in urban areas, in particular in traditional occupations. Parents' business activities are linked to child labour, as child labour is more likely to increase with the opening and closing of household enterprises. Finally, children of ethnic minorities are found to be more likely to work than children of non-ethnic minorities. Overall, Edmonds and Turk provide evidence of a strong association between poverty and child labour and highlight the importance of anti-poverty programmes as a path to reducing child labour. Edmonds and Pavcnik (2005a) investigate the impact of the integration of Viet Nam's rice market on child labour and provide evidence that the increase in rice prices between 1992–93 and 1997–98 was linked to a decrease in child labour.

Beegle et al. (2009) use Viet Nam Living Standards Surveys to analyse the effects of child labour on education, wages, and health. They provide evidence that child labour has a negative effect on school participation and education attainment five years after the child labour experience. Young adults involved in labour during their childhood are found to have higher wages. However, this effect is reversed over a longer time period, as the earnings' loss due to lower education attainment exceeds the initial wage gain due to child labour. While Beegle et al. (2009) find no impact of child labour on health, O'Donnell et al. (2005) find a negative impact of child labour on girls' health, five years after the child labour episode.

We contribute to the existing literature by providing evidence of the progress made in Viet Nam towards improved child wellbeing in recent years.

## 11.2 The characteristics of households with children

In 2014, 54 per cent of households in the VARHS sample had children.<sup>2</sup> Of the households with children, the average number of children was 1.68 (0.81 girls and 0.87 boys). Fertility rates in general appear to have increased over the sample period. In 2008, 49 per cent of the VARHS sample had children, with these households having an average of 1.67 children (0.82 girls and 0.85 boys). It should be noted, however, that these statistics are based on the unbalanced panel of households which includes the addition of over 500 new younger households in 2012 to account for ageing of the original VARHS households sampled in 2006. The small increase in the proportion of households with children is likely accounted for by these households.

Table 11.1 explores the variation in fertility across seven different regions covered by VARHS, namely: Red River Delta (Ha Tay), North (Lao Cai, Phu Tho, Lai Chau, and Dien Bien), Central Coast (Nghe An, Quang Nam, and Khanh Hoa), Central Highlands (Dak Lak, Dak Nong, and Lam Dong), and Mekong River Delta (Long An).<sup>3</sup> The table presents the proportion of households in the VARHS sample in each region that have children and for those households the average number of children.

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<sup>2</sup> Any household member under the age of 18. We consider different age brackets throughout the analysis: 5–9 year olds, 10–15 year olds and 15–18 year olds.

<sup>3</sup> It should be noted that our data are not representative of the regions but the rural provinces within each region.

Table 11.1: Geographical variation in fertility <sup>a</sup>

	2008		2010		2012		2014	
	% HH with children	Mean no. of children	% HH with children	Mean no. of children	% HH with children	Mean no. of children	% HH with children	Mean no. of children
Red River Delta	0.44	1.62	0.46	1.63	0.54	1.66	0.52	1.72
North	0.52	1.71	0.57	1.72	0.59	1.77	0.57	1.73
Central Coast	0.47	1.58	0.50	1.62	0.52	1.65	0.50	1.64
Central Highlands	0.63	1.92	0.65	1.98	0.65	1.85	0.61	1.83
Mekong River Delta	0.44	1.38	0.50	1.45	0.49	1.43	0.50	1.41

<sup>a</sup> Unbalanced panel of households

The proportion of households with children is highest in the Central Highlands and in the North. While the proportion of households with children increased marginally in the other regions between 2008 and 2014, in part due to the addition of new younger households to the sample in 2012, the difference between the Central Highlands, the North, and the rest of the country is still quite large in 2014. Moreover, households with children in the Central Highlands and the North have more children on average than households with children in other regions. For example, in 2008, these households had on average 1.81 children compared with an average of 1.53 children for households with children in other regions. The gap closes a little between 2008 and 2014 at an average of 1.78 and 1.59, respectively, in 2014.

We explore the characteristics of households with children in Table 11.2. In each year we test for the statistical significance of the difference in the average value of each variable for households with children and households without.

The head of household in households with children is on average younger than in households with no children and is also more likely to be married. They are also less likely to be headed by a woman. In 2010, heads of households with children were significantly less likely to have higher education (i.e. post-secondary schooling) than in households with no

children. With the addition of new younger households to the sample in 2012 this difference disappears. Ethnic minority households are significantly more likely to have children than Kinh households. This is not surprising given the geographic differences presented in Table 11.1 which shows the highest fertility in the Northwest where over 87 per cent of households in the sample are ethnic minorities.

While the average (monthly) income of households with children is higher than in households without children in each year (but only significantly so in 2010 and 2014), this income measure is not adjusted for household size. When the larger size of households is taken into account, households without children have higher income per capita. This is reflected in the fact that households with children have lower food expenditure per capita in all years, though this is likely due to the fact that each household member is given the same weight in computing per capita food expenditure leading to an underestimation of its value for households with children; it is likely that children consume less than adults and that there are economies of scale in food expenditure.<sup>4</sup>

In relation to assets, there is no statistically significant difference in the savings levels of households with children compared to those without in any year, and only in 2014 do households with children record having significantly more durable goods. They do, however, own more land than households without children, at least in 2008 and 2010, but are significantly less likely to hold a land use certificate or red book for that land. On the whole it does not appear that households with children are wealthier than households without. They do however have more access to credit with a significantly higher level of loans than households without children.

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<sup>4</sup> Food expenditure items include pork, beef, chicken, fish, shrimp, fruit, candy/cookies, powdered or canned milk, liquid milk, beer, rice wine or other alcoholic drink, coffee, industrial beverages, processed foods, and eating and drinking outside the home

Table 11.2: Characteristics of households with children, 2008–14<sup>a</sup>

	2008		2010		2012		2014	
	HH with children	HH no children	HH with children	HH no children	HH with children	HH no children	HH with children	HH no children
Age <sup>b</sup>	37.45	43.49***	38.55	45.96***	37.35	46.65***	39.37	48.89***
Married <sup>b</sup>	0.85	0.77***	0.84	0.78***	0.85	0.75***	0.85	0.74***
Female <sup>b</sup>	0.18	0.26***	0.18	0.25***	0.17	0.26***	0.19	0.28***
Higher ed <sup>b</sup>	0.15	0.17	0.17	0.22***	0.22	0.21	0.25	0.24
Ethnic min <sup>b</sup>	0.28	0.14***	0.27	0.13***	0.26	0.14***	0.25	0.15***
Income (000 VND)	5,666	5,742	7,001	6,555***	7,910	7,147	8,700	7,342*
Food exp p.c. (000 VND)	260	359***	305	403***	396	522***	402	516***
Savings (000 VND)	21,327	21,057	31,536	31,505	36,539	43,164	38,045	39,147
Loans (000 VND)	15,114	17,476	20,613	15,767*	26,044	15,617**	24,841	14,218**
Durables (000 VND)	6,629	27,163	10,598	5,215	6,227	6,365	6,263	5,488**
Land area (ha)	8,590	7,016***	8,558	6,592***	7,110	6,733	7,084	6,351
Red Book	0.83	0.89***	0.77	0.86***	0.78	0.89***	0.84	0.92***
Ag income	0.90	0.86***	0.87	0.84**	0.84	0.79***	0.83	0.78***
Wage income	0.60	0.56*	0.63	0.54***	0.70	0.57***	0.75	0.59***
HHEnt income	0.28	0.26	0.30	0.26**	0.30	0.22***	0.29	0.21***
Agriculture only	0.26	0.25	0.20	0.26***	0.15	0.23***	0.13	0.23***
Diversified	0.74	0.70*	0.79	0.68***	0.84	0.68***	0.86	0.68***
Nat Shock	0.45	0.41**	0.47	0.37***	0.32	0.26***	0.24	0.22
Econ Shock	0.25	0.21**	0.16	0.17	0.18	0.19	0.12	0.15*
n	1,125	1,161	1,195	1,050	1,532	1,228	1,471	1,254

<sup>a</sup> Unbalanced panel of households.

<sup>b</sup> Refers to household head.

Note: \*\*\* indicates difference significant at 1% level, \*\* at 5% level, and \* at 10% level.

In terms of sources of income, households with children are significantly more diversified and are more likely to earn income from all sources; agriculture, wage, and household enterprises. This may be due to the availability of labour resources that allow them to engage in many different activities or may be a means of managing risk. Indeed, households with children are more vulnerable to natural shocks which primarily affect agricultural production but are less likely to suffer from economic shocks associated with unemployment or illness, for example, suggesting that there are risk-coping mechanisms at work.

### 11.3 Cohort analysis

The VARHS collects detailed information on all individuals in each household including certain information on children. Using these data we can examine how children's welfare has evolved over the 2008–14 period. We consider three different age cohorts in our analysis: 5–9 year olds; 10–14 year olds; and 15–18 year olds.<sup>5</sup> We compare the welfare of children in each cohort in 2008 with their counterparts in 2014. To ensure our sample is as close as possible to being representative we use the unbalanced panel of data so that the data in 2014 capture the new younger households that were added in 2012.

We consider three broad categories of child welfare: health, education, and child labour. First, in relation to health, for each individual in the household, the survey respondent is asked whether that individual was ill in the previous two weeks. For those that were ill, they are then asked whether they were ill as a result of a range of illnesses which we aggregate into chronic illness (including heart disease, respiratory illness, and cancer), mental illness, or other types of temporary illness including colds, flu, other injuries, etc. Second, in relation to education, we consider an indicator for whether children attend school and for those above four years of age, how many years of education they have attained. Third, in relation to child labour, VARHS records detailed time use data for all household members. The head of household records how many days in the last year each household member worked in different types of activities. They include agriculture, common property resources, working for the household enterprise, and working for a wage outside of the home.

Basu et al (2010) and Edmonds and Pavcnik (2005b) highlight the importance of including domestic work as child labour. Unfortunately the

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<sup>5</sup> We do not report the characteristics of 0–4 year olds, as we do not find any significant change over time.

VARHS data do not measure domestic work and household chores in a consistent way over time and we cannot include them in our analysis. We are aware that by excluding domestic work from our analysis, we may underestimate girls' involvement in labour.

Table 11.3 presents each of these welfare measures for the three cohorts of children in 2008 and 2014. The proportion of children in each cohort that are female is also presented.

Table 11.3: Characteristics of different cohorts of children, 2008–14<sup>a</sup>

Cohort:	5–9 year olds		10–14 year olds		15–18 year olds	
Year	2008	2014	2008	2014	2008	2014
Female	0.51	0.53	0.50	0.51	0.54	0.50
Sick in last 2 weeks	0.10	0.07**	0.07	0.03***	0.07	0.03***
<i>Of which:</i>						
Chronic illness	0.15	0.29*	0.09	0.04	0.16	0.10
Mental illness	0.05	0.08	0.09	0.00	0.09	0.10
Other illness	0.83	0.67**	0.85	1.00**	0.75	0.81
Attends school	0.57	0.59	0.91	0.97***	0.64	0.75***
Years of education	2.07	2.17	5.77	5.91*	8.93	9.58***
Total days of work	5.17	1.44***	21.34	6.70***	64.64	34.40***
Days work ag	3.53	0.99***	17.23	5.16***	38.55	15.23***
Days work cpr	0.42	0.12**	1.63	0.53***	3.81	1.92***
Days work ent	0.00	0.00	1.04	0.49*	4.41	2.04**
Days work wage	1.21	0.32	1.46	0.53	18.14	15.21
n	680	778	1,028	836	1,071	738

<sup>a</sup> Unbalanced panel of households.

Note: \*\*\* indicates difference significant at 1% level, \*\* at 5% level, and \* at 10% level.

Table 11.3 shows a decline in the proportion of children that experienced an illness in the previous two weeks. This is somewhat suggestive of an improvement in the health of children and young people over time. In the 5-9 year age group there has been a statistically significant increase in the diagnosis of chronic illnesses. This is suggestive of improved health care diagnostics for this age group. This is not observed in other cohorts.

Children over ten years of age are significantly more likely to attend school in 2014 compared with 2008 and have on average more years of schooling. There have also been some improvements for children in terms of time use. Children spend considerably fewer days working at all activities in 2014 compared with 2008 in all age groups. Of particular note is the decline in the number of days children spend doing agricultural activities from 3.5 to 1 day a year in the 5-9 year old age group, from 17.2 to 5.2 in the 10-14 year old age group, and from 38.5 to 15.2 in the 15-18 year old age group. Declines in waged work are also evident, particularly among the older age group, from 18.1 days a year in 2008 to 15.2 in 2014 but the difference is not statistically significant.

Overall, these statistics suggest that the welfare of children, in the areas of health, education, and child labour, has improved between 2008 and 2014. These results seem to support the findings of the literature presented in the introduction showing a positive trajectory of child wellbeing in Viet Nam over time.

Are these improvements homogenous across expenditure quintile? The nature of the VARHS data allows children of the same age cohort to be followed over time. We focus on 5–9 year olds at the time of the 2008 survey and we investigate their school attendance and educational attainment for the following three rounds of the survey. We divide the 5–9 year olds cohort by expenditure quintile, as measured in 2008. Table 11.4 reports the results. In 2008, only 50 per cent of the children in the bottom quintile attended school, versus 60 per cent of the children in the top quintile. Children in the top quintile had already accumulated almost one more year of schooling compared to children in the bottom quintile. While school attendance increases for all groups over time, the difference between the top and bottom quintile remains quite large; only 58 per cent of the children in the bottom quintile attend school in 2014, while 75 per cent of the children in the top quintile are in school. Interestingly, the middle quintiles seem to catch up over time. In particular, the second



poorest quintile shows a significant increase in the level of school attendance in 2014, with 69 per cent of children attending school compared with only 57 per cent in 2008. Table 11.4 highlights the fact that, while all groups improved their outcomes over time, the bottom quintile, i.e. the children belonging to the poorest segment of society in 2008, do not catch up with the other groups. A divergence in human capital accumulation between the poorest group and the rest may in fact prolong welfare differences over time making it more difficult for them to catch up in the long run.

Table 11.4: Evolution of education outcomes for children aged 5–9 in 2008, by food expenditure quintile in 2008

Quintile 2008	2008		2010		2012		2014	
	Attend school	Years of education	Attend school	Years of education	Attend school	Years of education	Attend school	Years of education
1	0.50	4.00	0.61	4.49	0.59	5.43	0.58	6.58
2	0.57	4.80	0.68	5.45	0.69	6.22	0.69	7.31
3	0.63	4.76	0.76	5.45	0.78	6.91	0.75	7.96
4	0.61	4.91	0.71	5.68	0.78	6.83	0.73	7.81
5	0.60	4.94	0.74	5.44	0.78	6.60	0.75	7.74

In the next step of our analysis we disaggregate cohorts into girls and boys. In the light of the findings by Edmonds and Turk (2004) on the heterogeneity in child wellbeing, we try to determine whether there are any gender disparities in the distribution of welfare gains. We focus on the 5–18 year old age groups. The disaggregation is presented in Table 11.5 for the overall health indicator, the education measures and time use.

Table 11.5: Characteristics of different cohorts by gender of children, 2008–14<sup>a</sup>

	5–9 year olds				10–14 year olds				15–18 year olds			
	2008		2014		2008		2014		2008		2014	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Sick in last 2 weeks	0.10	0.09	0.09	0.05**	0.07	0.06	0.03	0.03	0.06	0.08	0.04	0.02
Attends school	0.54	0.59	0.62	0.56*	0.92	0.91	0.97	0.97	0.64	0.63	0.72	
Years of education	2.04	2.09	2.05	2.31**	5.79	5.75	5.78	6.04**	9.01	8.85	9.48	0.77
Total days of work	5.99	4.32	1.25	1.65	18.63	24.00*	6.24	7.19	62.96	66.58	36.05	32.75**
Days work ag	5.05	1.96**	1.16	0.81	14.80	19.60*	5.13	5.19	39.77	37.14	17.38	
Days work cpr	0.36	0.49	0.09	0.16	1.52	1.74	0.70	0.34**	4.42	3.11*	1.85	13.10
Days work ent	0.00	0.00	0.00	0.00	0.53	1.55**	0.15	0.85*	3.64	5.31	2.49	1.99
Days work wage	0.58	1.86	0.00	0.68	1.82	1.11	0.27	0.82	15.67	21.02	14.34	1.60
												16.07

<sup>a</sup> Unbalanced panel of households.

