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GROWTH, STRUCTURAL
TRANSFORMATION,
AND RURAL CHANGE
IN VIET NAM

A RISING DRAGON ON THE MOVE

Edited by
Finn Tarp

UNU-WIDER STUDIES IN DEVELOPMENT ECONOMICS

Growth, Structural Transformation, and Rural Change in Viet Nam

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Foreword

I arrived in Viet Nam for the first time in August of 2000 to start up a Danida-funded programme of development 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 more than fifteen years of intense collaboration. They began with almost three years of residence in Hanoi, which were followed by some fifty study visits, each ranging from one to several weeks over a period of twelve 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. 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 macro-economic map, which has since been updated frequently. Such a map is—as I well knew 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 into focus an even bigger gap in the available data in Viet Nam, namely the crucial 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 macro-economic 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 socioeconomic characteristics of the rural poor is essential. This is the case 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 also the key objective in the 2030 Sustainable Development Goals (SDGs), adopted by the international community at the UN General Assembly in September of 2015—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, that is, in 2008, 2010, 2012, and 2014. It is on this basis the present volume builds, and the 2016 survey is getting ready to move into the field under the auspices of UNU-WIDER as I complete this foreword.

Importantly, since the VARHS has surveyed the same rural households over time, it 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 the country. While five detailed descriptive cross-section reports for each of the survey years are available, 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 (as further described in Chapter 2) make up the balanced 2006–14 VARHS panel; attention is focused here on the time dimension rather than individual cross-section information. In other words, all chapters—except for the framework setting introduction in Chapter 1 and, to some extent, Chapter 12—rely extensively on this VARHS panel; 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 twelve 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 twelve provinces are shown on the maps provided in Chapter 2.

ILSSA carried out the wide range of tasks related to the planning and implementation of the VARHS in the field, while DERG and, later on, UNU-WIDER collaborated with CIEM and IPSARD in all aspects of survey design and data analysis. A full package of capacity-building activities by DERG and UNU-WIDER staff, including formal courses, on-the-job training, and a wealth of seminars, were conducted in Viet Nam, in Denmark, and elsewhere throughout this process, under evolving institutional collaborative 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 VARHS was designed from the very beginning as a collaborative research effort. 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 international calls for a data revolution within the context of the 2030 sustainable development agenda referred to earlier in this foreword.

To be sure, I did not foresee in 2000 that the report of the UN Secretary General's High-Level Panel of Eminent Persons (HLP) on the Post-2015 Development Agenda entitled *A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development*, would call, some fifteen 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.

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, much remains to be done in many sectors and countries. The HLP notes that more than forty 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 gross domestic product (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 both Africa and the Asia-Pacific region. With regard to this background—and recalling UNU-WIDER’s long-standing expertise in innovation in data collection and analysis—I am led to strongly confirm the view that data will be at the centre of development action in the coming years.

At the same time, while the logic of a concerted push towards a ‘data revolution’ is compelling, these calls are often rather vague—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 study, due to the concrete and unique, yet somewhat 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 therefore make up the three component parts of this volume, identifying throughout the associated policy challenges after setting the scene in the introductory Chapters 1 and 2, and laying out a series of policy implications in the concluding Chapter 14. In my assessment the insights from this experience should be taken to heart and considered carefully in other countries and development partnerships when developing 2030 SDG 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 2030 sustainable 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.

I hope with this volume to provide a comprehensive analytic contribution to a crucial topic within the discipline of development economics based on fifteen years of continued in-country 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, in rhetoric, in concrete plans and budget allocations, and in the necessary sustained action at country level. This is where inclusive socioeconomic development is needed to benefit poor and discriminated people, who are struggling to make ends meet.

Finn Tarp
Helsinki, October 2016

Acknowledgements

The intention of putting together this volume developed gradually over a period of more than a decade. 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 apologise upfront for any omissions. The list is long and a complete inventory is simply not feasible for reasons of space.

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 Dr Nguyen Dinh Cung. Together with the former Director General of IPSARD, Dr Dang Kim Son, the present Director, Dr Nguyen Do Anh Tuan, the two former and the present Director of ILSSA, respectively Dr Nguyen Huu Dzong, Dr Nguyen Thi Lan Huong, and Dr Dao Quang Vinh, 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, workshops, and conferences that have been an integral part of the VARHS process, and which are fully documented on CIEM's website.

Financial support from Danida under its various programmes over the period in reference is recognized 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 and supported the research effort until the end of Danida support in 2014.

I hasten to add that 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

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Turning to the highly productive and stimulating collaboration with the data collection and management teams from ILSSA, they were effectively coordinated by the former Directors, Dr Nguyen Huu Dzung and Dr Nguyen Thi Lan Huong; the present Director, Dr Dao Quang Vinh; Vice Director, Mr Le Ngu Binh; and their immediate 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, most appreciated, 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 twelve 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, and 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, Tove Degnbol and Lis Rosenholm, alongside Mimi Grønbech, 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 large number of participants. The present volume benefited 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; and the media attention the VARHS has attracted over the years in Viet Nam is also acknowledged.

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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, 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

Acknowledgements

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I hope it is clear that I am indebted to a large number of people who offered critique and most helpful comments. They include as well, and very importantly, Oxford University Press's Economics Commissioning Editor Adam Swallow and his team, and four anonymous referees. Your many encouragements, professional guidance, and constructive critique were essential in helping to sharpen the research questions and the approach adopted in this volume. I wish to convey my most sincere gratitude.

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*Finn Tarp
Helsinki, October 2016*

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List of Abbreviations

ADSL	asymmetric digital subscriber line
AERC	African Economic Research Consortium
ARDSPS	Agriculture and Rural Development Sector Programme Support
BSPS	Business Sector Programme Support
CAP-IPSARD	Centre for Agricultural Policy Consulting of the Institute of Policy and Strategy for Agriculture and Rural Development
CBMS	Community-Based Monitoring System
CEMA	Committee for Ethnic Minority and Mountainous Area Affairs
CIEM	Central Institute of Economic Management
CPI	consumer price index
CPR	common pool resources
DERG	Development Economics Research Group
DHS	Demographic and Health Surveys
EAs	enumeration areas
FAO	Food and Agricultural Organization
FDI	foreign direct investment
GDP	gross domestic product
GSO	General Statistics Office
HLP	High-Level Panel of Eminent Persons
ICT	information and communication technology
ILO	International Labour Organization
ILSSA	Institute of Labour Science and Social Affairs
IMF	International Monetary Fund
IPSARD	Institute of Policy and Strategy for Agriculture and Rural Development
IRRI	International Rice Research Institute
ISS	Informal Sector Survey
IT	information technology
KOICA	Korea International Cooperation Agency

List of Abbreviations

LFS	Labour Force Survey
LUCs	land-use certificates
MARD	Ministry of Agriculture and Rural Development
MDG	Millennium Development Goals
MO	mass organization
MOLISA	Ministry of Labour, Invalids, and Social Affairs
MPI	Ministry of Planning and Investment
MRD	Mekong River Delta
OLS	ordinary least squares
PCI	Provincial Competitiveness Index
SAM	Social Accounting Matrix
SDG	Sustainable Development Goals
SME	Small and Medium-Scaled Enterprise
TIME	Trinity Impact Evaluation Unit
UNU-WIDER	United Nations University World Institute for Development Economics Research
VARHS	Viet Nam Access to Resources Household Survey
VBSP	Bank for Social Policies
VEC	Viet Nam Enterprise Census
VES	Viet Nam Enterprise Survey
VHLSS	Viet Nam Household Living Standards Survey
VLSS	Viet Nam Living Standard Survey
VNPT	Viet Nam Post and Telecommunications Group
WDI	World Development Indicators
WTO	World Trade Organization
WVS	World Values Survey

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1

Viet Nam

Setting the Scene

Finn Tarp

1.1 Introduction

Viet Nam is a populous Southeast Asian economy with a particular socio-economic and political history.¹ At the end of the 'American War' in 1975 ambitions for the future were high; but despite great potential, the economy remained poor. International isolation played its role as did centralist policies; and the five-year plan adopted in 1976 turned out to be a complete failure. Economic policies started to be reversed following economic collapse in the mid-1980s, and Viet Nam initiated its home-grown Doi Moi (renovation) reform process in 1986. Accordingly, wide-ranging institutional reforms have been gradually implemented in the country since then, including a greater reliance on market forces in the allocation of resources and the determination of prices. A shift from an economy dominated by the state and cooperative sectors to a situation where the private sector and foreign investment account for a relatively high proportion of gross domestic product (GDP) can also be noted.