Note: \*\*\* indicates difference significant at 1% level, \*\* at 5% level, and \* at 10% level.

Table 11.6: Characteristics of different cohorts by ethnicity of household head, 2008-14<sup>a</sup>

	5-9 year olds				10-14 year olds				15-18 year olds			
	2008		2014		2008		2014		2008		2014	
	Ethnic Minority	Kinh	Ethnic Minority	Kinh	Ethnic Minority	Kinh	Ethnic Minority	Kinh	Ethnic Minority	Kinh	Ethnic Minority	Kinh
Sick in last 2 weeks	0.09	0.10	0.08	0.06	0.05	0.07	0.04	0.03	0.08	0.07	0.04	0.02
Attends school	0.57	0.57	0.61	0.59	0.81	0.96***	0.94	0.99***	0.45	0.72***	0.59	0.81***
Years of education	1.82	2.20***	2.18	2.16	5.05	6.09***	5.62	6.03***	7.46	9.53***	8.36	10.12***
Total days of work	7.72	3.85	1.66	1.36	30.60	17.14***	13.56	3.85***	82.47	57.44***	42.69	30.73**
Days work ag	6.54	1.98***	1.46	0.83	26.81	12.87***	11.61	2.46***	64.01	28.27***	30.05	8.69***
Days work cpr	0.97	0.14***	0.20	0.10	2.92	1.05***	1.18	0.25***	7.69	2.25***	4.33	0.85***
Days work ent	0.00	0.00	0.00	0.00	0.19	1.43**	0.62	0.43	1.07	5.76***	0.23	2.84*
Days work wage	0.22	1.72	0.00	0.43	0.68	1.81	0.14	0.70	9.85	21.50***	8.08	18.36**

<sup>a</sup> Unbalanced panel of households.

Note: \*\*\* indicates difference significant at 1% level, \*\* at 5% level, and \* at 10% level.

The incidence of sickness declined for both boys and girls between 2008 and 2014. Boys are less likely than girls to have experienced an illness in the previous two weeks. This difference, however, is only statistically significant in the 5 to 9 year old age group. The school attendance rate and years of education completed increased or stayed the same between 2008 and 2014 for both boys and girls across every cohort. In 2014, girls aged 5 to 9 years are significantly more likely to attend school than boys. Boys however have more years of education than girls in this age cohort. Boys also have significantly more years of education than girls in the 10–14 year old age group in 2014. These findings suggest that while both girls and boys have experienced improvements in health and schooling outcomes, these gains have been particularly beneficial for boys. Chapter 10 explored gender differences in the education attainment of adults and found that while women outperform men in education achievements, men have benefitted more than women in recent improvements in educational outcomes. The results for children mirror this trend with boys benefitting more than girls. Of even greater significance perhaps is the fact that boys are beginning to outperform girls in 2014 suggesting that the gender divide in education which typically benefitted women may be reversed in years to come.

The decline in the number of days children spend working is also evident across both girls and boys but with boys experiencing bigger gains in the older age groups. In 2014 boys aged 15–18 years spend significantly fewer days than girls of the same age working outside of the household. This trend is also reflected in the number of days worked in different types of activities. Girls in the 5–9 year old age group spend more days working in agriculture than boys in 2008 but both experienced a decline in the average number of days to around 1 per annum. Similarly in the 10–14 year age group girls experienced a decline in the number of days worked in agriculture from 14.8 to 5.13 between 2014 and 2008 compared with a decline from 19.6 to 5.2 for boys of the same age. In the 15–18 age group

the relative gains are even greater for boys with a decline in the average number of days worked in agriculture from 37.1 to 13.1 compared with a decline for girls of the same age from 39.8 to 17.4. Boys spend on average more days working for a wage than girls across all age groups but this difference is not statistically significant. Overall, these trends suggest that while the welfare of both girls and boys improved between 2008 and 2014, boys benefitted to a greater extent than girls. These findings are in line with the cross-country evidence, according to which the prevalence of child labour is greater for girls and for boys (Edmonds and Pavcnik 2005a).

Given the existing evidence of heterogeneity in child wellbeing with respect to ethnicity (Edmonds and Turk 2004), we also disaggregate the cohort analysis by ethnicity of the household head. Descriptive statistics are presented in Table 11.6. There is no evidence of differences in health outcomes for children in ethnic minority households. Educational outcomes of ethnic minority households are also similar to those of Kinh households in younger age groups. Gaps however begin to emerge in older age groups. The participation rate of children in ethnic minority households in education is significantly lower among 10 to 14 year olds and 15 to 18 year olds. In the case of the latter the difference is particularly stark with only 59 per cent of children from ethnic minority households attending school compared with 81 per cent for Kinh households. Similarly the average years of schooling attained by children over the age of 10 is significantly lower in ethnic minority households. In 2014 the average years of schooling attained by children in ethnic minority households in the 10 to 14 year old age group was 5.6 compared to 6 for children in Kinh households. In the 15 to 18 year old age group children of ethnic minority households have an average of 8.4 years of schooling compared to 10.1 for children in Kinh households. These results are indeed in line with the findings presented in Chapter 12 on minorities. While living standards have increased over time for both Kinh and non-Kinh groups, it appears that a substantial difference in the level of welfare still remains between the two groups. The lower

human capital accumulation among non-Kinh presented in Table 11.6 would suggest that convergence between the living standards of the two groups may take some time to realize.

There are even more notable differences in child labour outcomes for children of non-Kinh and Kinh descent, particularly in older age groups. In 2014, ethnic minority children in the 10–14 year old age group work on average 13.6 days outside of the home while children of Kinh households work only 3.8 days on average. Differences are most notable in agricultural work. For example, in 2014, children aged 10–14 of ethnic minority households worked on average 11.6 days in the previous year in agricultural activities (down from 26.8 in 2008). This is compared with 2.4 days on average for children of the same age from Kinh households. Among the 15–18 year old age group children of ethnic minority households worked on average 30 days in agricultural activities compared with only 8.7 for non-Kinh children of the same age. Kinh children in this age group do, however, spend more days working for a wage (18.4) than non-Kinh (8.08). Overall, while welfare outcomes have improved for all children the gains made have not been enough to close the large gap in welfare between children of ethnic minority households compared with those of Kinh descent. This is particularly the case for children over 10 with the biggest gaps apparent in the 15–18 year old age group.

#### **11.4 Panel study**

In this section we attempt to identify the key household characteristics that are related to differences in the welfare outcomes of children. For this analysis we create a household panel from 2008 to 2014, which tracks each child present in each household in 2008 through each round of the survey up to 2014. For each welfare outcome we estimate the following model:

$$wel_{iht} = \beta X_{ht} + \delta_1 female_{iht} + \delta_2 age_{iht} + \alpha_h + \tau_t + \varepsilon_{iht}$$

where  $well_{iht}$  is the welfare measure for child  $i$  in household  $h$  in time  $t$ ;  $\mathbf{X}_h$  is a vector of household specific variables including characteristics of the household head, income, land ownership, migration status of the household, the presence of a household enterprise, and the incidence of natural and economic income shocks;<sup>6</sup>  $female$  is a dummy indicator for whether the child is female;  $age$  is the age in years of the child;  $\alpha_h$  are household fixed effects;  $\tau_t$  are time dummies; and  $\varepsilon_{iht}$  is a statistical noise term.

This model allows us to explore both individual and households factors that are related to the welfare of children. The inclusion of household fixed effects controls for all time invariant household specific factors, such as, for example, ethnicity, geographical location, and other unobservable factors impacting on child welfare. The time dummies control for any macroeconomic changes over time affecting all children equally. As such we are analysing the within household variation in children's outcomes within and across time. The vector of household variables included in  $\mathbf{X}_{ht}$  allows us to disentangle the household specific factors that are related to the welfare of children although care should be taken in inferring any causality from these results. The coefficient  $\delta_1$  will tell us the extent to which welfare outcomes are better or worse for girls compared with boys in the same household. The inclusion of the age of each child will control for the fact that welfare outcomes vary across age group as was evident from the cohort analysis presented in section 11.3.

We focus on five main welfare indicators: i) whether the child attends school; ii) the years of education of the child; iii) the total number of days the child worked outside of the home; iv) the total number of days the child

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<sup>6</sup> The ethnicity of the household head and other time invariant household characteristics will be absorbed by the household fixed effect.

worked in agriculture in the last year; and v) the total number of days the child worked for a wage. The results are presented in Table 11.7.

We first consider the full sample of children aged 5 to 18. A number of household characteristics are found to be correlated with child welfare outcomes. Children with older heads of household are more likely to attend school and spend fewer days working outside of the household. This is due to fewer days spent in waged employment (column 5). Having a head of household with higher level education (more than second level education) is positively correlated with the child attending school. A negative correlation is observed between household income and the probability that children attend school. In larger households children are less likely to attend school and have fewer years of education.



Table 11.7: Panel data analysis of determinants of child welfare, 2008–14, 5–18 year olds

	(1) Attends school	(2) Years of education	(3) Days worked	(4) Days worked agriculture	(5) Days worked wage
<i>Household characteristics:</i>					
Age	0.012*** (0.001)	-0.001 (0.005)	-0.462** (0.206)	-0.116 (0.128)	-0.346** (0.142)
Married	0.034 (0.043)	0.251 (0.172)	-0.843 (4.610)	3.595 (2.843)	-4.120 (3.272)
Female	-0.007 (0.052)	0.060 (0.214)	0.133 (5.045)	0.954 (2.909)	-2.205 (3.977)
Higher Ed	0.046* (0.025)	-0.049 (0.082)	-2.647 (2.535)	-2.959 (2.049)	0.320 (1.486)
HH Size	-0.019** (0.008)	-0.084** (0.039)	0.693 (1.013)	-0.743 (0.718)	1.402* (0.750)
Income	-0.026*** (0.008)	-0.039 (0.036)	5.962*** (1.186)	-0.094 (0.770)	4.827*** (0.820)
Loans	-0.001 (0.001)	-0.005 (0.005)	-0.010 (0.141)	-0.025 (0.095)	0.015 (0.099)
Land area	-0.001 (0.002)	-0.000 (0.007)	-0.072 (0.249)	0.355* (0.204)	-0.395*** (0.136)
Land area squared	0.000 (0.000)	0.000 (0.000)	-0.002 (0.001)	-0.003*** (0.001)	0.002*** (0.001)
Household enterprise	0.009 (0.016)	0.040 (0.061)	-1.194 (2.129)	-1.390 (1.310)	-3.972** (1.541)
Durables	0.004 (0.004)	0.054*** (0.021)	0.259 (0.672)	0.161 (0.418)	0.227 (0.471)
Red Book	0.027 (0.020)	0.233*** (0.078)	0.680 (2.569)	1.280 (1.773)	-1.461 (1.566)
Natural Shock	0.020* (0.011)	0.066 (0.052)	2.050 (1.513)	0.335 (1.066)	1.999* (1.074)
Economic Shock	0.012 (0.013)	-0.061 (0.053)	2.664 (1.839)	3.039** (1.222)	-0.652 (1.330)
<i>Child characteristics:</i>					
Female	-0.011 (0.013)	-0.016 (0.066)	3.162* (1.658)	2.186** (1.019)	0.639 (1.216)
Age	0.012*** (0.002)	0.763*** (0.012)	5.551*** (0.246)	2.800*** (0.153)	2.163*** (0.190)
Observations	9,882	8,784	9,889	9,889	9,889
Number of HH	2,100	1,981	2,100	2,100	2,100

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Children in higher income households spend more days working outside of the household (column 3), particularly in waged work (column 5). This suggests that in higher income households, children play a role in

supporting household income through working. This, however, may come at the expense of children not attending school given the negative association found between income and school attendance.

There is very little evidence that the assets of the household impact on welfare outcomes. Basu et al. (2010) suggest that the relationship between child labour and land holding may not be linear, but resemble an inverted-U relationship. We do find that the number of days worked in agriculture increases as the land size increases, but at a decreasing rate. However, in the case of Viet Nam, it seems that the turning point is at extremely high values of land holdings. Therefore we can conclude that the relationship between child labour in agriculture and land holdings is non-linear and on the positive-sloped side of the reversed-U relationship. The opposite relationship emerges when we consider the number of days worked for wage: the larger the land holdings, the less likely children are involved in waged work, but at a decreasing rate.

A positive association is found between the ownership of durable goods (a measure of household assets) and the years of educational attainment of children. Similarly, children have more years of education in households that have a land use certificate. Both are suggestive of some positive correlation between wealth and educational investments in children.

Following Edmonds and Turk (2004), we also include a dummy variable that captures whether the household runs an enterprise. While we do not find any impact of household enterprises on education, we do provide evidence that the number of days worked for wage is lower when a household enterprise is present. It is indeed likely that children are employed in the household enterprise rather than working outside the household.

In households that experience natural shocks (floods, droughts, pest infestations) children spend more days working in waged employment while in households that experience economic shocks (illness, unemployment,

shocks to input or crop prices, etc.) children spend more days working in agricultural activities. Both of these results suggest that households use child labour as a shock-coping mechanism. In the case of natural shocks children are put to work in waged employment given that natural shocks usually affect the agricultural activities of households. In the case of economic shocks child resources are diverted into agriculture, perhaps to enable other household members to enter waged employment or work in household enterprises.

Our panel data results confirm our findings from the cohort analysis that there are differences in the welfare outcomes of boys and girls. In particular we find that controlling for the age of the children, girls are more likely to have experienced sickness in the previous two weeks than boys and that girls spend more days working outside of the home. In particular, girls spend more days engaged in agricultural activities than boys.

In the next step of our analysis we focus specifically on households that include children aged 10–15 given that they are the most vulnerable in terms of exposure to child labour and consequentially negative impacts on education outcomes. We estimate the same regression model above for the same set of welfare outcomes. The results are presented in Table 11.8.

Fewer of the household characteristics are statistically significant once the sample is reduced to 10 to 15 year olds. We find that children are less likely to attend school and have fewer years of schooling in larger households. They are also more likely to work for a wage outside of the home. Children in higher income households also spend more days working, particularly in waged employment, suggesting that there are cases where household income is being supported by child labour. Exposure to both natural and economic shocks also increases the number of days that children aged 10 to 15 spend working outside of the household, particularly in agriculture.

Table 11.8: Panel data analysis of determinants of child welfare, 2008–14, 10–15 year olds

	(1) Attends school	(2) Years of education	(3) Days worked	(4) Days worked agriculture	(5) Days worked wage
<i>Household characteristics:</i>					
Age	0.003 (0.002)	-0.003 (0.007)	0.154 (0.332)	-0.002 (0.230)	0.002 (0.175)
Married	-0.003 (0.064)	0.014 (0.138)	-6.548 (6.937)	-3.748 (6.317)	-0.936 (3.149)
Female	-0.046 (0.065)	-0.112 (0.177)	-7.440 (7.967)	-3.030 (5.480)	-5.749 (5.277)
Higher ed	-0.018 (0.024)	-0.063 (0.119)	-0.427 (5.302)	-0.806 (4.371)	0.392 (0.510)
HH Size	-0.044*** (0.012)	-0.104** (0.050)	0.734 (1.524)	-1.198 (1.308)	1.458** (0.602)
Income	-0.010 (0.008)	-0.023 (0.039)	2.552* (1.441)	-0.435 (1.134)	2.147*** (0.763)
Loans	0.000 (0.001)	-0.004 (0.006)	0.127 (0.189)	0.139 (0.140)	0.037 (0.106)
Land area	-0.004 (0.003)	-0.011 (0.012)	0.023 (0.449)	0.132 (0.428)	-0.092 (0.107)
Land area squared	0.000 (0.000)	0.000 (0.000)	-0.001 (0.004)	-0.002 (0.004)	0.001 (0.001)
Household enterprise	0.008 (0.015)	-0.023 (0.078)	1.247 (2.823)	-1.575 (2.082)	-1.273 (1.316)
Durables	0.006 (0.005)	0.078*** (0.030)	1.240 (0.867)	0.850 (0.542)	0.405 (0.617)
Red book	0.023 (0.021)	0.151 (0.100)	-1.708 (3.360)	-1.648 (2.695)	-0.604 (1.618)
Natural shock	0.011 (0.012)	0.024 (0.064)	4.220** (1.860)	2.717* (1.526)	1.162 (0.891)
Economic shock	0.024* (0.013)	0.093 (0.063)	2.084 (2.552)	3.540* (2.034)	-1.372 (1.203)
<i>Child characteristics:</i>					
Female	-0.003 (0.015)	-0.009 (0.083)	0.286 (2.114)	0.400 (1.584)	0.730 (1.155)
Age	-0.029*** (0.003)	0.841*** (0.017)	6.189*** (0.474)	4.202*** (0.364)	1.387*** (0.275)
Observations	4,349	4,349	4,350	4,350	4,350
Number of HH	1,421	1,421	1,421	1,421	1,421

Note: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

As highlighted in the introduction, there is a large literature which suggests that female empowerment, and in particular an increase in the resources held in the hands of women, is beneficial for children. An increase in female

bargaining power within the household is expected to decrease child labour, especially among girls. In her seminal paper, Duflo (2003) explores the link between an old age social pension programme and child health in South Africa. The pension is found to positively affect girls' health, while no effect is found on boys. Qian (2008) analyses the effects of increases in sex-specific income on children in China: an increase in female income is found to lower child mortality among daughters and to have a positive effect on educational measures for all children. A rise in male income has no effect on boys, but it raises child mortality among daughters and worsens girls' educational attainment.

To explore this possibility in the Vietnamese case we consider two indicator variables for the empowerment of women within the household: i) an indicator variable for whether a woman manages the land owned by the household; and ii) the proportion of total days worked by women for a wage. The latter is considered an indicator of female empowerment on the basis that income earned through waged employment is more likely to be under the control of the person who earned the income. We include each of these indicators in the regression models. The results are presented in Table 11.9. Only results for the empowerment variables are presented for ease of illustration but each model includes the full set of household and individual control variables.

Table 11.9: Panel data analysis of determinants of child welfare, 2008–14, 10–15 year olds

	(1)	(2)	(3)	(4)	(5)
	Attends school	Years of education	Days worked	Days worked agriculture	Days worked wage
<i>Empowerment Indicators</i>					
Female Manager	0.033*** (0.012)	0.087 (0.072)	0.145 (2.151)	-1.516 (1.909)	1.078** (0.546)
Proportion total days worked by women that are spent in waged employment	0.005 (0.020)	-0.037 (0.115)	-9.508** (3.920)	-9.493*** (3.055)	1.276 (1.837)
Observations	3,427	3,427	3,428	3,428	3,428
Number of HH	1,064	1,064	1,064	1,064	1,064

Note: Each model includes household and time fixed effects and the full set of household and individual characteristics included in Table 11.8. Robust standard errors clustered at the household level in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

There is some evidence to suggest that in households where a woman is responsible for managing the land owned by the household, children are more likely to attend school. It is also the case that in households where women spend a greater proportion of their time working for a wage, as opposed to other types of activities, children work significantly fewer days and in particular work significantly fewer days in agricultural activities. These findings are consistent with the literature discussed above.

### 11.5 Conclusions

This chapter investigated how the lives of the children and youth living in rural Viet Nam have been affected by the significant structural transformation experienced in Viet Nam over the last decade. We analyse different aspects of child wellbeing: health, education attendance and attainment, and engagement in labour (agricultural, household enterprise, and waged employment). The analysis depicts a society that has made great progress towards improving child welfare. Over the span of six years, the health of children and young people has improved. School attendance

has also increased, in particular for children above the age of 10. This is particularly notable given that this age group is past the age of compulsory primary school. We also observe a decrease in child labour, which is even more notable for the most vulnerable age group, the young cohort.

Many challenges, however, still lie ahead. While both girls and boys have experienced improvements in health and schooling outcomes, we find that boys benefitted more than girls. Similarly, while wellbeing has increased over time for both minority and non-minority groups, our analysis highlights the fact that a substantial difference in the level of welfare still remains between the two groups. Of particular concern is the widening gap in educational outcomes. With slower rates of human capital accumulation for the poorest groups in society, convergence in living standards will be more difficult and will take a longer time to attain.

Nevertheless, the large gains in the welfare of children in Viet Nam over the last eight years is a strong signal that structural transformation is paving the way for a better standard of living for the next generation and future generations to come.

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## Chapter 12 Ethnicity

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### 12.1 Introduction

Viet Nam is an ethnically diverse country with 54 officially recognized ethnic groups. The Kinh, the ethnic Vietnamese, constitute about 86 per cent of the population. Among the non-Kinh, the Tay, Thai, and Muong account for a little less than 2 per cent of the population each (World Bank 2009). Table 12.1 below presents some basic demographic information by ethnicity using the VARHS 2014 data. On average, the non-Kinh are more likely to have a household head who is illiterate, and have a larger household. The key defining characteristic of the non-Kinh, however, is that they are geographically concentrated in the mountainous Northern Region and the Central Highlands.

Table 12.1: Descriptive statistics, by ethnicity for 2014

	Kinh	Non-Kinh
HH head illiterate	4.35	31.24
HH head female	27.06	11.89
HH size	3.9	5.05
Region of residence:		
Central Highlands	11.54	20.28
Mekong River Delta	15.98	0
North	16.39	71.33
Red River Delta	26.89	0.93
Central Coast	29.2	7.46
Number of households	1,733	429

While Viet Nam has witnessed rapid growth and poverty decline since the Doi Moi reforms initiated in 1986, the existing literature finds that these gains have not been shared equally across ethnic groups. Using household

income as an indicator for welfare, research finds that not only were the non-Kinh systematically worse off compared to the Kinh, this gap also widened during the 1990s (van de Walle and Gunewardena 2001; Baulch et al. 2007; Baulch et al. 2012) and the likelihood of them escaping poverty was relatively much smaller (Glewwe et al. 2002).<sup>1</sup> A variety of explanations have been put forward for the poor performance of the minority households in Viet Nam. The ethnic minorities are less endowed (in key aspects such as land holdings, education, access to credit, etc.) and also face lower returns to endowments. While the remote location of the minority households can partially explain the gap in endowments, research has consistently found that it is not the sole reason for the gap.

In this chapter, we use the VARHS panel data to examine how the welfare of the ethnic minorities in Viet Nam has evolved over the period 2006–14. Specifically, we check if the ethnic gaps still exist, and if so, has there been any convergence over time? What have been the factors constraining the growth of minority households? In line with the existing literature, we find that the non-Kinh continue to lag behind on a variety of welfare indicators. However, in contrast to the widening ethnic income gap during 1993–2006 noted in Baulch et al. (2012) and Dang (2012), we find the current gap to be fairly stable. An examination of the household income structure reveals that while the Kinh are more likely to diversify into wage employment and non-farm household enterprises, the non-Kinh rely more heavily on common pool resources. We explore the constraints to growth and income diversification and find several differences which can help explain the welfare gap. The quality of agricultural land and ownership certificate rates are lower for the non-Kinh households, and these effects persist even when we control for the fact that non-Kinh households tend to live in certain provinces. Non-Kinh households also experience more problems producing

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<sup>1</sup> Similarly, Pham and Reilly (2009) find significant ethnic wage gaps in the labour market in Viet Nam.

and selling their agricultural output and have worse access to credit. While historically non-Kinh households have been more remotely located, their relative isolation appears to have abated over time. On the other hand, we find evidence of segmentation in social networks along ethnic lines. In the last section, we exploit the richness of the VARHS data to examine differences among groups that constitute the non-Kinh and find significant heterogeneity within the non-Kinh.

The VARHS data allows us to classify the households into the various ethnic groups based on the ethnicity of the household head. In the rest of the chapter, a household is defined as a Kinh household if the household head belongs to the Kinh ethnicity.<sup>2</sup> Among the minorities, studies typically club the Hoa (or the Chinese) along with the Kinh as the Hoa are economically at least as well off as the Kinh. In this chapter, we consider the Hoa along with the non-Kinh as we only observe four Hoa households in the VARHS data.

## **12.2 Welfare levels and trends**

Figure 12.1 shows the evolution of mean real food expenditures and real income per capita for Kinh and non-Kinh households from 2006 to 2014 along with 95 per cent confidence intervals. While food expenditures of both Kinh and non-Kinh have increased significantly over the period, the level of food expenditures for minority households was significantly lower over the entire period. There are no signs that minority households are catching up to the expenditure levels of their Kinh counterparts, as growth rates have been almost the same over the period: from 2006 to 2014, Kinh food expenditures increased by 53.5 per cent (or 5.5 per cent annually) while non-Kinh food expenditures increased by 56.4 per cent (5.7 per cent annually).

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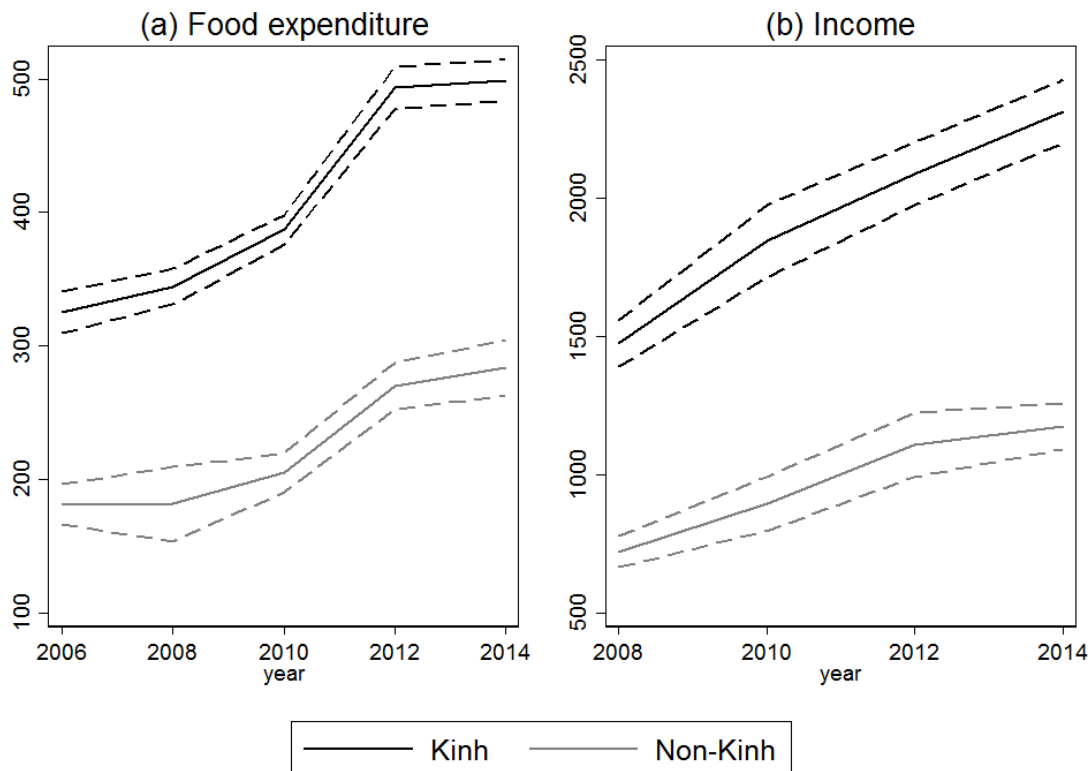
<sup>2</sup> In some cases the ethnicity of other household members may differ due to inter-marriages. Unfortunately, we are unable to examine such cases.

The income time series presents a similar picture.<sup>3</sup> For both Kinh and non-Kinh households, income per capita increased over the period 2008 to 2014 by annual rates of 7.8 and 8.5 per cent, respectively. However, despite the higher growth rate of income for non-Kinh households, convergence has been slow and the average income of non-Kinh households in 2014 was just half of the mean Kinh income. To illustrate, if one takes the difference in income in 2014 as a point of departure and projects future Kinh and non-Kinh mean income using the annual growth rates of the 2008–14 period, it would take 104 years before non-Kinh households are caught up with their Kinh counterparts. It is of course not realistic to project current growth rates more than 100 years into the future, but it does illustrate that there is a need to focus more on the minority ethnicities moving forward if the expenditure and income gaps should be closed.

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<sup>3</sup> Comparable income estimates can only be constructed for the period 2008–14.

Figure 12.40: Evolution of monthly food expenditures and income, by ethnicity in real 1,000 VND, 2006–14

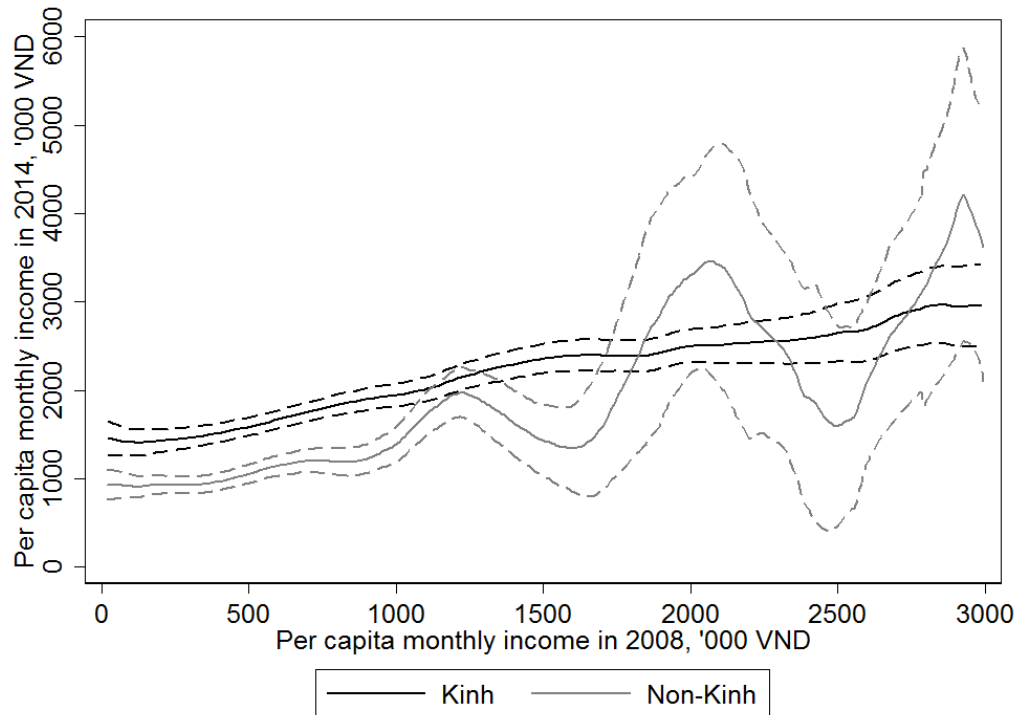


Note: Dashed lines represent 95 per cent confidence intervals. Income data is not available in 2006. Expenditure and income are represented in real June 2014 prices.