Some of the policy measures taken in Viet Nam over the past three decades within the framework of the Doi Moi process may seem to correspond with the tenets of the 'orthodox' International Monetary Fund (IMF)- and World Bank-supported stabilization and structural programmes pursued in the 1980s and 1990s throughout the developing world (see Tarp 1993). Yet there have also been many significant differences. First of all, Viet Nam has aspired explicitly at furthering a transition from a centrally planned to a socialist

¹ See, for example, <https://en.wikipedia.org/wiki/History_of_Vietnam_since_1945> (accessed 8 May 2016).

market economy, rather than pursuing outright liberalization of the domestic economy and international transactions.² The role of the Communist Party and the state apparatus has, therefore, continued to be prominent in all aspects of socioeconomic and political life (Newman, van den Broeck, and Tarp 2014). To illustrate, the government has continued to intervene in agricultural markets (Markussen, van den Broeck, and Tarp 2011), and a vigorous industrial policy, moving only step by step from import-substitution to export-promotion has been a key attribute (Abbott and Tarp 2012). Similarly, Doi Moi did not focus immediate attention on international trade liberalization and World Trade Organization (WTO) membership. Instead, centrally coordinated public investments, targeted policies, and institutional initiatives were put in place, as outlined by Abbott, Bentzen, and Tarp (2009), much along the lines pursued in other East Asian countries in the 1970s as part of their export push strategies. WTO membership came, in fact, rather late in the process for Viet Nam, less than ten years ago, in 2007.

Consequent socioeconomic outcomes have been impressive, and a central argument throughout the chapters of this volume is that the development community has a lot to learn from Viet Nam when it comes to the formulation and implementation of economic reform and effective development policy.

With regard to this background, this introductory chapter aims, first, to provide the reader with an overview of how Viet Nam's general economic and socioeconomic performance and characteristics have evolved over the past few decades, based on standard data available from international sources such as the World Development Indicators (WDI) of the World Bank. To add international comparative perspective, Viet Nam is, in this chapter, matched throughout Sections 1.1 to 1.3 with a group of regional counterparts, commonly China, Thailand, Indonesia, and Cambodia.³ The general aim is to set the scene for the remaining chapters where focus is on the household sector in the rural areas of Viet Nam. Section 1.4 connects the macro-setting referred to as well as background material regarding the panel data set relied on in subsequent chapters, moving on in Section 1.5 to the underlying questionnaires implemented in the Viet Nam Access to Resources Household Survey (VARHS) carried out every second year from 2006 onwards. Section 1.6 outlines the remainder of the book.

1.1.1 *Macroeconomic and Monetary Performance*

Associated with the successful implementation of the Doi Moi reform programme, Viet Nam has in many ways been among the most successful East

² See <<http://vietnamlawmagazine.vn/new-concept-of-socialist-oriented-market-economy-introduced-4582.html>> (accessed 8 May 2016).

³ This group of countries is regularly referred to in policy debates in Viet Nam, and is clearly the set of countries Vietnamese policy makers typically have in mind when they look for comparators.

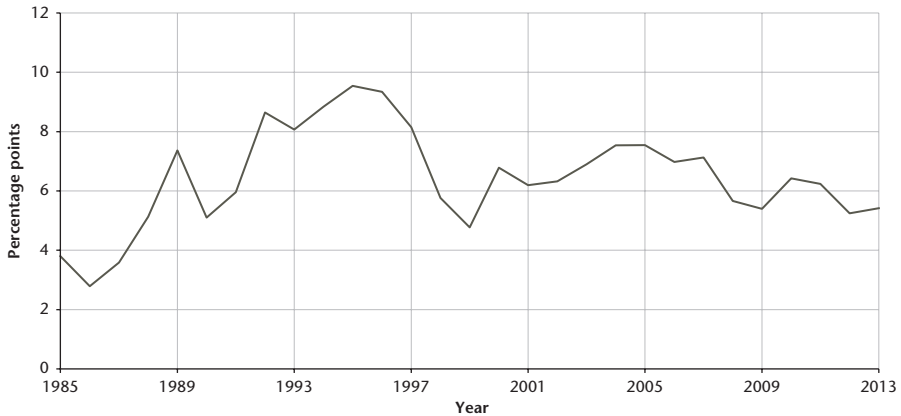


Figure 1.1 Real GDP growth, Viet Nam

Source: World Bank World Development Indicators.

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, continues to be 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 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 2007–8 global financial crisis had much less impact, in large measure due to Viet Nam’s effective macro-economic response; in more recent years, the annual growth rate has returned to a level above 6 per cent.⁴

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 and closer to the Philippines, yet above that of Cambodia and Laos.

The solid aggregate economic growth in Viet Nam has, over the years, been associated with what most observers would characterize as a process of

⁴ See Thurlow et al. (2011), and note that, while not fully captured in Figure 1.1, growth would appear to have picked up since 2013, approximating an average of 6.5 per cent per year for the 2000–15 period.

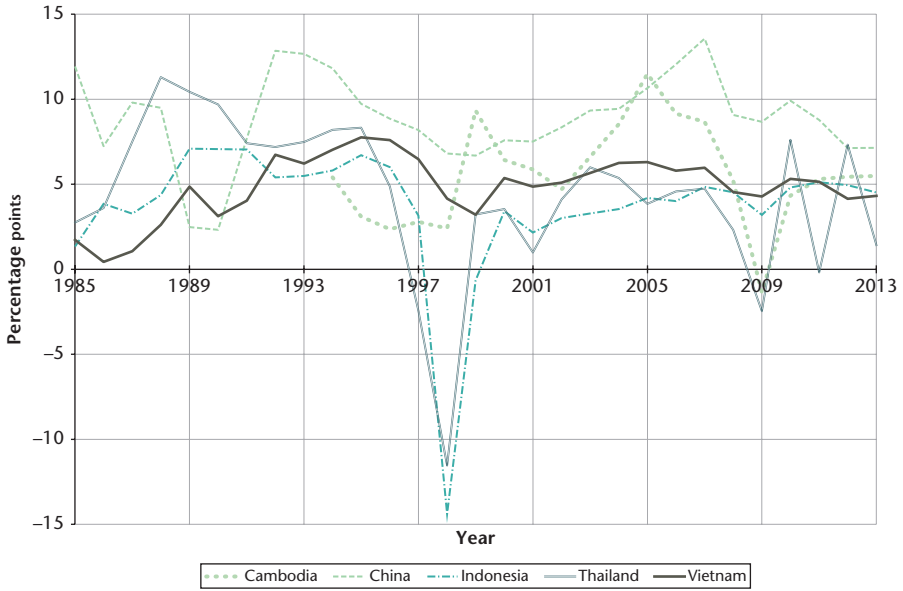


Figure 1.2 Real GDP per capita growth in selected countries, 1985–2013
 Source: World Bank World Development Indicators.