To sum, non-Kinh households were on average worse off than Kinh households over the entire period. This is caused by the combination of a lower initial level of income and similar growth rates for the two groups. A logical next question to ask is whether income evolved differentially for these two groups if one more directly compares households that had the same initial levels of income. This can be done by exploiting the panel dimension of the VARHS database. Figure 12.2 presents non-parametric regression estimates of real monthly per capita income in 2014 on real per capita income in 2008 separately for Kinh and non-Kinh households. The lines show the average income level in 2014 for a given level of income in 2008. A striking picture emerges: for a wide range of initial incomes, Kinh households experienced higher income growth over the period. For example, non-Kinh households who earned around 500,000 VND per capita

in 2008 had on average almost doubled their income in 2014 to around 1,000,000 VND per capita. However, Kinh households who earned a similar amount in 2008 could have expected to triple their income to 1,500,000 VND per capita in 2014.<sup>4</sup>

Figure 12.41: Non-parametric estimates of Kinh and non-Kinh income growth, depending on initial income



Note: Dashed lines represent 95 per cent confidence intervals. In order to increase legibility, the x-axis is cut off at 90,000 VND which is above the 95th per centile of 2008 incomes. All values are in June 2014 prices.

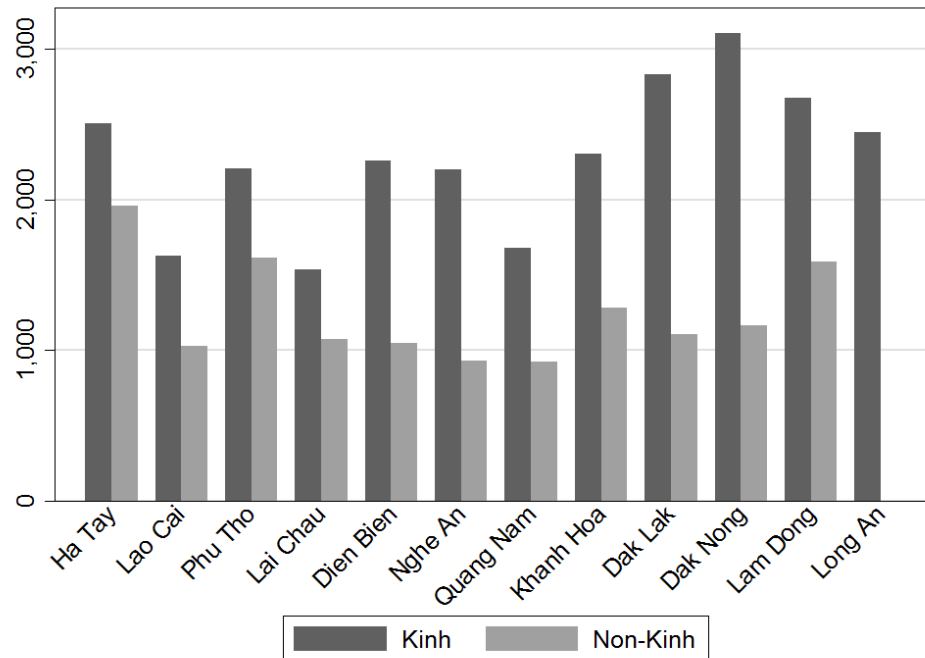
The national averages presented in the previous figures do not show much regional variation. Figure 12.3 shows mean income per capita by province in 2014.<sup>5</sup> In all provinces, Kinh income is on average higher than income of non-Kinh households. In Ha Tay, the difference is less than 20 per cent

<sup>4</sup> We note that the household-specific growth rates of income one gets from these example households are much higher than the average income growth rates presented above. This is not unusual in this type of set-up and is caused by negative idiosyncratic shocks in 2008. These shocks suppress incomes in 2008 but are gone by 2014. Therefore, the income growth for these households seems very high.

<sup>5</sup> We do not observe any non-Kinh households in Long An province in 2014.

while in the two Central Highlands provinces of Dak Lak and Dak Nong, Kinh households on average earn more than double the earnings of non-Kinh households.

Figure 12.42: 2014 mean income per capita, by province



Welfare is not exclusively determined by monetary indicators such as income and expenditure. Figure 12.4 shows the evolution of a series of asset indicators by ethnicity. The first row (sub-figures (a)–(c)) detail the evolution of ownership of cows, buffaloes, and pigs that are all used in agricultural production. Perhaps surprisingly, non-Kinh households are doing better in terms of number of pigs and number of buffaloes and are on par with the Kinh households in terms of the number of cows. How is this connected to the clear expenditure and income discrepancy in favour of the Kinh households? One possibility is that as agriculture becomes increasingly mechanized, draft animals such as cows and buffaloes become less important. The process of mechanization takes place at a more rapid pace for richer households since they have the requisite education, capital, and credit access. Since Kinh households are in general better off, they are more able to implement modern agricultural methods. This explanation is

consistent with the general decline in the number of both cows and buffaloes observed in Figures 12.4 (a) and (b). Another possibility is that non-Kinh households who have worse access to credit are more likely to utilize animals as a store of value which can be realized in the event of a negative income shock. We discuss the issue of access to credit in more detail later in section 12.4.

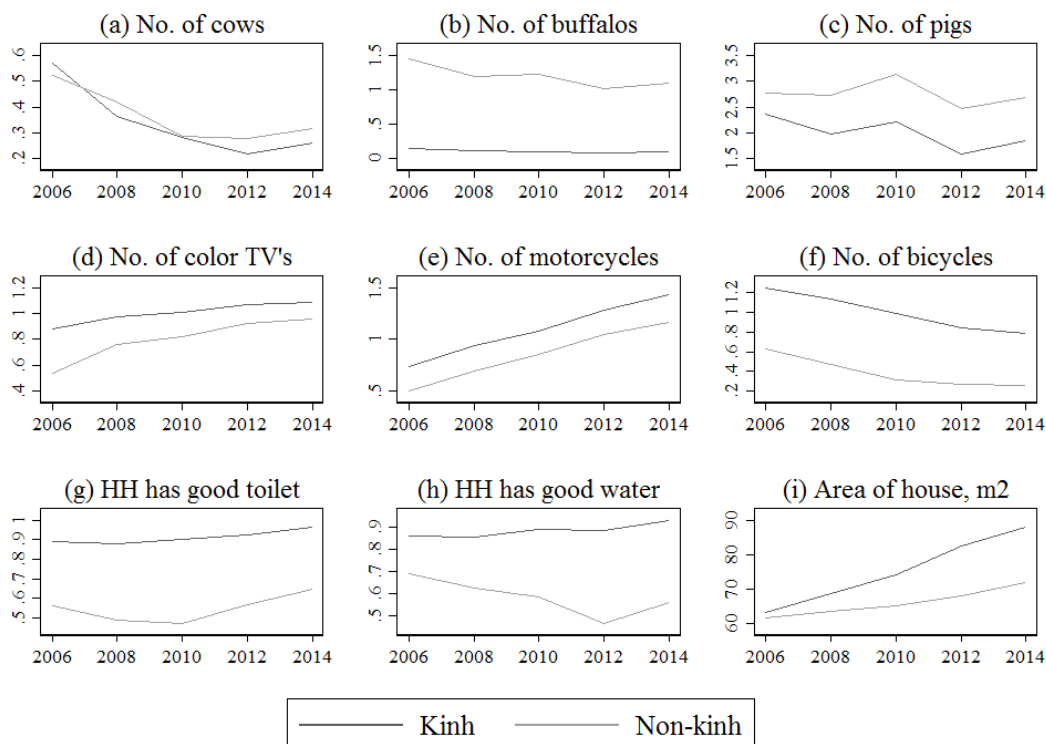
In the second row of Figure 12.4 we detail the evolution of ownership of some durable consumption assets. Here, the trend is closer to the evolution of the monetary indicators: for both Kinh and non-Kinh households, ownership rates of colour TVs and the number of motorcycles have increased, but the level of non-Kinh ownership lags behind throughout the entire period. Ownership rates of bicycles have been falling for both groups, most likely due to substitution towards motorcycles or, more rarely, cars.

The final row of Figure 12.4 shows three housing indicators: toilets, water supply, and area of house in square metres. Over the entire period 2006–14, the Kinh households have improved their outcomes in all three dimensions. In 2014, over 90 per cent have access to an improved water supply such as tap or well water and an improved toilet facility such as a flush, squat, or double vault compost toilet. Houses are getting larger as well: in the span of eight years, the average house size has increased by almost 40 per cent. For non-Kinh households, the picture is bleaker: less than 60 per cent had a good toilet in 2014 and less than 50 per cent had access to good water supply. The steady improvement in monetary welfare is reflected in the housing indicators only for the Kinh households: worryingly, for the non-Kinh households, the proportion of households who had a good toilet fell between 2006 and 2010 and the proportion with access to improved water supply fell from 2006 to 2012. Non-Kinh households are more likely to own a motorbike or a colour TV than having access to an improved water supply or to a good toilet facility in 2014. Finally, turning to housing size, the picture is more optimistic in that the average area has increased for both groups. What is less optimistic is that



we see a widening of the gap between Kinh and non-Kinh over the period. While the square meterage increased for both groups, it increased much more slowly for non-Kinh households.

Figure 12.43: Household asset ownership, by asset and ethnicity 2006–14



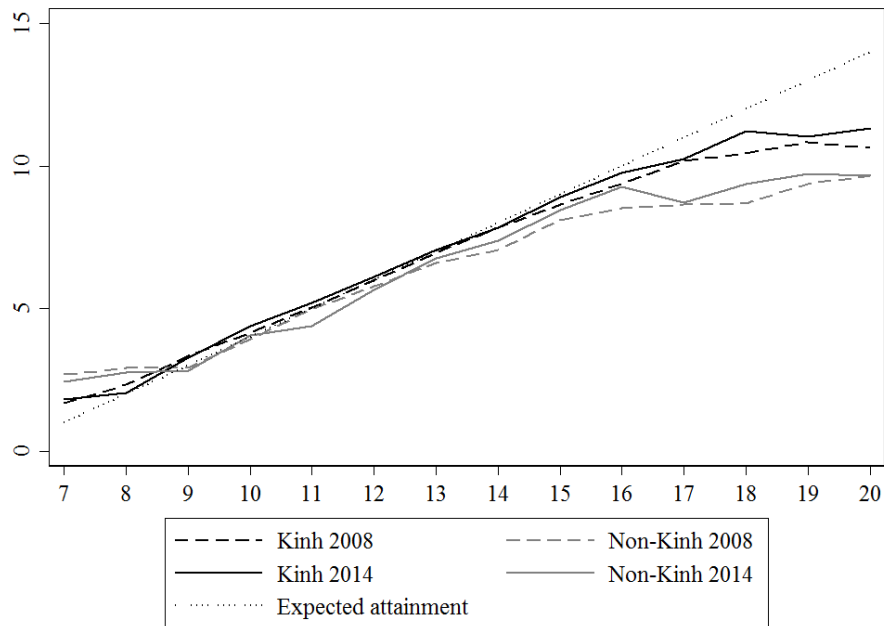
Note: A good toilet is defined as either flush, squat or double vault compost toilet. A good water supply is defined as tap or well water.

### 12.2.1 Educational attainment of children

Figure 12.5 shows the average grade attained by children of different ages in 2008 and 2014 by ethnicity. Both groups have experienced improvements in education over the period: for a given age except for the very young, children in 2014 had attained slightly more schooling than in 2008. Up until age 15, the average grade-for-age is very close to the grade which is expected for children who progress one grade every year. In both periods, children of ethnic minorities are doing slightly worse than children of Kinh households. This is particularly the case after age 15 which corresponds to the end of junior high school. At age 20, this amounts to a

difference in educational attainment of more than 1.5 years. This indicates that while both Kinh and non-Kinh children progress as one would expect through the primary education system, there is a higher propensity to leave the school system at an early stage for children of minority households. Like the differential in the monetary indicators of food expenditure and household income, the difference is unchanged in 2014 compared to 2008.

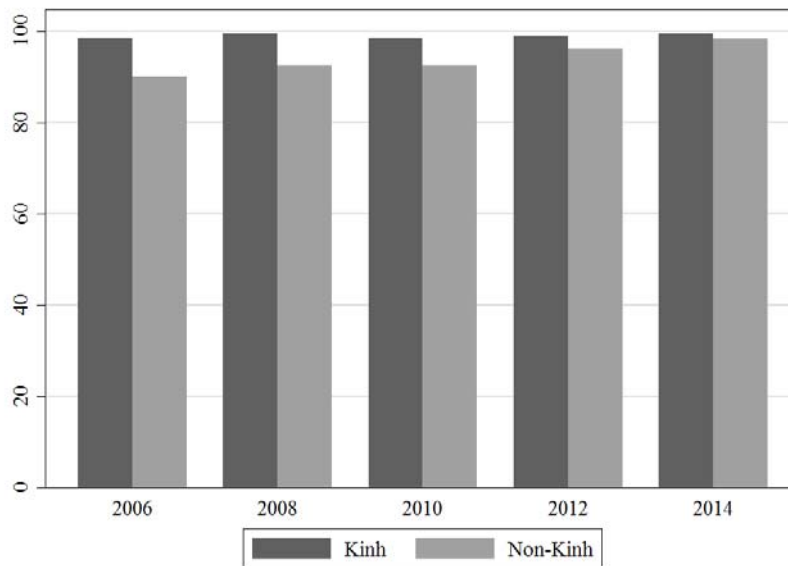
Figure 12.44: Grade-for-age of children, by ethnic group 2008 and 2014



Note: Expected attainment is defined as age minus 6 since the normal school start age is at age 6.

Educational attainment in terms of the achieved grade level is only one indicator of the effectiveness of education. Figure 12.6 shows literacy rates of 7–18 year olds. In 2006, literacy of Kinh children was already close to 100 per cent while literacy of non-Kinh children lagged behind at just below 90 per cent. However, the figure shows an improvement of literacy rates of non-Kinh children over this period. In 2014, literacy of non-Kinh children was over 98 per cent and very close to that of Kinh children.

Figure 12.45: Literacy rates of 7–18 year olds over time, by ethnic group



### 12.3 Structure of household income

In order to better understand the observed lack of convergence between the Kinh and the non-Kinh households, we now explore how the patterns of economic activity differ between the Kinh and the non-Kinh. Is the likelihood of diversifying out of agriculture into wage employment, household enterprises, or common pool resources different for the two groups? Income diversification is important as it allows households to weather shocks, smoothen consumption, and boost income. For the case of rural Viet Nam, Khai et al. (2013) show that income diversification over the period 2008–12 led to an increase in household welfare. Similarly, Oostendorp et al. (2009) find that operating non-farm household enterprises significantly increased household income in Viet Nam during 1993–2002. We examine such diversification with the 2014 data.

We begin by splitting the sample into diversifiers and non-diversifiers, that is those who solely depend on agriculture for their income and those who have at least one other non-agricultural source of income. The first row of

Table 12.2 shows the proportion of Kinh and non-Kinh households that are non-diversifiers. In line with the observation made in Chapter 4, we find that the non-Kinh are more likely to have diversified out of agriculture in 2014: 13 per cent of the Kinh households depend only on agriculture as opposed to 7.7 per cent of the non-Kinh.

While almost all the households rely on agriculture to some degree, they also derive income from wage employment, household non-farm enterprises, and common pool resources (CPR). We further categorize the diversifying households into the following mutually exclusive groups: those that combine agriculture with (i) wage employment; (ii) household enterprises; (iii) CPR; (iv) wage employment and CPR; (v) wage employment, household enterprise, and CPR; or (vi) some other combination. Looking at differences across ethnicity for each category in Table 12.2, we find that the Kinh are more likely to diversify into either wage employment or household enterprises, while the non-Kinh are more likely to depend on CPR, either by itself or in conjunction with wage employment or household enterprises. Conditional on diversifying out of agriculture, the 2014 data reveals that the non-Kinh and the Kinh differ significantly on the income-generating activities they diversify into.

Table 12.2: Income diversification, by ethnicity in 2014

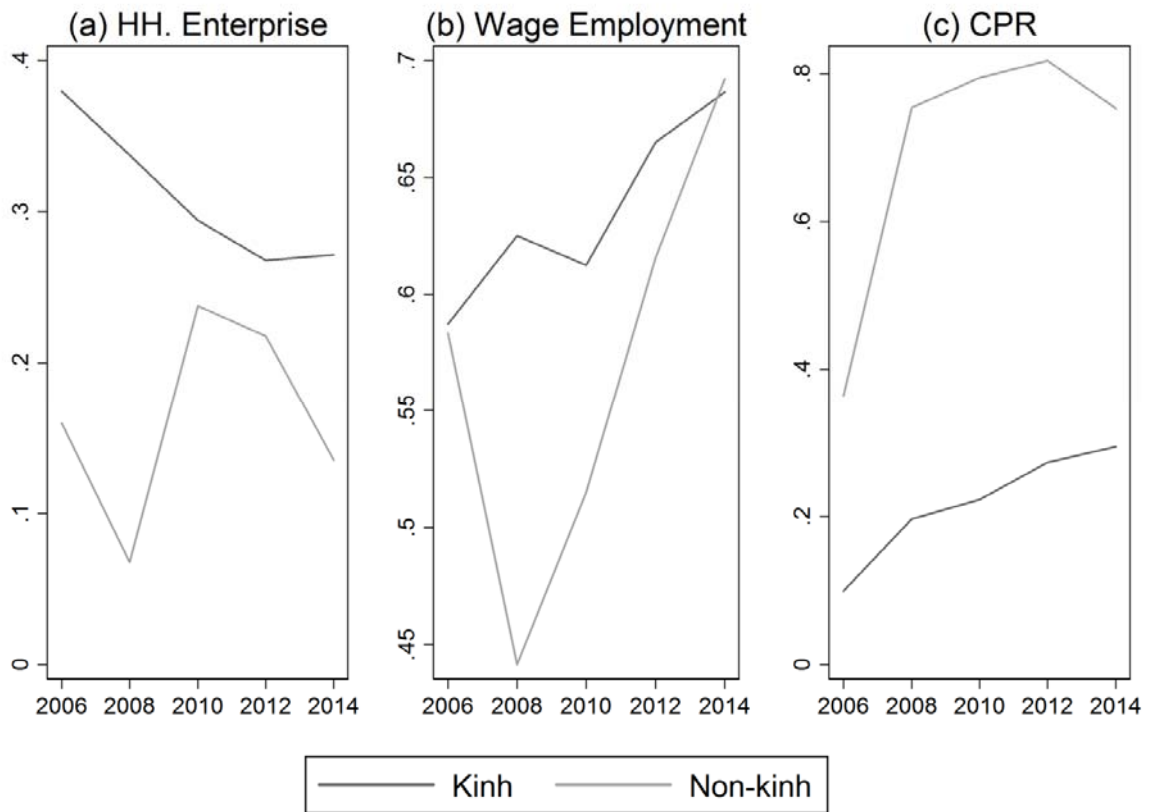
	Kinh	Non-Kinh	Difference
<i>Non-diversifiers:</i>			
Agriculture only	12.98	7.69	5.29***
<i>Diversifiers:</i>			
Agriculture and wage only	29.20	14.22	14.98***
Agriculture and business only	7.44	0.93	6.51***
Agriculture and CPR only	5.83	16.78	-10.95***
Agriculture, wage, and CPR	14.25	45.92	-31.67***
Agriculture, wage, business, and CPR	2.14	6.53	-4.39***
Other combinations	28.16	7.93	20.23***
Observations	1,733	429	

Note: The calculations are based on the 2014 VARHS data. The last column reports the t-test of proportions. \*\*\*, indicates significance at the 99per cent confidence level.

Next, we move beyond this static view to check if patterns of diversification strategies have changed over time. Sub-figures (a)–(c) in Figure 12.7 below show the proportion of Kinh and non-Kinh households that derived income from household enterprises, wage employment, and CPR, respectively, over the period 2006–14. Starting with Figure 12.7 (a), we see that while the proportion of Kinh households that are involved in household enterprises has declined slightly over time from 0.38 in 2006 to 0.27 in 2014, it is consistently more than that of the non-Kinh. More importantly, we find large fluctuations in the proportion of non-Kinh households that are engaged in household enterprises. This flux in and out of self-employment indicates that the household enterprises operated by non-Kinh households are transitory and not able to survive for long.

A look at Figure 12.7 (b) reveals somewhat similar dynamics with respect to wage employment. While the Kinh and non-Kinh were equally likely to engage in wage employment in 2006 and 2014, the non-Kinh exhibit more variability. The story is completely different when we examine the trends for CPR in Figure 12.7 (c). The non-Kinh are more reliant on CPR than the Kinh. While the proportion of Kinh households using CPR has increased modestly over 2006–14, the proportion of non-Kinh more than doubled from 36 per cent in 2006 to 75 per cent in 2014.

Figure 12.46: Income diversification



Note: The dummy variable 'HH enterprise' takes the value 1 if the household operates at least one enterprise and zero otherwise. Similarly, the variables 'Wage Employment' and 'CPR' take the value 1 if the household participates in off-farm wage employment and collects common pool resources, respectively.

In this section, we find that the structure of household income varies significantly between the Kinh and the non-Kinh. The non-Kinh are more likely to diversify out of agriculture. We look at three avenues of diversification out of agriculture: wage employment, household enterprises, and CPR. We find that the non-Kinh households that diversify are more likely to depend on CPR as opposed to Kinh households that rely primarily on wage employment and household enterprises. As income from CPR is more susceptible to climate change this finding indicates severe implications for the vulnerability of non-Kinh households in the future.

## 12.4. Constraints to agricultural and non-agricultural production

We now turn to identifying some of the constraints on agricultural growth and the ability to diversify out of agriculture, as identified in the previous section. We do this by looking at differences in plot characteristics, reported problems regarding agriculture, credit access, remoteness, and social networks.

### 12.4.1 Land and agriculture

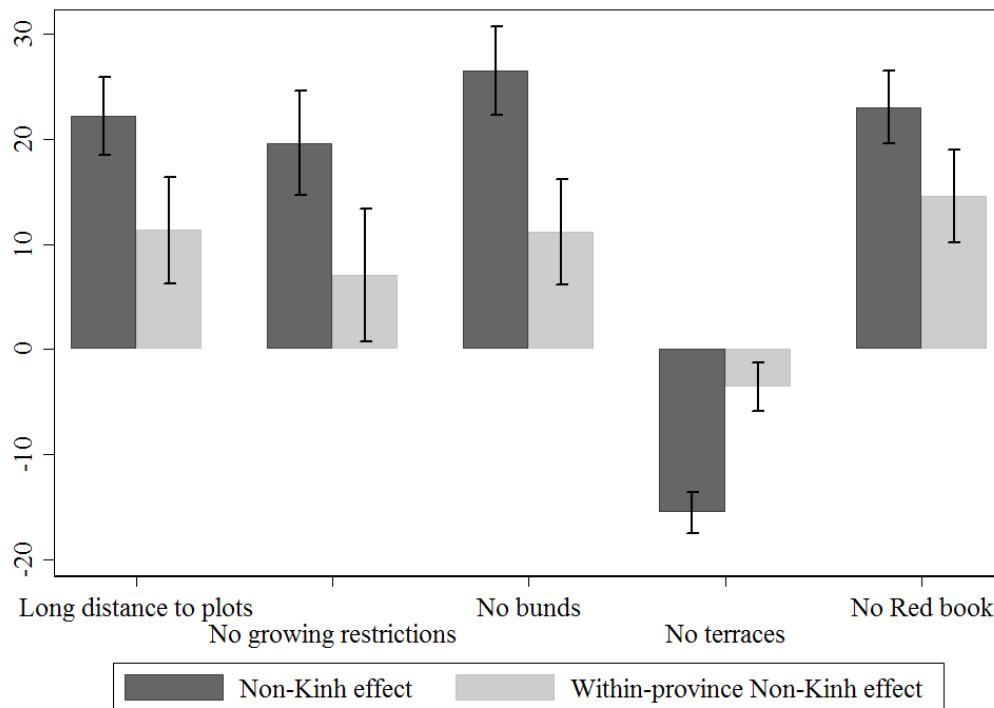
This section investigates how the agricultural production of non-Kinh households is differentially constrained compared to their Kinh counterparts. This is done by analysing differences in land quality and ownership status, self-reported problems by the households as well as exposure to shocks.

Figure 12.8 shows the difference in some characteristics of land quality as well as in red book ownership between Kinh and non-Kinh households in 2014. These are calculated by regressing the outcome variable on a dummy variable equal to one if the household is of an ethnicity other than Kinh. As shown in Table 12.1, the non-Kinh are not equally distributed throughout between the provinces. Rather, non-Kinh households tend to live in upland areas where climatic conditions such as rainfall and temperature as well as soil fertility and composition differ fundamentally from those in the lowland coastal areas. In order to ensure that the differences observed are real differences between Kinh and non-Kinh farmers, Figure 12.8 also includes estimates which are based only on differences between Kinh and non-Kinh households *within* the same province. Formally, this is done by including province fixed effects in the regressions.

Non-Kinh farmers have to travel significantly longer distances to their plots, they have fewer plots with soil or rock bunds in place, and they have a larger share of plots without formal ownership rights in the form of a red book. These effects are all significant, although smaller, using the within-

province estimates. On the other hand, non-Kinh farmers on average face fewer growing restrictions, and have more terraces on their plots than their Kinh counterparts. These effects are still significant using the within-province estimator, although they are significantly smaller and the lower confidence bounds are very close to zero. That this is the case for these two variables makes intuitive sense: there are fewer restrictions on having to grow rice in the upland areas where rice production is of less importance, and this is where a higher proportion of the non-Kinh households live. Similarly, there are more terraces in the more hilly and mountainous upland areas. In sum, non-Kinh farmers face some constraints in terms of access to their land, the quality of the land they own and in terms of tenure security.

Figure 12.8: Land quality and red book ownership in 2014

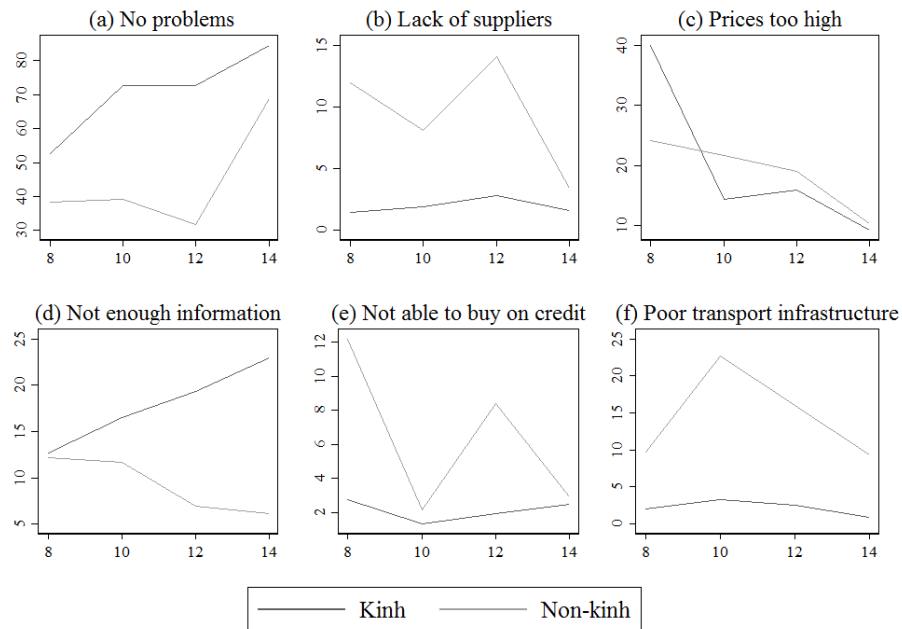


Note: Long distance to plots is defined as the share of plots which are more than 1km away from the residence. No growing restrictions, no bunds, no terraces and no red book are the share of plots on which there are no growing restrictions, soil, or rock bunds present, terraces built or where the household has no red book for the plot, respectively. All shares are calculated as simple averages over the number of plots the household owns and operates or rents in. Shares are reported in per cent. Black lines indicate 95 per cent confidence intervals. Within-province non-Kinh effects are calculated by including province fixed effects in the regressions.



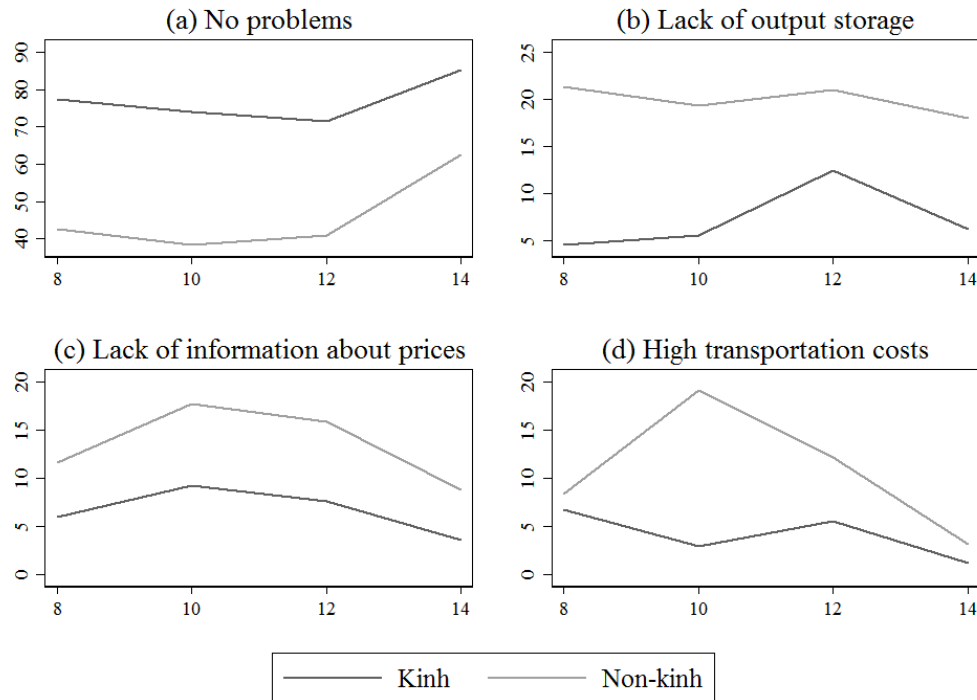
We next turn to the problems that households report they face before harvest (Figure 12.9) and after harvest (Figure 12.10). In both cases, Kinh households are more likely to report no problems than non-Kinh. For instance, in 2014, 85 per cent of Kinh households reported facing no problems before harvest and after harvest. On the other hand, 69 per cent of non-Kinh farmers faced no problems before harvest and 63 per cent faced no problems after harvest. What is the nature of the problems faced before harvest? According to Figure 12.9, the non-Kinh are more likely to face a lack of suppliers, not being able to buy on credit, and poor transport infrastructure. On the other hand, Kinh farmers are increasingly impeded by lack of information, a trend not observed for the non-Kinh households, possibly because they are facing other and more pressing problems. In 2008, almost 40 per cent of non-Kinh farmers reported that they faced very high input prices while this has fallen to around 10 per cent for both Kinh and non-Kinh farmers in 2014. In terms of problems after harvest, more non-Kinh farmers are concerned about lack of output storage, information about prices, and high transportation costs, even though the latter seems to be of less importance in later years.