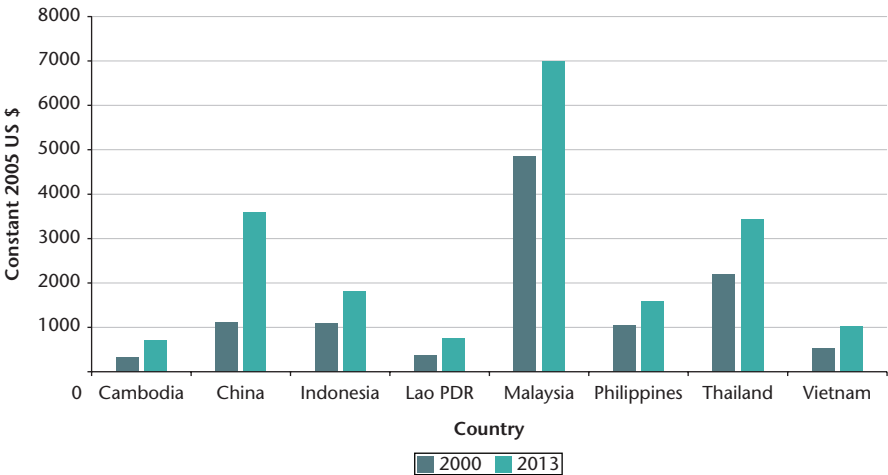


Figure 1.3 Real GDP per capita in Southeast Asian countries
 Source: World Bank World Development Indicators.

successful structural transformation, involving sectoral reallocation from agriculture to higher productivity sectors. Figure 1.4 and Table 1.1 demonstrate this point. The long-run sectoral trends of agriculture, industry, and services in Figure 1.4 are impressive even if there seems to be some tapering off in more

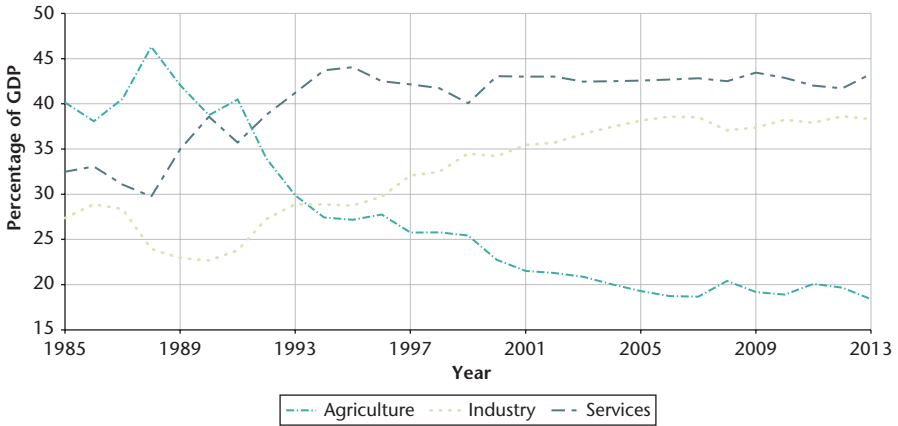


Figure 1.4 Sectorial distribution of aggregate Vietnamese output

Source: World Bank World Development Indicators.

Table 1.1 Sectorial distribution of production in selected Southeast Asian countries

		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: Percentage share of agricultural and industrial production of total GDP. Services is the residual category so its share is 100% minus the share of agriculture and industry.

Source: World Bank World Development Indicators.

recent years. Table 1.1 underpins this, by comparing the country to a selected group of Southeast Asian counterparts.

One concern that merits mentioning is that value added per worker in the agriculture sector according to the WDI data base (measured in constant 2005 US dollars (US\$)) only grew marginally from 2006 to 2013 in Viet Nam as suggested in Figure 1.5. China, Indonesia, and Thailand all appear to have 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.⁵

⁵ The topic of agricultural productivity is pursued further in Chapter 4.

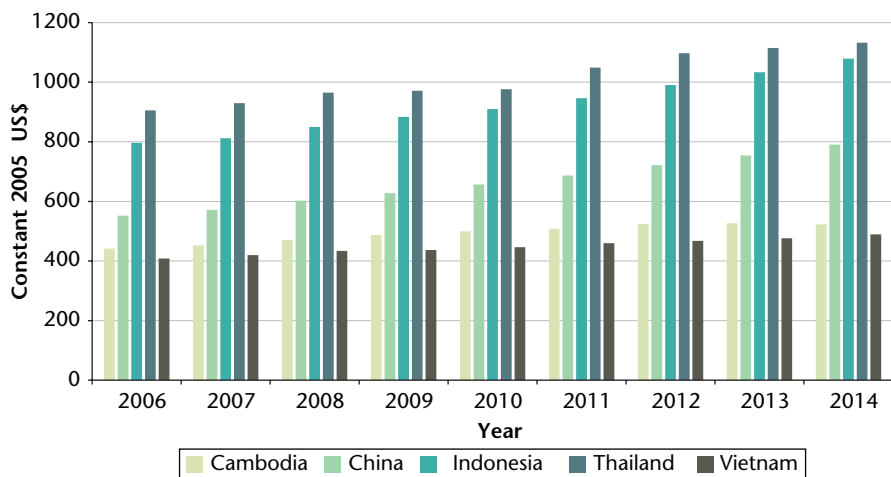


Figure 1.5 Agriculture value added per worker (constant 2005 US\$)

Source: World Bank World Development Indicators.

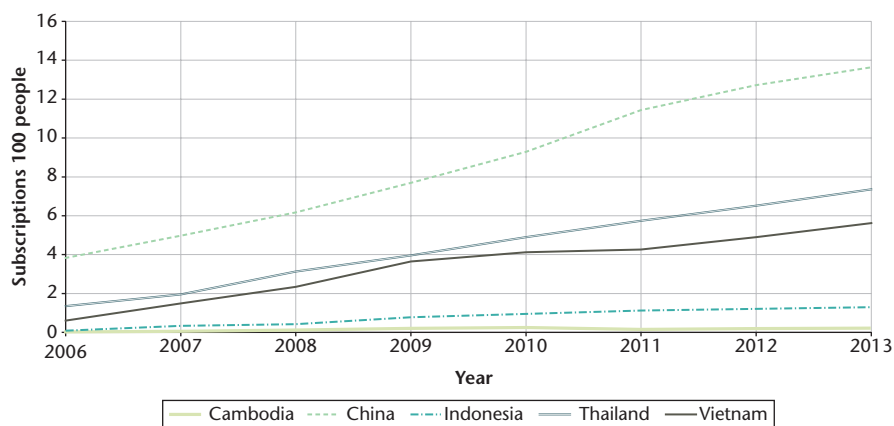


Figure 1.6 Fixed (wired) broadband subscriptions (per 100 people), 2006–13

Source: World Bank World Development Indicators.

Turning briefly to technology infrastructure in the form of fixed broadband subscriptions per hundred persons, these grew from 0.6 to 5.6 per cent between 2006 and 2013. Viet Nam still lags behind China and Thailand, while Indonesia and Cambodia are even further behind, as shown in Figure 1.6.

Figure 1.7 highlights the fact that Viet Nam has benefited 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

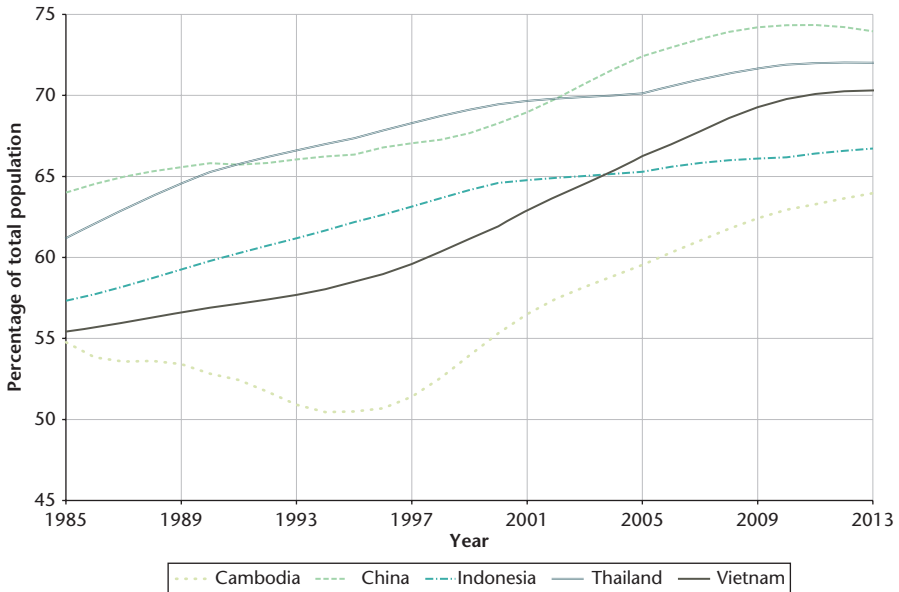


Figure 1.7 Share of population aged 15–64 years (% of total population)

Source: World Bank World Development Indicators.

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 (ILO) 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 same period.

Turning to the monetary sector of the economy, Viet Nam has, over the years, had its share of high inflation experiences, most dramatically in the middle of the economic collapse in the mid-1980s. Then 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.

Figure 1.9 illustrates that domestic prices were also significantly affected by the 2007–8 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. With regard to the Southeast Asian perspective, CPI inflation in Viet Nam was relatively high from 2007 onwards, but from 2012 it has been 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 shown in Figure 1.11.

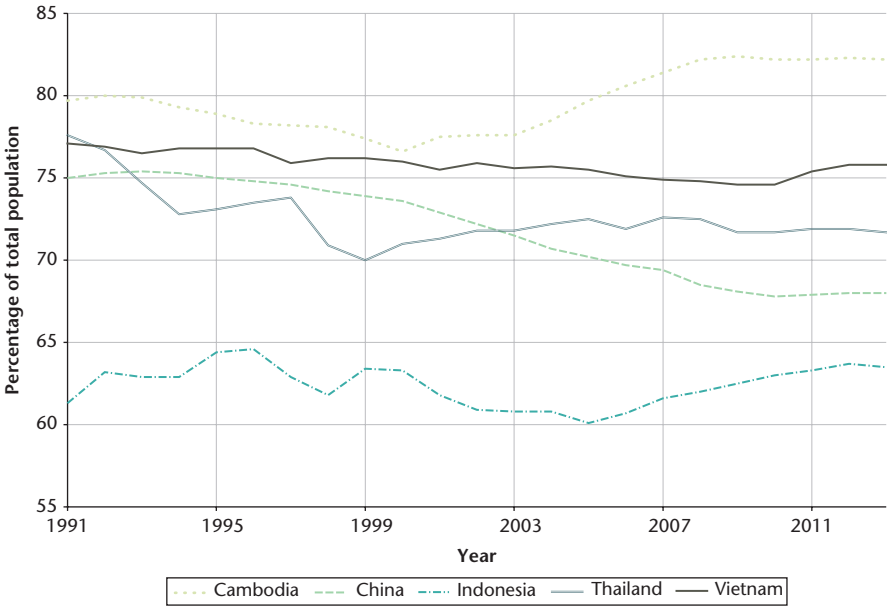


Figure 1.8 Employment of 15-year-olds and older to total population (in %)
 Source: World Bank World Development Indicators.

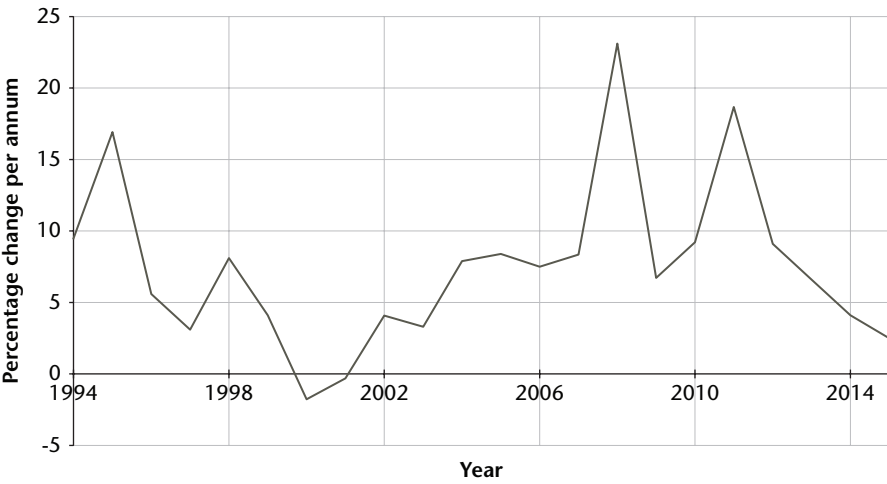


Figure 1.9 Inflation in Viet Nam (annual changes in % in the CPI)
 Source: IMF World Economic Outlook.

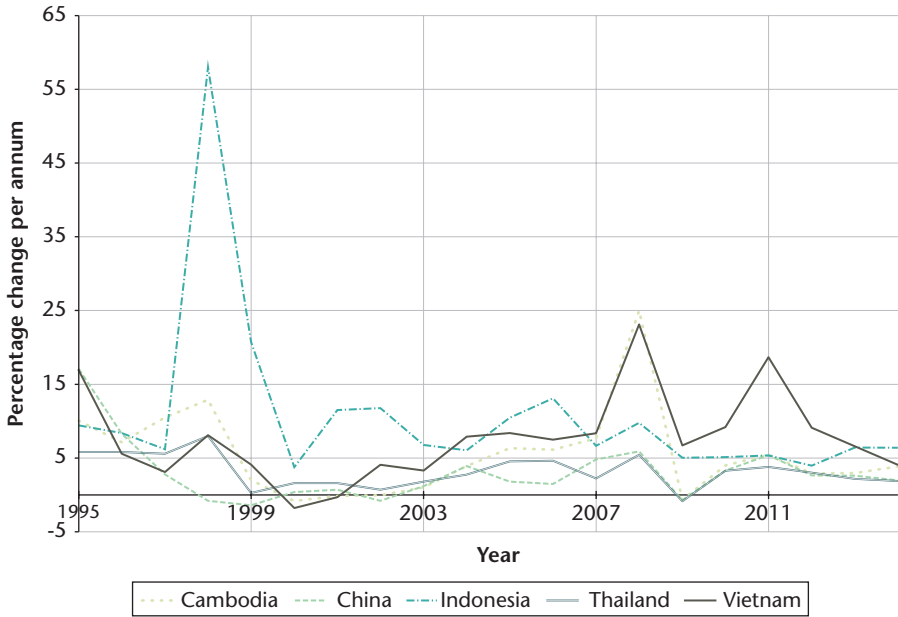


Figure 1.10 Inflation in selected countries (annual changes in % in the CPI)

Source: IMF World Economic Outlook.

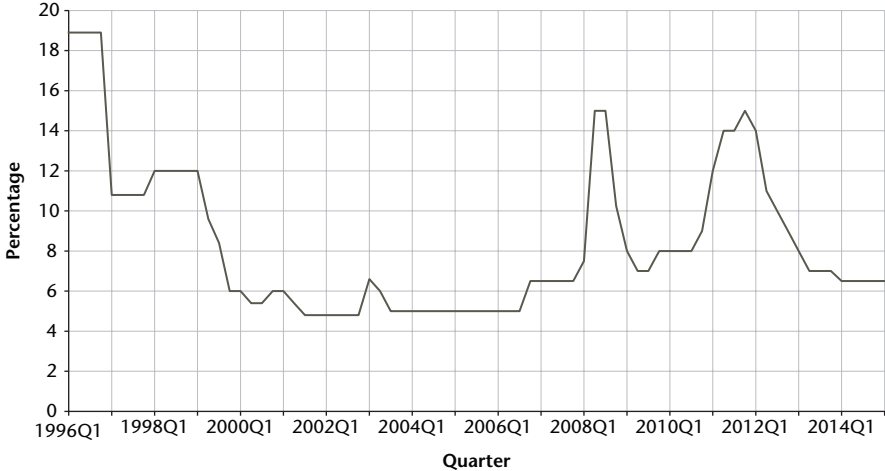


Figure 1.11 Monetary policy interest rate (Viet Nam)

Source: IMF International Financial Statistics.

Finally, reflecting the somewhat more expansionary macroeconomic policy line Viet Nam adopted after the turn of the century, 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

Table 1.2 General government net lending (% of GDP) (averages over the period)

	1995–9	2000–4	2005–9	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 (% of GDP) (averages over the period)

	2000–4	2005–9	2010–14
Cambodia	38.9	31.2	29.0
China	37.1	33.5	38.2
Indonesia	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.