Figure 12.9: Most important constraints before harvest as reported by the household, by year



Note: Some categories with very few answers are left out. Shares are reported in per cent. Overall, the non-Kinh households face additional agricultural constraints due to lower quality of plots, lower ownership rates, and more problems regarding agriculture both before and after harvest.

Figure 12.10: Most important constraints after harvest as reported by the household



Note: Households could list up to two problems. Some categories with very few answers are left out. Shares are reported in per cent.

#### 12.4.2 Credit and borrowing

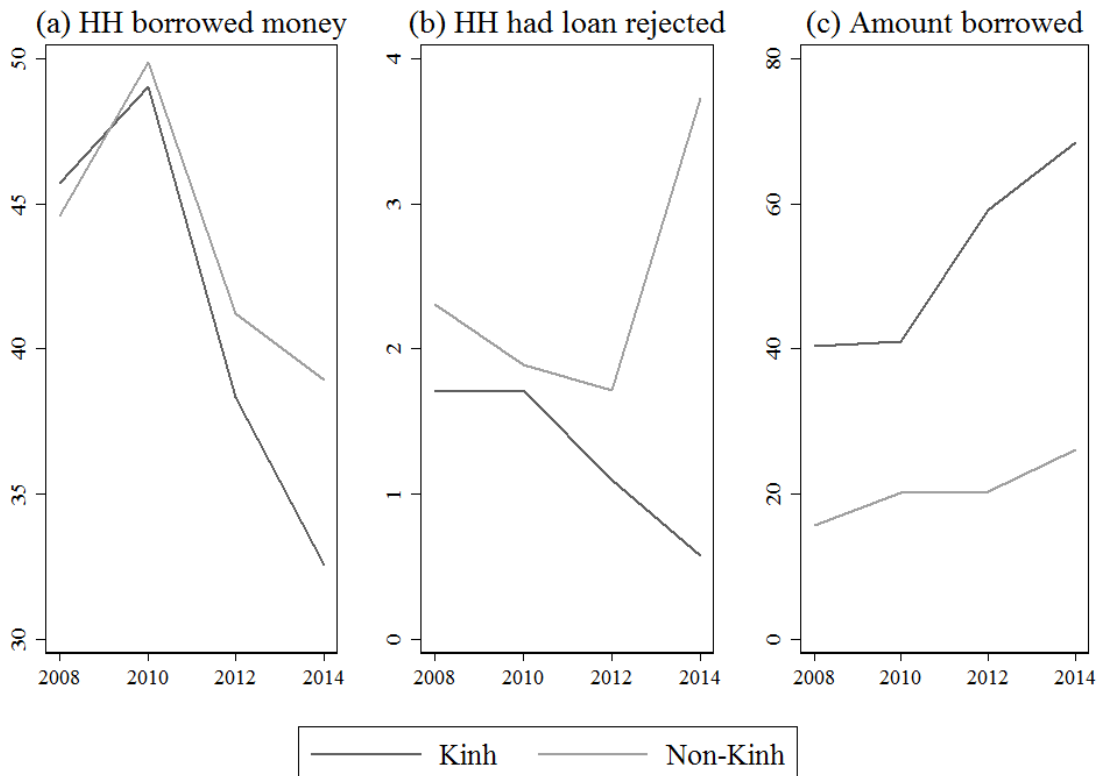
This section looks at differences in access to credit (both formal and informal) between Kinh and non-Kinh households. A loan is often required if a farmer wants to expand agricultural production or start a non-farm enterprise. Poor access to credit can therefore severely limit a household's possibilities for agricultural growth and diversification out of agriculture.

Figure 12.11 shows some information on loans. Panel (a), which shows the share of households that borrowed money in the last two years, indicates that in the later part of the period, and especially in 2014, a larger share of non-Kinh households are borrowing money. At first glance, this would indicate that ethnic minority households do not have worse access to credit. However, panel (b) shows that more non-Kinh households have had their loan applications rejected (although note that the overall rejection rate is

low). This discrepancy is particularly large in 2014 where almost 4 per cent of non-Kinh households had a loan rejected in the last two years while this was the case for less than 1 per cent of Kinh households. It should be noted that borrowing money is not always a good thing: borrowing due to having difficulties in making ends meet is very different from borrowing that is used for investments.

Panel (c) looks into the type of loans in more detail by showing how the amount borrowed varies between ethnicities. The average loan size for non-Kinh households was less than half of the size of Kinh household loans in 2008. This discrepancy has increased over the period: in 2014, the average non-Kinh loan size was reduced to less than a third of the size of the loans of Kinh households.

Figure 12.11: Access to credit, by ethnicity



Note: Shares are reported in per cent. The figures in panel (c) are calculated conditional on receiving a loan and are reported in million VND.

To sum, the picture is not as positive as a quick glance at Figure 12.11 (a) seems to indicate: while more non-Kinh households are getting loans, there are also more non-Kinh households who are getting loan applications rejected and when they do get a loan, it is substantially smaller. Most worryingly, the discrepancy appears to be increasing over time.

### *12.4.3 Remoteness*

As mentioned in the introduction, the ethnic minorities of Viet Nam tend to live in more mountainous and remote parts of the country. Longer distances to population centres can result in less access to public services, infrastructure, and increased transportation costs. Over the years, the government has targeted several programmes such as the 'Socio-Economic Development Programme for the Communes Facing Greatest Hardships in the Ethnic Minority and Mountainous Areas' (Programme 135 or P135) to support infrastructure development and public services in such areas.<sup>6</sup>

While there have not been any rigorous evaluations of such policies, we check if minority households continue to systematically differ in their access to infrastructure due to their geographical location. In the following, we consider two indicators of remoteness, namely distance to an all-weather road, as well as distance to the commune People's Committee. The distance to an all-weather road is an indicator of how well connected the household is to its immediate surroundings. A long distance to an all-weather road increases transportation time and can make transportation of people as well as of agricultural products and other goods very difficult during floods. The distance to the commune People's Committee is a meaningful proxy for remoteness since the People's Committee, the administrative centre of the commune, tends to be better connected to the rest of Viet Nam than more remote parts of the commune. Figure 12.12 shows the additional

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<sup>6</sup> The first phase of P135 was implemented over 2001–05 and second over 2006–10. Cuong et al. (2014) assess the second phase and find that minority households in targeted communes experienced a larger decline in poverty than those in control communes.

distance that ethnic minorities have to an all-weather road and to a People's Committee.

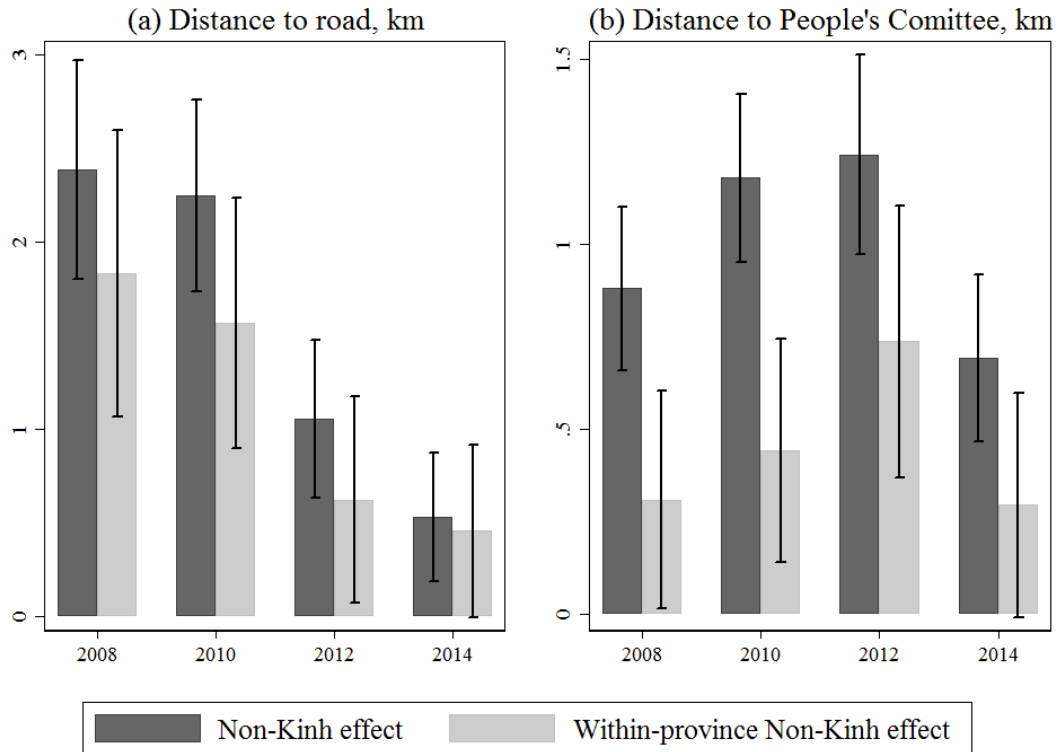
A finding that ethnic minority households are on average more remotely located can therefore simply be an artefact of the fact that population density is lower in these parts of the country. In order to rule this out, Figure 12.11 also presents the effects of belonging to an ethnic minority, using Kinh households within the same provinces as comparisons. We do this by running a year-specific regression which includes province fixed effects, similarly to the regression in section 12.4.1.

The additional distance to an all-weather road is greater for minority households in all years. In 2008, the average additional distance was just above 2 km for the sample as a whole and just below 2 km when controlling for provincial differences. This is a long distance: the average distance to an all-weather road for Kinh households was 3.1 km in 2008. However, the discrepancy has been falling over time. In 2014, the within-province effect is statistically indistinguishable from zero. So while non-Kinh households are still on average living further away from roads than the ethnic Vietnamese, the entirety of this effect can in later years be attributed to non-Kinh households living in provinces where all households—Kinh and non-Kinh—on average live in more remote locations.

The additional distance to the People's Committee is also positive for the minorities in all years. In 2008, the total additional distance was around 0.8 km, or 0.25 km using the within-province estimate. The average distance for Kinh households in 2008 was 2.4 km. The additional distance to the commune People's Committee is therefore smaller in both absolute and relative terms, compared to the additional distance to roads that the non-Kinh households experience. The trend over time is less clear, but we do note that, as was the case with the distance to road measure, the estimate of additional distance for the non-Kinh is statistically

indistinguishable from zero in 2014, once province fixed effects are taken into account.

Figure 12.12: Additional distances for non-Kinh households, by year



Note: The effect shown is the parameter estimate of an ethnic minority dummy regressed on distance to road using year-specific regressions. The within-province fixed effects include a full set of province dummies. The lines represent 95 per cent confidence intervals.

#### 12.4.4 Social networks

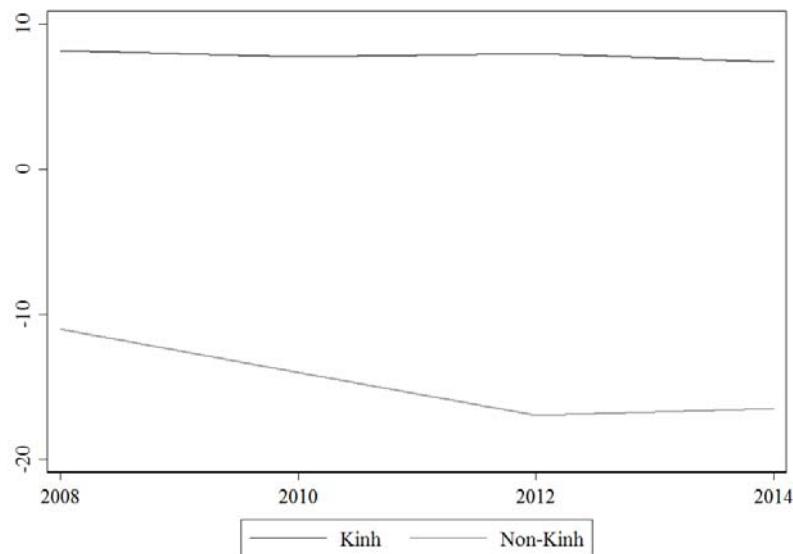
The final aspect of constraints we investigate are the social networks of ethnic minority households. Figure 12.13 explores the extent of segregation of Kinh and minority households. It does so by exploiting information on the ethnicity of the three most important people that a household can contact for money in case of emergencies. This, combined with information on the commune level share of minority households allows us to compare the share of contacts of Kinh ethnicity in the household's network compared to the share of Kinh ethnic households in the commune. If ethnicity does not play a role in the formation of contacts, one would expect these two

shares to be equal. Figure 12.13 shows the difference between these shares for Kinh and non-Kinh households. The positive number for Kinh households mean that they have more contacts among other Kinh households than would be expected if the share of contacts was to mirror the share of Kinh households in the commune. Likewise, the negative number for non-Kinh households mean that they have fewer contacts among Kinh households (and, therefore, more contacts among other minority households) than expected if ethnicity did not play a role in contact formation.

This is therefore evidence of segmentation among ethnic lines. There are no indications that this discrepancy is lessening over time; if anything, it appears that minority households are becoming further isolated towards the end of the period. This is potentially problematic for the ethnic minority households given that these ties may be less valuable in times of emergency since, as shown in section 12.2 ethnic minorities tend to be worse off and the links may therefore be less valuable. Further research is needed in order to understand how these links are formed and what the consequence of this difference is for welfare outcomes.



Figure 12.13: Over- and under-representation of links to Kinh farmers, compared to commune average



Note: Households were asked to name up to three contacts that they depend on for money in case of emergency. The figure shows the average share of those links in per cent that households have to Kinh households, minus the average share of Kinh households in the commune. If a group scores 10 it means that the group has 10 percentage points more links to Kinh farmers than what would be expected if link formation was random. This could happen if communes consist of 75 per cent Kinh farmers, and 85 per cent of Kinh farmers' links are to other Kinh farmers. Since this figure also uses data from the commune questionnaire, the sample is somewhat reduced (N=2162 on average per year).

### 12.5. Differences within non-Kinh

We now explore differences within the non-Kinh minorities. While we have so far considered the non-Kinh as a homogeneous group, the fact remains that outcomes within non-Kinh vary on account of differences such as region they reside in, the specific ethnic group they belong to, and whether they know Vietnamese. In this section, we examine these three dimensions.