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 I turn in Section 1.2 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.

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 over fifteen years and is by now higher than that of Thailand (reflecting in part the fact that Viet Nam weathered the 2007–8 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,

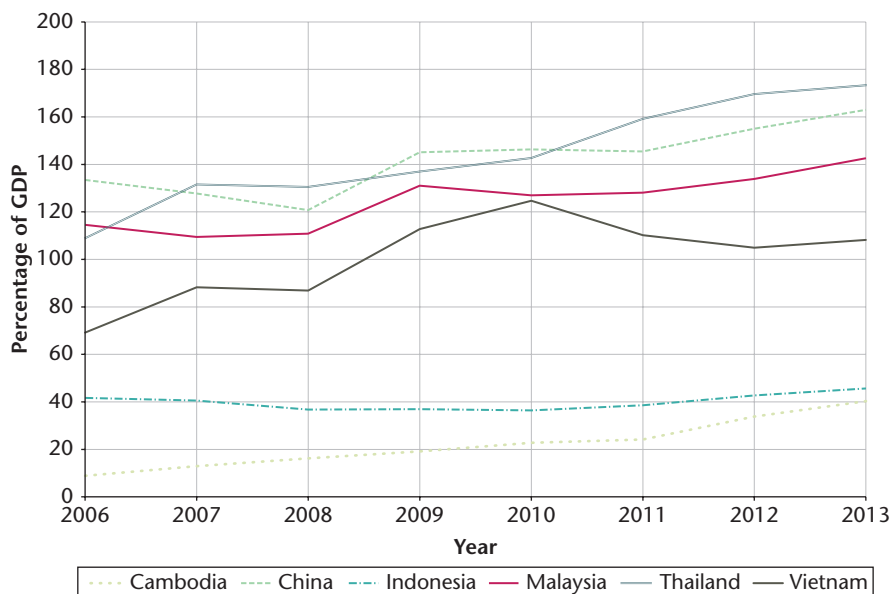


Figure 1.12 Domestic credit provided by financial sector (% of GDP)

Source: World Bank World Development Indicators.

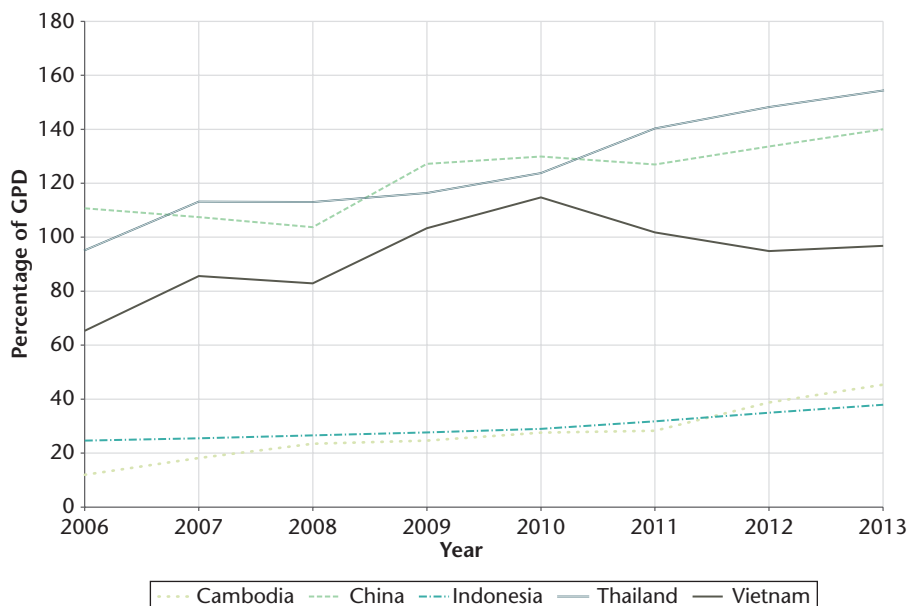


Figure 1.13 Domestic credit to private sector (% of GDP)

Source: World Bank World Development Indicators.

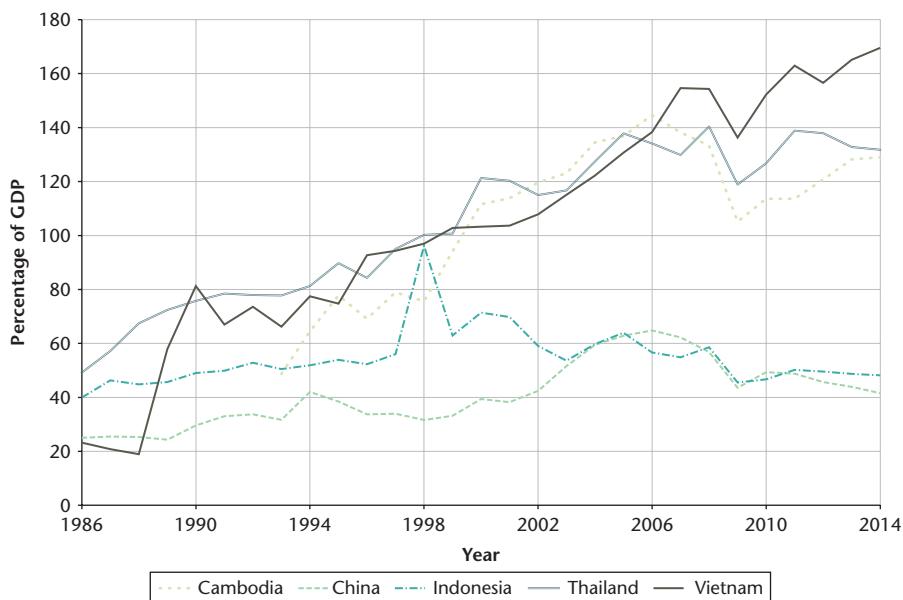


Figure 1.14 Trade (exports plus imports) as a share of GDP (%)

Source: World Bank World Development Indicators.

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).

A similar development can be observed in the current account balance, which improved significantly from around 2007. 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 foreign direct investment (FDI) net inflows. Viet Nam has attracted substantial amounts of foreign investment over the past twenty-five 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.⁶

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, yet very stable exchange rate development vis-à-vis the US dollar after the massive

⁶ See Hansen, Rand, and Tarp (2003) for an early overview of where this FDI has come from and into what sectors it has gone.

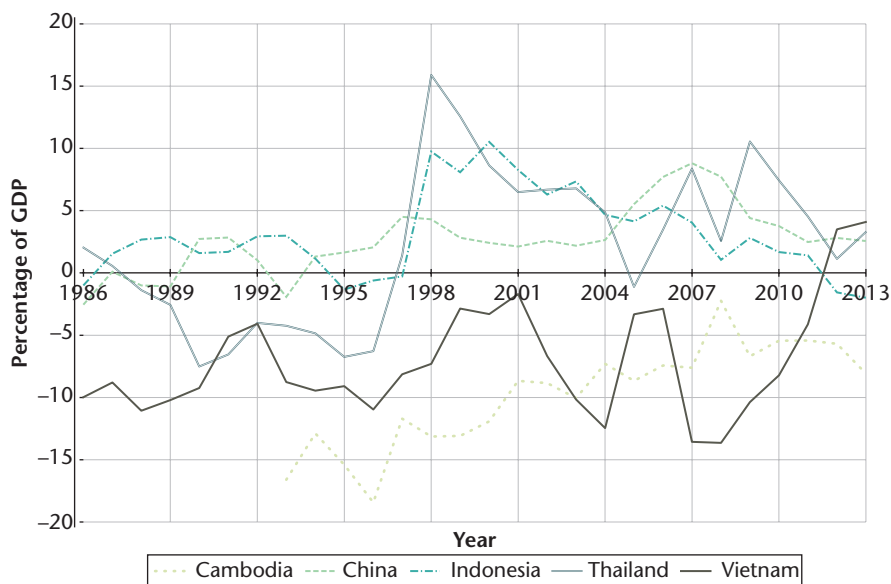


Figure 1.15 Trade balance as a share of GDP (%)

Source: World Bank World Development Indicators.

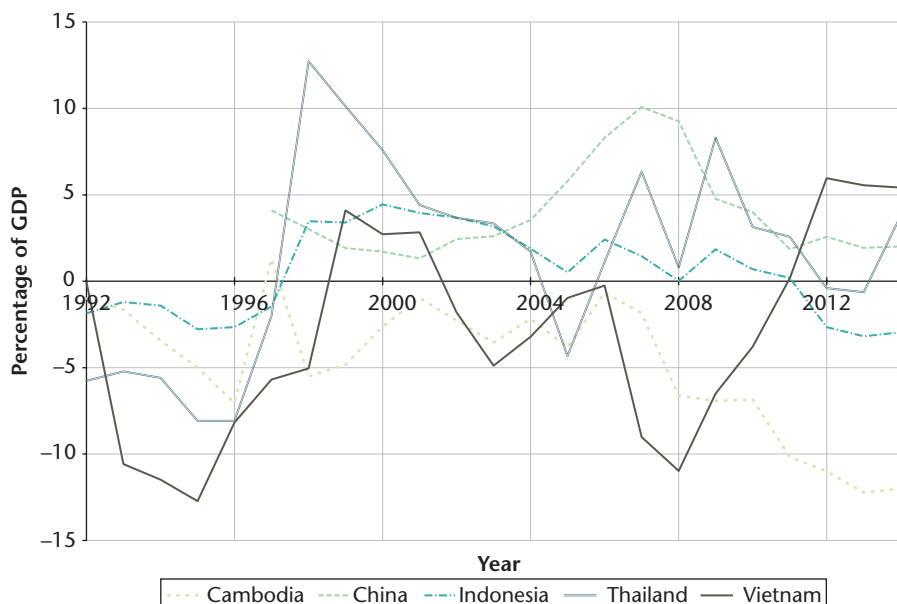


Figure 1.16 Current account balance as a share of GDP (%)

Source: IMF World Economic Outlook.

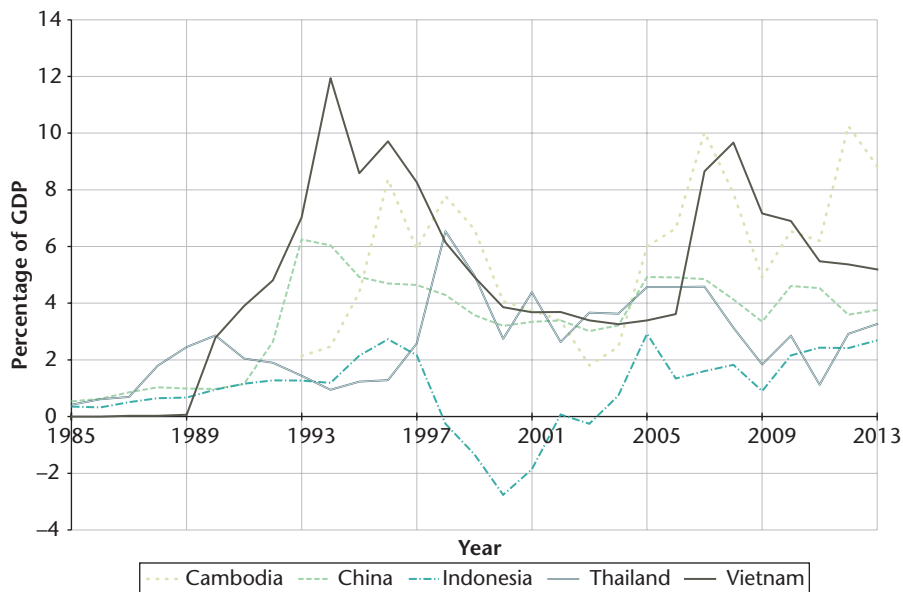


Figure 1.17 Foreign direct investment, net inflows (% of GDP)

Source: World Bank World Development Indicators.

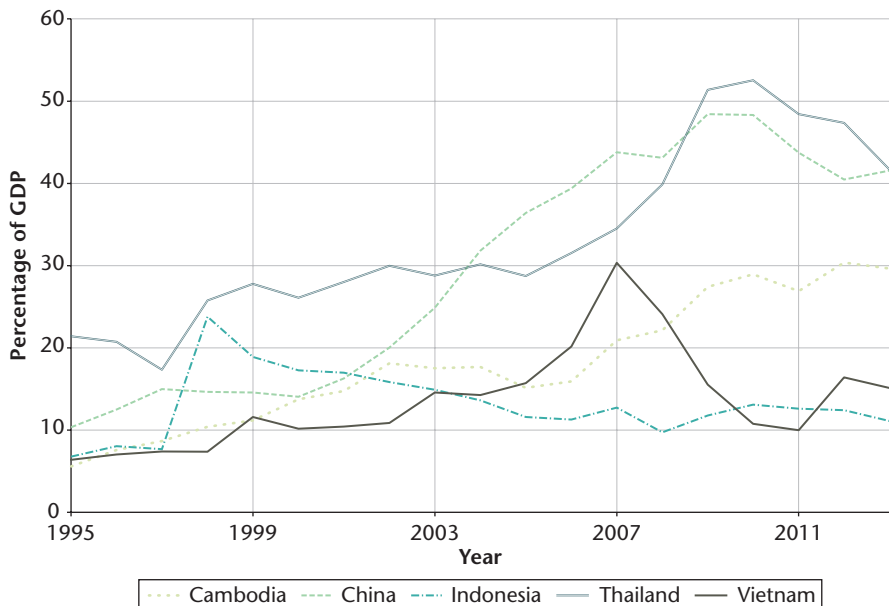


Figure 1.18 Total reserves excluding gold as a share of GDP (%)

Source: World Bank World Development Indicators.

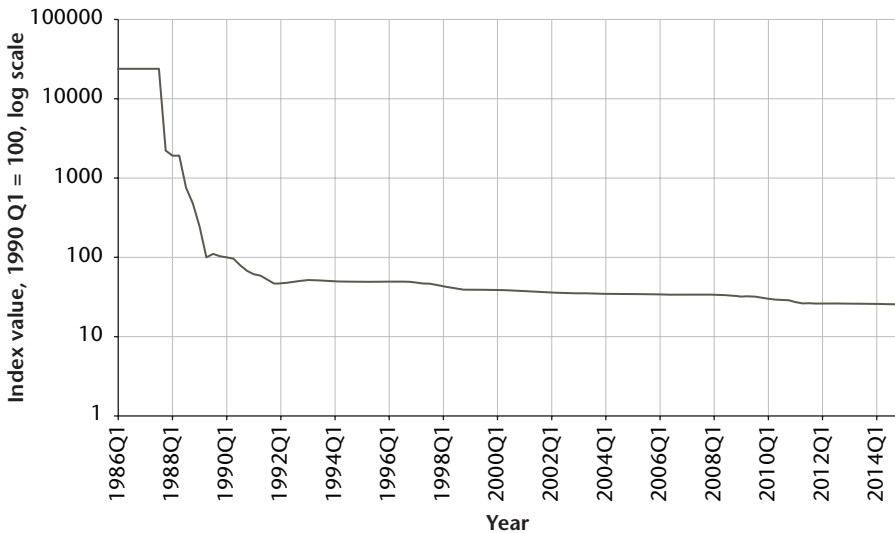


Figure 1.19 US dollar/Vietnamese Dong exchange rate

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

Source: IMF International Financial Statistics.

external adjustments in 1986–8 (see Figure 1.19). In an international comparative perspective this performance is quite impressive.