As discussed previously in the chapter, the non-Kinh minorities are largely concentrated in the Northern Mountains and the Central Highlands of Viet Nam. While both these regions are mountainous and have relatively limited access to public services and infrastructure, previous research has noted

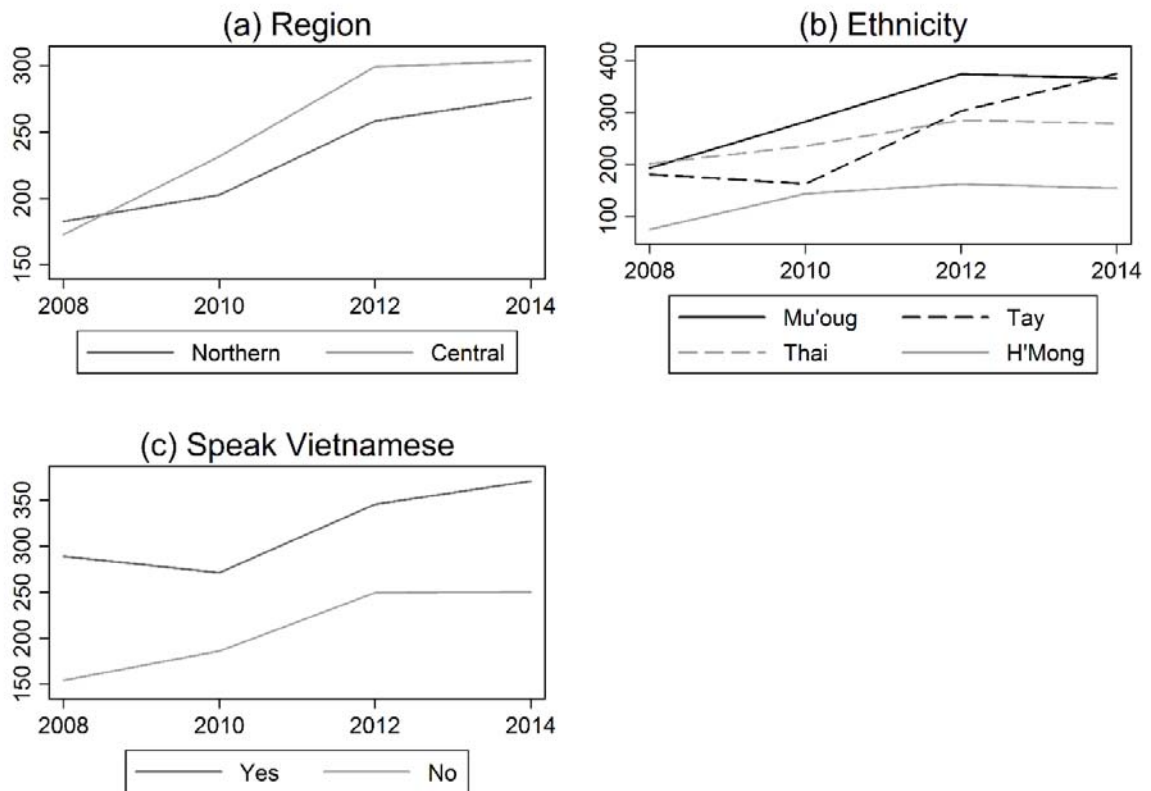
that the minorities in Central Highlands performed worse as compared to the Northern Mountain minorities during the 1990s (Baulch et al. 2007).

Using the VARHS data we compare the economic welfare of minority households residing in the Northern Mountain region (provinces of Lao Cai, Phu Tho, Dien Bien, and Lai Chau) to those residing in the Central Highlands (provinces of Dak Lak, Dak Nong, and Lam Dong). Figure 12.14 (a) shows how the real per capita monthly food consumption evolved for minority households over the period 2008–14. We find that while there were no regional disparities in 2008, the per capita consumption of minority households in the Central Highland minorities grew a lot faster than those in the Northern Mountains. This finding is consistent with those derived from the VHLSS data that the Central Highlands experienced a higher reduction in poverty rates in the 2000s (World Bank 2012).

Next, we examine if the growth trajectories of the minority groups have varied by their ethnicity. The non-Kinh are comprised of 53 officially recognized ethnic groups. In order to have meaningful results, we limit our analysis to those minority ethnic groups where we have at least 45 observations in each wave of the VARHS data. This gives us four groups: Tay (the largest minority group in Viet Nam), Thai, Muong, and H'Mong. As all four of these ethnic groups largely reside in the Northern Mountains, so this could also shed further light on the economic stagnation among minority households discussed above.

In Figure 12.14 (b) we examine how the real per capita monthly food consumption has evolved over 2008–14 for these four groups. We find that the Muong are consistently strong performers and the H'Mong consistently lag behind throughout this period. On the other hand, the Thai and Tay exhibit a lot of dynamics during this time period. While the consumption of the Tay is similar to that of the Thai in 2008, and appears to stagnate in 2010, it grew rapidly since then and was significantly higher than that of the Thai in 2014 ( $p$ -value=0.025).

Figure 12.14: Differences in monthly per capita food expenditures within minorities, by region, ethnicity, and language



Notes: In subfigure (a) the Northern Region includes the provinces of Lao Cai, Phu Tho, Dien Bien, and Lai Chau, and the Central Region includes the provinces of Dak Lak, Dak Nong, and Lam Dong.

Finally, we consider knowledge and fluency in Vietnamese. Many of the minority groups either do not know or are not fluent in the Vietnamese language. In the VARHS data, 72.5 per cent of the 429 non-Kinh households interviewed in 2014 reported that Vietnamese was not their main language. A lack of knowledge of the Vietnamese language may be preventing minorities from applying for credit, taking part in market transactions, migrating, and dropping out of school. This may also limit their understanding of government programmes available in the commune that are mostly in Vietnamese, leading to lower participation in such schemes. Indeed as shown in Figure 12.14 (c), we find that minority

households that speak Vietnamese as their main language are significantly better off than those that do not. Given the consistent nature of this finding, it is imperative to explore the ways in which the lack of fluency in Vietnamese is restraining the growth of non-Kinh households and compounding the disadvantage they already face.

## **12.6. Conclusion**

Over the years, the Government of Viet Nam has undertaken various measures to address the ethnicity gap in Viet Nam. This includes setting up the Committee for Ethnic Minority and Mountainous Area Affairs and specifically targeting poverty in remote and inaccessible areas under policies such as the Socio-Economic Development Programme for the Communes Facing Greatest Hardships in the Ethnic Minority and Mountainous Areas (Programme 135 or P135).

Over the period 2006–14, the average rural Vietnamese household in the VARHS survey has seen spectacular improvements in living standards as measured by household income and consumption expenditure. However, national averages mask substantial differences in the level of welfare between the Kinh majority households and the households who belong to one of Viet Nam's 53 ethnic minority groups. Both groups have seen increases in their living standards, but a significant difference in the relative level of welfare remains. In this period, there are no strong signs of convergence in welfare between the two groups. The evolution of food expenditure and household income is better characterized by parallel trends than by catch-up: the relative difference in these two important indicators in 2014 is almost identical to the difference observed in 2006. On other indicators, the evidence is even more worrisome: while housing indicators of Kinh households have improved, they have remained more or less stagnant for the average non-Kinh household.

An examination of the sources of income reveals that the non-Kinh are exceedingly reliant on agriculture and less likely to diversify into non-farm

activities. Further, when non-Kinh households do diversify, they are more likely to depend on CPR as opposed to Kinh households that primarily engage in wage employment and household enterprises. We also identified several constraints that can help explain these differences. Non-Kinh households have lower quality agricultural land and lower rates of ownership certificates. They also face more problems producing and selling their agricultural products and have worse access to formal and informal credit. While remoteness was found to matter in the earlier part of the period, non-Kinh households no longer appear to be more remotely located than their Kinh counterparts living in the same provinces. There is, however, some evidence of segmentation in social networks along ethnic lines.

Finally, we find a fair amount of heterogeneity within the non-Kinh minorities along spatial, ethnic, and linguistic lines. Minority households residing in the Central Highlands grew faster than those in the Northern Mountains; the Tay and the Mu'oug fared better than the Thai and H'Mong; and minority households that speak Vietnamese did better than those that do not. Overall, while differences between the Kinh and the non-Kinh continue to exist, it appears that currently social distance rather than geographical distance plays a greater role in the slow growth of the non-Kinh.

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## Chapter 13 Conclusion

Finn Tarp

### 13.1 Introduction

This volume started by setting out the background and explaining the nature of the database on which the wide range of detailed microeconomic studies in Chapters 2–12 are all based—the VARHS. The VARHS is a unique five wave panel data set, covering a sample of 2,162 households from 12 provinces in Viet Nam surveyed every two years from 2006 to 2014. Prominently in a broader perspective, the design, implementation, and use of the VARHS provide a highly relevant case study of what the global call for a data revolution means in actual practice in the context of the post-2015 development agenda. This is so especially when the international discourse is on the ambition of ‘leaving no-one behind’. In addition, Viet Nam is a very instructive country to study and learn from. Much socio-economic progress has been realized in this still relatively poor—yet dynamic South East Asian country—since *Doi Moi* was begun in 1986, not even 30 years ago.

Viet Nam admittedly sets a high bar when it comes to socio-economic achievements. As such it illustrates aspirations other countries may wish to adopt and even target. Importantly, while impressive, we have argued throughout in this volume that Viet Nam could do even better. This is not because the group of authors subscribe to the—paradoxically—rather pessimistic outlook and world view, one often encounters in social and professional interactions in Viet Nam. Instead, it is derived from careful analysis carried out to uncover the elements of what remains to be done, or

maybe better what could be done in the next step of a never fully predictable development process. Viet Nam is indeed a rising dragon on the move. Nonetheless, many challenges continue to lie ahead. A stated aim of this volume is to help identify these challenges more specifically, to get to know them in-depth, and to reflect on what the key policy implications are. Summarizing and outlining these implications is the purpose of this concluding chapter.

Chapter 1 reviewed the macroeconomic situation and development progress of Viet Nam in a comparative regional perspective as background to the core chapters of the book. Based on standard data available from international sources, we noted the stellar performance Viet Nam has shown when it comes to the reduction of poverty, based on a strong process of transformative economic growth. We also noted the active macroeconomic policy stance the Vietnamese government has taken in the face of the global financial economic crisis, which has hit much harder in other developing countries. Viet Nam has—as demonstrated in this volume—done well to respond. Surely, an eye needs to be kept on avoiding ‘overdoing’ it and gradually getting trapped into vicious circles of public debt and similar issues. At this point it is our assessment that such problems are not on the horizon.

At the same time, the macroeconomic overview identified early on a few thorny characteristics which reflect underlying sector and microeconomic issues to which we return in what follows: (i) agriculture value added per worker has remained stagnant in Viet Nam over the past decade; (ii) IT development (as measured by fixed wired broadband subscriptions) is far from impressive in regional comparisons; and (iii) while the prevalence of undernourishment and the depth of the food deficit are indeed dropping, progress elsewhere suggests more can be done.



Following on from Chapter 1 we proceeded to the core of the volume. In 11 chapters we addressed three broad themes in socio-economic development:

- The process of rural economic transformation as it impacts on almost all aspects of rural life and economic activities;
- The critical importance of household access to markets for land, labour, and capital (i.e. key production factors) and the importance of associated institutions; and
- The ultimate welfare outcomes and distributional issues (among for example, households, genders, and ethnic groups). In the final analysis this is the lens through which ordinary people, policy makers, and researchers will all have to look to evaluate whether development policy and strategy are succeeding or not.

We turn to these three themes—or parts—one by one in the next three sections before final remarks and observations. To put this into perspective, we note up-front that these three themes are closely related to three core development challenges: structural transformation, inclusion and sustainability, and linked to the cross-cutting issues of development finance and gender. These topics are central both to the post-2015 development agenda, the mandate of UNU-WIDER, and indeed the future development of Viet Nam.

## **13.2 Rural transformation**

Development is interlinked with structural transformation of the economy, in the balance between its sectors, and in the nature of economic activity of its people. If the economy does not transform progress is stifled. This volume included three studies of these processes. In Part I we first asked which

insights the VARHS commune questionnaire furnishes as a complement to the macroeconomic picture already discussed above. We then proceeded to investigate the nature and characteristics of the ongoing diversification, commercialization, and transformation of the agriculture sector relying on household-level information. Thirdly and finally we analysed what is happening in the non-farm rural economy. Non-farm activity will have to absorb an increasing share of the labour force if development is to proceed and succeed.

Chapter 2 documented that there are clear signs of transformation at the commune level over time, especially in the provision of public facilities and infrastructure. Public action matters. However, significant regional differences exist, with the Northern Region lagging behind on several critical indicators. This fact, which cannot be captured by aggregate indicators for the economy as a whole, is critically important. Viet Nam continues to face the challenge of ensuring that its development becomes more regionally balanced, a challenge that is at the root of social upheaval and unrest elsewhere in the world. Looking ahead it also emerges that commune leaders expect climate change to become an important problem in the years to come.

Speeding up development and the flexibility of the economy as traditionally conceived is often the best available adaption strategy. A better educated population will know how to take proper action and will be better placed to do so. In Viet Nam this means that the basic policy message is: keep up the momentum. Accelerated development is desirable. It is at the same time necessary to put on the thinking cap. Additional policy measures are required to help prepare farmers and other people for the many changes that will occur. In some cases this means policies should be put in place such that rural people (or better their children and grandchildren) will eventually—in the longer run—be prepared and able to move to less affected areas and earn a productive

living there, less dependent on agriculture and existing flood-prone urban areas.

For the time being, agriculture continues—as demonstrated in Chapter 3—to play a critically important role in rural Viet Nam. This is why attention to value added per worker in the rural sector is a critical indicator. Yet, participation in non-agricultural activities has been increasing over time. This is promising and reflects that development is happening, and that agriculture is increasingly becoming commercialized in rural Viet Nam, mainly in the case of selling rice. It is notable, though, that while poorer households grow more rice than previously, they sell less (due to more self-consumption). This is a sign that more needs to be done through well designed policy to integrate them better into the market economy and its institutions. This is, in turn, also the way to avoid marginalizing groups of people to which we return below.

Other characteristics uncovered in Chapter 3 are that cash crops are an important source of income, especially for households in the Central Highlands (i.e. coffee) and for better off households, and that participation in aquaculture fluctuates from year-to-year, mainly due to its uncertain potential for income generation. This reinforces the points made above. It also underpins the finding that the VARHS data show a strong association between commercialization and wealth. Admittedly, cause-and-effect goes both ways here. Yet, it is certainly the case that increased commercialization of agricultural activities in rural Viet Nam has been an important contributor to the impressive rural poverty reduction the country has experienced. This process needs to be extended and completed to include those not yet fully covered.

Chapter 4 put focus on the non-farm rural economy, and the VARHS data confirm the macroeconomic story of structural transformation in Viet Nam. At the micro level one observes that rural households are indeed shifting labour

from agriculture towards operating household enterprises and engaging in waged labour outside the home. This is assuring and especially so since diversification is found to be welfare improving and because the data show that moving into operating household enterprises is an effective way forward. But success of entrepreneurial activities hinges on access to finance, training and education, and market access.

An important policy implication is therefore that the role for the government is to shape an environment that will help generate and cultivate enterprises both in terms of ease of starting a business and in promoting access to, for example, credit. At the household level this has to be supplemented with diversification into waged employment which is an important source of welfare gain. Accordingly, another key policy priority is to help enable job creation, particularly in rural areas, for those leaving agricultural production. And fundamentally the quality and quantity of education available will, in the final analysis, be critical for the ability of families to find suitable jobs outside agriculture.

### **13.3 Access to resources**

Four dimensions of households' access to resources and associated institutions were covered in Part II: land and land markets, labour and migration, technology and innovation, and social capital and political connections. While not exhaustive these are key issues to address in coming to grips with production efficiency in the agricultural sector and how households respond to their socio-economic and institutional environment.

Chapter 5 showed that landlessness is not increasing and is positively correlated with income. Moreover, while farms are getting slightly smaller, plots are being consolidated. The mean number of plots operated dropped from 5.8 in 2006 to 4.1 in 2014, and there was a moderate increase in median

plot size. This suggests that intra-farm consolidation rather than inter-farm consolidation is going on. This observation implies that more needs to be done to promote the critical role of market-based transactions for land.

Land sales market activity is stagnant, not increasing, and there are revealing regional imbalances here: sales markets are much more active in the Central Highlands than elsewhere. This suggests that a drive to promote land markets elsewhere is called for. The potential is there, since the data show that the activity in land rental markets is increasing. Rental markets transfer land from rich to poor, and this is likely to increase efficiency, which is encouraging. It is, however, important to ensure that farmers will be in a position to own the land they are tilling. It is in this perspective worrisome that a significant number of plots still remain without a red book (LUC). The data reveal again regional variation with titling being least developed in the Northern Uplands. LUCs have a positive effect on private investment such as irrigation, and this effect is significant and strong in the highland regions—where titling is least common. The policy implication is that titling should be expanded in the Northern Upland and Central Highland regions. The lack of progress in these areas is likely to be an important factor in the stagnating value added per worker in the agriculture sector already discussed.