1.3 Household Consumption and Socioeconomic 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.

A truly impressive socioeconomic 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 (eighty years on average) between 2006 and 2013. This is almost ten 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, though trailing behind China. This performance reflects sustained investment in public health care over many years in Viet

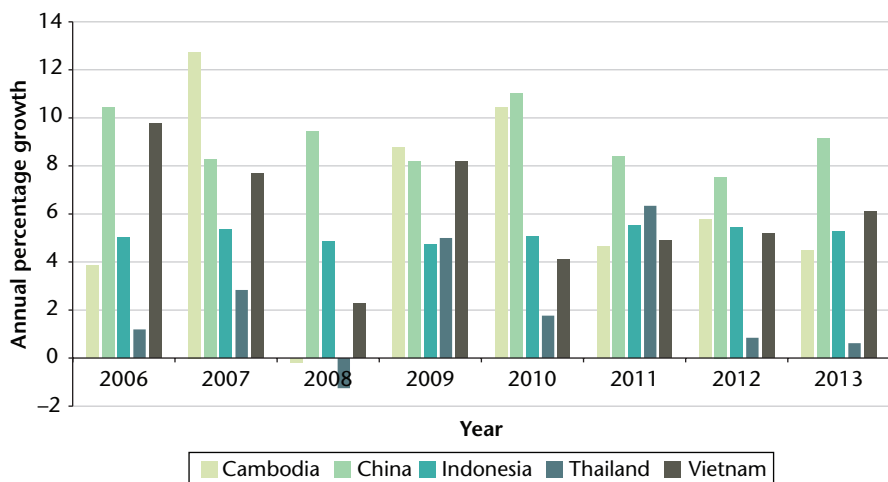


Figure 1.20 Household final consumption expenditure (% annual growth)
 Source: World Bank World Development Indicators.

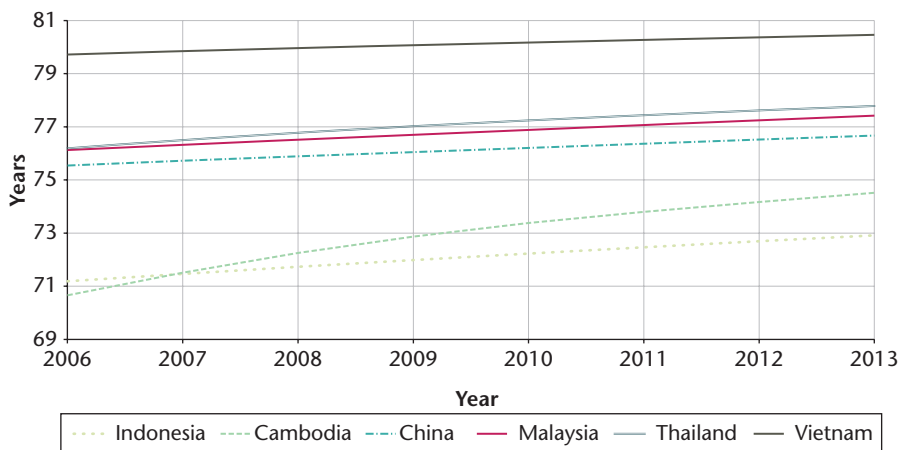


Figure 1.21 Life expectancy at birth, female (years), 2006–13
 Source: World Bank World Development Indicators.

Nam as well as dietary habits, which may only now be changing somewhat with the introduction of Western food habits and consumption items.

In terms of under-5 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.

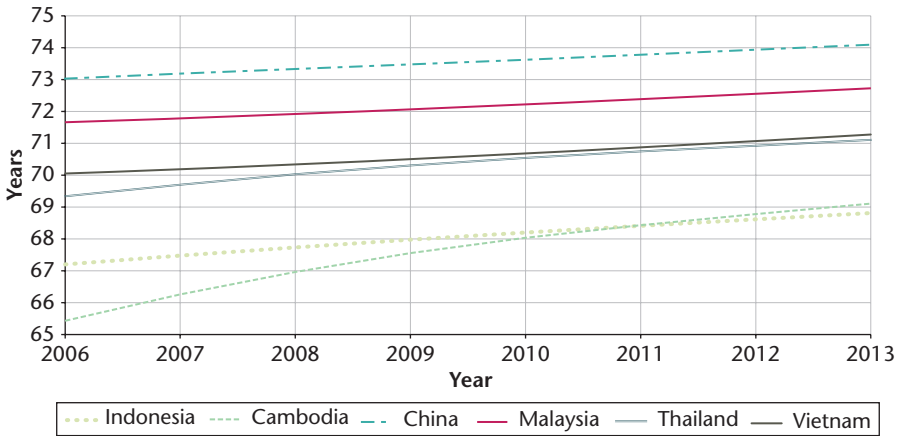


Figure 1.22 Life expectancy at birth, male (years), 2006–13

Source: World Bank World Development Indicators.

Table 1.4 Mortality rate, under-5, female and male

	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, more or less in line with the general drop in the poverty headcount rate discussed in Section 1.4.

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.

Turning finally to the level of education, there is not much difference between the countries in focus in this chapter when it comes to primary and

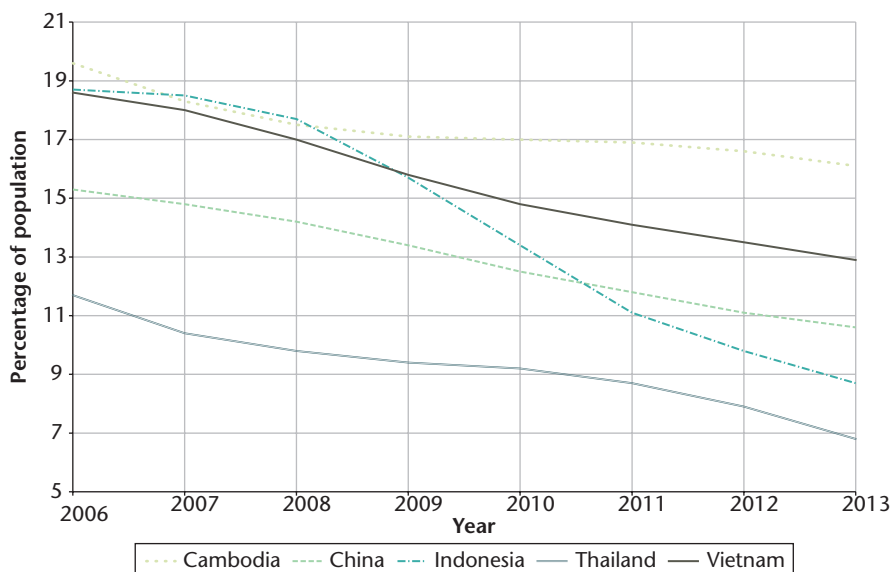


Figure 1.23 Prevalence of undernourishment (% of population)

Source: World Bank World Development Indicators.

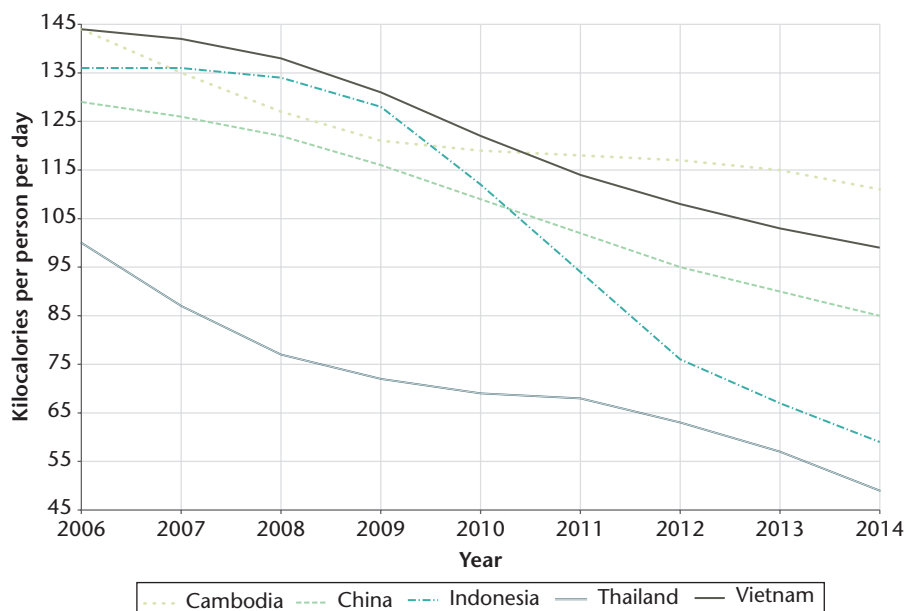


Figure 1.24 Depth of the food deficit (kilocalories per person per day)

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.