Turning to issues of labour and migration, Chapter 6 demonstrates significant movements of household members, both intra-province and inter-province. Some 20 per cent of the 2,162 interviewed households have at least one member who migrated. The main reasons for migrating are, as expected, education and work related motives. The VARHS also shows that in the face of shocks, which threaten household welfare, remittances act as an important shock-coping mechanism and channel for poverty reduction. It emerges as well that better off households are more likely to migrate. Importantly, this indicates that there are constraints to migration for poorer households. This

means that a key policy implication of these findings is that existing constraints on voluntary migration should be removed, or at least made more flexible, particularly for poorer households. Members in such households may have the desire to leave their home community to find work, but may not have the resources and possibilities to do so. Finally, while more speculative at this stage, there may well be a role for government or other agencies in developing formal banking mechanisms to facilitate the remittance of funds back to sending households.

Land and labour are important production factors in the agriculture sector. So is technology, as discussed in Chapter 7. This chapter demonstrates that mechanization of agriculture should remain a policy concern. The number of machinery owned has stayed more or less constant, although there has been an increase in the incidence of renting machinery, especially in Long An province. This hints at the potential for policies targeted at mechanization of agriculture to boost agricultural productivity. This is a key need as alluded to above, and assumes that environmental concerns are addressed adequately. In parallel, while we note: (i) a rapid increase in the ownership of mobile phones (households have moved from a median of zero to two phones in just eight years); and (ii) a large increase in internet access and computer ownership, this progress is not significant in international comparison. And the VARHS provinces lag behind the national average. This is a caution that policies should harness the potential of IT services and the internet to provide information and education, especially in remote and poorer regions. Another associated policy that merits attention is the use of IT in promoting e-governance.

Not only physical and human capital are important to growth and productivity. The same goes for social capital as validated in Chapter 8, where a variety of social and political characteristics and issues were brought to the fore. As

expected in a rural setting, family ties play an important role in economic transactions and provide safety nets (informal insurance). Such links are worth furthering and supporting to the extent feasible in a dynamic process of change that will often be unsettling. Furthermore, Chapter 8 shows that household income is strongly and positively associated with being a member of the Communist Party, all else being equal. This confirms that patronage relations would seem to be important in Vietnamese politics and social and economic interactions.

These findings highlight the critical importance of social and economic policies geared towards furthering fair, predictable, and transparent socio-economic principles where all members of society are subject to the rule of law, and those in positions of political and economic power are held accountable for their actions. There is an evident parallel here in ongoing debates in Viet Nam about the widespread problem of corruption, which forms part of this set of issues. A cancer can threaten the structure and wellbeing of a human body, and even its life if proper care and treatment is not initiated in time. In socio-economic contexts similar dangers exist if corruption and societal values are allowed to degrade, leading to institutional decay and a vicious circle that undermines development. An important finding from the VARHS is that the subjective wellbeing of Vietnamese rural people is far from the levels one might expect given the general economic progress. This should give reason for pause and reflection and is closely related to the topic of welfare outcomes.

#### **13.4 Welfare outcomes**

The ultimate indicator of whether a society (rich or poor) and the policies it pursues are succeeding is whether more and better ways of living and welfare for all its citizens are furthered and generated. It is widely understood that welfare economics is no easy and straightforward field of economics. Professor Amartya Sen was awarded the Nobel Prize for 'for his contributions to welfare

economics'; and he reminds us that we need to go beyond what he terms 'welfarism'.<sup>1</sup> Welfare theory must be based on more than individual utilities, whether they are interpreted as pleasure, as fulfilment, or as revealed preference. In other words, Sen has emphasized the need to take a broader view. We have in the VARHS surveys followed this advice by carefully addressing issues related to gender, children and youth, and ethnicity in addition to the more standard topics of welfare dynamics and aggregate household inequality.

Focusing first on Chapter 9, entitled welfare dynamics in rural Viet Nam, we reiterate that the VARHS panel data provide a unique opportunity to study the economic welfare of individual households over time. Overall the data show that household welfare as measured by: (i) food consumption; (ii) household income; and (iii) household ownership of assets, has improved over time. Similarly, the number of households classified as poor according to MOLISA has declined over 2006-14. There is however, considerable volatility over time even for per capita food consumption. Similarly, there is spatial variation with the households in Lao Cai not showing much improvement during the 2006-14 period.

Notable factors that influence improvements in household welfare by the indicators listed are education and the presence of migrants in the household. On the other hand, belonging to an ethnic minority is significantly associated with smaller increases in food consumption and income. Clearly, the gains realized in welfare in Viet Nam have not been equally shared across the country. The key policy message emerging is that while much has been achieved in Viet Nam in terms of growth and poverty reduction, important challenges remain to ensure inclusive progress in the years to come.

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<sup>1</sup> See Atkinson (1998).



Accordingly, subsequent chapters focus on gender, children and youth, and ethnic minorities.

Chapter 10 on gender brings out clearly that while the welfare of female-headed households has improved over time, they continue to be worse off and more vulnerable to income shocks than male-headed households. The VARHS data do show an increase in female empowerment (as measured by proportion of time spent in waged employment, whether women are involved in land management decisions within the household, and whether land is jointly titled in a female household member's name) over 2008-14. Moreover, female empowerment is strongly correlated with household food consumption, indicating that female empowerment is a strong pathway to improving welfare. These findings suggest that efforts to promote gender equality, through laws such as the Law on Gender Equality (2006) and the Land Law (2003), should be stepped up to address the remaining inequities referred to above.

Turning to Chapter 11 on youth and employment, the analysis depicts a society that has made great progress towards improving child welfare. Over the span of 2008-14, the health of children and young people has improved, and school attendance has increased, in particular for children above the age of 10. There has also been a decrease in child labour, which is most notable for the most vulnerable age group. The policy challenge looking forward is to ensure a wider spread of these gains. While both girls and boys have experienced improvements in health and schooling outcomes, the VARHS shows that boys benefitted more than girls. Similarly, while wellbeing has increased over time for both minority and non-minority groups, substantial differences remain particularly in terms of educational outcomes. The implication is that targeted approaches to address the needs of girls and marginalized groups across the full policy spectrum from infrastructure

facilities, information campaigns to focused class interventions and the allocation of qualified teachers, are called for.

The above observations are interlinked with Chapter 12 on ethnicity. Over the period 2006-14, the non-Kinh population continued to lag behind the Kinh households in terms of income and food consumption. The gap has not widened, but it is still there and has remained relatively constant. Moreover, the structure of household income varies significantly between the Kinh and the non-Kinh. While it seems that the non-Kinh are more likely to diversify out of agriculture, the non-Kinh households that do diversify are more likely to depend on CPR. This is different from Kinh households that rely primarily on more stable wage employment and household enterprises. Income from CPR is much more susceptible to exogenous events, including environment related factors, and this finding underlines the continued vulnerability of non-Kinh households.

Remoteness no longer appears to be an important factor constraining the growth of non-Kinh households. Yet, they continue to have worse access to formal and informal credit, and social remoteness may also be a factor. The VARHS does provide some evidence of segregation along ethnic lines. It is furthermore clear from the richness of the VARHS data that there exists a fair amount of heterogeneity also within the non-Kinh minorities along spatial, ethnic, and linguistic lines. Minority households residing in the Central Highlands progressed faster than those in the Northern Mountains, the Tay and the Mu'oug fared better than the Thai and H'Mong, and minority households that speak Vietnamese did better than those that do not.

Viet Nam has over the years undertaken a range of measures to address the ethnicity gap. This includes setting up the Committee for Ethnic Minority and Mountainous Area Affairs and specifically targeting poverty in remote and inaccessible areas under policies such as the 'Socio-Economic Development

Program for the Communes Facing Greatest Hardships in the Ethnic Minority and Mountainous Areas' (Program 135 or P135). While the policies inherent in P135 are showing some effects, it is clear from the VARHS analysis that they need to be pursued vigorously and deepened in the years to come if ethnic differences are to disappear in future developments.

### **13.5 Final remarks**

In this chapter we have identified a series of the more important findings, and implications which emerge from the VARHS 2006-14 panel data. We recall that the aim of the VARHS was to document the wellbeing of rural households in Viet Nam focusing, in particular, on access to and the use of productive resources, and in concluding it is important to recognize that a survey such as VARHS cannot provide a full coverage of all possible interpretations of the development process. There are bound to be different assessments emerging depending on whether absolute or relative approaches are relied on. For example, based on available data most—if not all—would say that absolute poverty has certainly declined, and it would also appear that relative inequality has not worsened significantly. This runs, however, counter to the widespread interpretation that inequality and associated gaps are increasing very substantially as part of the advances made in Viet Nam as a consequence of the respectable rate of aggregate growth realized, and which is commendable in international comparison.

It is important here to remember that if an economy grows on average by 6.9 per cent per annum then average income is doubled every ten years. Assuming all incomes increase by this average rate, this means that a person, who earned an income equivalent to 1 dollar a day in 1986 is today very close to earning 8 dollars a day. Almost three decades have passed since *Doi Moi* was initiated and growth has indeed been quite close to 6.9 per cent per year. In contrast a person who earned 10 dollars a day in 1986 will by now be

earning 80 dollars. While relative inequality between these two people has remained unchanged it would appear they have fared very differently. And indeed they have in absolute terms, which is the difference that will often influence perceptions of how that has happened. The gap between them has widened very significantly. Already the ancient Greek philosopher Plato was aware of the relative nature of human insight, i.e. that different interpretations of the same reality may exist (see his dialogue *The Republic* written around 380 BC).

The VARHS departed from the premise that, while this is understood, it is sensible to collect and analyse quantitative data on the real life and circumstances of rural people. Indeed, this is what the international calls for a data revolution imply. And what did we find?

We found first of all that living conditions have in general improved for the surveyed households in absolute terms. This is not consistently the case across all areas of the country, and across different population groups. To illustrate, Lao Cai failed to make significant progress over the 2006-14 period, even if most other provinces, including some initially poorer ones from the north-west, advanced significantly. The data also show that even in provinces where average living conditions improved a lot, the situation deteriorated for a substantial minority of households in almost every case.

Thus, while the aggregate VARHS story clearly confirms the interpretation of Viet Nam as a country that has experienced very significant poverty reduction in rural areas, this is not true (in absolute terms) for all. There are important numbers of households for whom the situation has worsened. It was also shown in this volume that having a sufficient level of assets, including education, social capital, and productive assets is associated with a greater likelihood of becoming better off as does having more prime-age household members (and fewer dependents). Similarly, facing shocks and being of non-

Kinh ethnicity are significantly associated with large reductions in for example food expenditure. The policy implication is:

- Maintain a focus on the need for continued development of physical, human and social capital, with particular attention to disadvantaged provinces and ethnic minorities. If not, existing gaps will only widen.

An integral part of this approach is based on the observation that agricultural value added is not increasing in line with general economic advance. This is critical because major numbers of the Vietnamese population continue to depend on agriculture for their livelihoods. Moreover, a sign of development is that labour productivity should equalize across sectors. This implies:

- Deepen and extend policies to promote agricultural productivity. They are key and need to be further developed and extended to all regions of the country, and they include both more traditional measures such as high yielding seeds, information and extension, and mechanization as well as the intensification of modern technology embedded in IT. Actions to remove the constraints to the functioning of land markets are also needed. The fact that there are so few land transactions, particularly in certain regions, is a challenge that needs to be addressed vigorously and the same goes for the low levels of land titling in these regions.

Development and earning a higher income involves, as is clear from the VARHS, people moving out of agriculture. While the agriculture sector must grow in absolute terms it should fall in relative terms. Structural transformation is needed and much can be done to further this process, the implication being:

- Support off-farm activities and the establishment of household enterprises actively as an integral part of a strategy to promote entrepreneurial activity across the whole economy and do not shy away

from supporting the development of a more flexible labour market, characterized by increased mobility. This needs to be done keeping in mind the need for job creation. Constraints to enterprise growth, such as access to credit or markets, for example, should be removed. The same goes for arbitrary interventions that limit their expansion, and, in rural areas, programmes to support promising start-up enterprises to grow and expand could be intensified.

The VARHS also reveals that much can still be done to improve gender balance and invest in improved conditions for children and the youth. Truly inclusive development implies:

- Follow up on the commitment to promoting gender balance in all its dimensions through guidance and effective support at all levels, including the development of profile role models in all aspects of socio-economic and political aspects of the Vietnamese society. Without policy interventions targeted at the most vulnerable groups (women and girls, ethnic minorities, and disadvantaged regions) the existing gaps in welfare will only get wider. This is particularly the case in relation to investment in human capital. Poorer education outcomes for these groups mean that they will be left even further behind in the years to come.

We highlight that the above policy implications are also essential elements of an effective adaptation strategy to future climate change. The implication is:

- Promote broad-based development and increased flexibility to adapt to changing circumstances, involving both a decreased role of exposed rural areas, increased employment in other sectors elsewhere, and careful rural and urban planning to avoid locking the country into

investment patterns which are vulnerable to the effects of climate changes.

Summing up, the VARHS has revealed that while Viet Nam is a rising dragon on the move, market-based institutions are yet to be fully developed as is the case, for example, in relation to land and land market transactions. Further progress in this regard—and in the many other dimensions of institutional progress to which reference has been made in these concluding remarks—is critical. This will require a focus on fair, predictable, and transparent socio-economic principles and practices where all members of society are subject to the rule of law, and where those in positions of power and influence are held accountable for their actions. A strong focus on developing access to the internet and promoting e-governance may be one specific avenue to help this happen in practice.

To conclude this volume, it is pertinent to recall that Viet Nam has over the past 30 years grown from a very low level since the crisis of the mid-1980s. This means that Viet Nam has benefitted from what is sometimes referred to as 'low hanging fruits'. It is widely understood that once growth gets underway it is more easily sustained in low income contexts, and this would certainly seem to form part of the relative success Viet Nam has experienced in international comparison.

This volume has made an effort to come to grips with a range of important issues for the 12 provinces included in the VARHS dataset—and for Viet Nam as a whole. The findings do shed light on some critical policy challenges. We hope this effort will help inform policies that will lead to higher welfare and standard of living for future generations in Viet Nam. And from a more methodological point of view, this book volume has highlighted the importance of carefully collecting data on the same households over time to better

understand the transformations occurring at the micro level. We hope this effort will continue into the future.

It is regularly argued by academics that policy makers are not always rational and that they do not respond to research-based evidence. This is neither true nor constructive. Policy makers do respond—though not always in expected ways. Policy makers in Viet Nam have their goals—as is the case everywhere else in the world—and pursue them with the available evidence at hand. It is wise to keep in mind here that John Maynard Keynes once stated:

*Practical men who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.<sup>2</sup>*

The VARHS was, as already pointed out, set up to help generating context-specific knowledge and evidence as well as analytical capacity. True, even without such evidence, policy makers will make decisions. They have to, but without research-based evidence they may not take the right decision as they see them from their perspective. It was never the task of VARHS to tell the Vietnamese government what to do; the idea was to help provide analytical inputs—based on the construction of a unique panel data base—that will help improve policy-making. Looking to the future one prediction is relatively certain: policy-making is not going to be easier, it is going to be much more complex and demanding. This is one of the key underlying reasons for the post-2015 development agenda call for a data revolution, and we note in passing that it is not often that the international community calls for

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<sup>2</sup> See <https://www.goodreads.com/quotes/212215-practical-men-who-believe-themselves-to-be-quite-exempt-from>



revolutions! A final policy recommendation in this study is that Viet Nam would on this background be well advised to keep in mind that low hanging fruits are becoming scarce. This is an observation that reinforces the need to pay close policy attention to the relatively low degree of subjective wellbeing of Vietnamese rural people. We hope the rising dragon will have the stamina and wisdom to build constructively on the impressive achievements of the past using the evidence in hand. If so, we will learn that the dragon was actually a real Asian tiger in disguise.

## **References**

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