Table 1.5 Tertiary school enrolment in 2006 and 2011, females and males

	School enrolment, tertiary, female (% gross)		School enrolment, tertiary, male (% 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.

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.

1.4 Moving from the Macro to the Household Level

The general macroeconomic and socioeconomic framework reviewed in Sections 1.1 and 1.2, together with the ongoing institutional reforms, sets the general scene within which developments at the household level in rural areas of Viet Nam have evolved over the past decades; 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.

Comparison of poverty rates 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

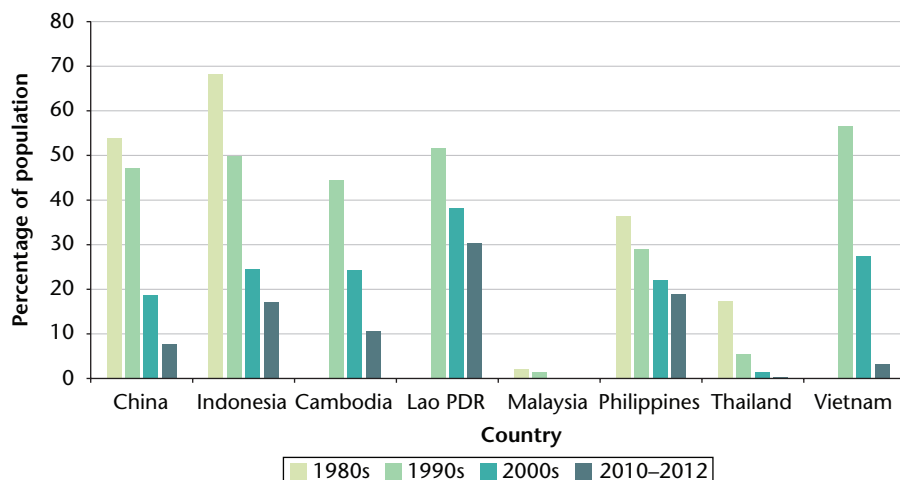


Figure 1.25 Poverty headcount ratio at US\$1.25 a day (PPP) (% of population)

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) (% 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.

even if they are at much higher real GDP/capita levels (see Figure 1.3) than Viet Nam.

At the same time, while this general picture and the underlying trend are illustrative and encouraging, as well as in line with the biannual nationally representative Viet Nam Household Living Standard Survey (VHLSS) carried

out by the General Statistical Office (GSO),⁷ it does not provide insights into a host of the many other policy-relevant issues which Vietnamese policy makers face.

The basic idea behind the original pilot of VARHS, carried out in 2002, 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.

VARHS set out to help fill this information gap, and this rationale remained unchanged as the survey was implemented in the following decade. 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. 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 that 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 potentially 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.

⁷ 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.

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; the data base was designed so as to allow for the exploration of further issues related to the role of ethnicity and, eventually, to a variety of other topics 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 and welfare. '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 further discussed in Chapter 2, such detailed data allows for an illuminating analysis of structural change and its impacts at the micro levels.

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 Central Institute of Economic Management (CIEM) website: <<http://www.ciem.org.vn/>>.

A. COMMUNE QUESTIONNAIRE

Information on interviewees:

- 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

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 Book Outline

The structure of the present volume consists of four main parts, in addition to the present scene-setting Chapter 1 and the succeeding Chapter 2, which

explore the characteristics of the VARHS data base. They focus on: (i) the ongoing transformation in the rural economy of Viet Nam; (ii) key production factors and institutions; (iii) welfare and distributional issues; and (iv) lessons and policy.

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 (Chapter 3) in addition to two chapters on, respectively, the agriculture sector (addressing issues such as diversification, commercialization, and transformation) (Chapter 4) and the non-farm rural economy (Chapter 5). Part II first reviews the land and land markets (Chapter 6) and then discusses labour and migration (Chapter 7), before digging into the role of technology and innovation (Chapter 8), and finishing by addressing the complex issue of social capital and political connections (Chapter 9). 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 are the winners and losers of economic development in Viet Nam (Chapter 10). Three chapters on gender (Chapter 11), children and youths (Chapter 12), and ethnicity (Chapter 13) complete Part III, while Part IV (Chapter 14) addresses lessons and policy.

As far as is feasible, a common structure has been followed in the eleven 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. Reference is made to other literature as appropriate, followed whenever relevant by regression analysis 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 of this chapter have not repeated the empirical models presented elsewhere in the book.

Statistics are presented, in general, by individual province when spatial comparisons are made. This is not, however, always possible/relevant and sometimes a grouping of provinces has been preferred, as discussed further in Chapter 2, as an easier and more communicative way to present the data. It is noted that while the VARHS is representative at provincial level the same cannot be said at national level. Yet 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. twenty-eight days). Household income, which was collected in annual nominal figures, was deflated by the national CPI and was further divided by twelve to get from yearly to monthly figures.

The final Part IV sums up key findings, addresses their policy implications, and discusses a number of wider perspectives, including a variety of points referred to in Chapter 1 and Chapter 2, such as the impact of the international economic crises, which Viet Nam has managed relatively well.

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2

Characteristics of the VARHS Data and Other Data Sources

Kasper Brandt and Finn Tarp

2.1 Getting Familiar with VARHS

This chapter aims to illuminate the Viet Nam Access to Resources Household Survey (VARHS) database applied by the analytical studies in this book, covering the period 2006 to 2014. We begin by reiterating the overall purpose behind VARHS, and then describe the data, including sample design, basic characteristics of the households interviewed, and attrition. Section 2.2, in turn, provides information on other databases and compares basic VARHS variables to the 2009 population census and to the Viet Nam Household Living Standards Survey (VHLSS).

2.1.1 *Purpose*

The pilot of the first VARHS was designed in 2001–2. At the time, no existing survey provided—as detailed in Chapter 1—the background data needed for coming better to grips with a series of intricate and pressing issues related to the characteristics of existing rural markets for land, credit, and labour. Moreover, there was limited information available on the way in which households accessed resources in these markets. Little was known about the degree of (in) efficiency with which these markets operated, while the formulation of evidence-based policy recommendations on their future development was scant. This was so in spite of their critical role in the ongoing Doi Moi process of institutional and economic reform in a market-oriented direction.

These kinds of concerns, combined with the illustrative information needs already alluded to in Chapter 1, as well as the desire to monitor the impact of

ongoing policy and institutional changes referred to throughout this volume, inspired the formulation of the VARHS household questionnaire. It was explicitly aimed at supplementing the information collected by General Statistics Office (GSO) in the nationally representative VHLSS, the successor of the Viet Nam Living Standard Survey (VLSS).¹

The 2002 VARHS pilot was squarely focused on the rural areas of the provinces of Ha Tay, Long An, Phu Tho, and Quang Nam. It covered some 932 households, and it was clear from the beginning that available resources did not permit VARHS to become a nationally representative survey. Instead, the purpose of VARHS was to start developing a unique panel of households. VHLSS has instead relied on a rotating panel of households; we reiterate from Chapter 1 that the VARHS and VHLSS are best understood as complementary sources of information. Each database has advantages and limitations.

2.1.2 Sample Design

The VHLSS 2002 was implemented throughout the year, and the VARHS 2002 was designed to cover the exact same 960 households interviewed in the VHLSS in the first 6 months of 2002 in the 4 provinces listed in Section 2.1.1. Some 932 households were successfully identified and re-interviewed by Institute of Labour Science and Social Affairs (ILSSA) in November and December 2002. Except for attrition, the VARHS 2002 sample is therefore representative for the rural areas of the four provinces.

Table 2.1 highlights the sample size in the different survey rounds of VARHS. In 2006, the sample size increased to slightly over 2,300 rural households living in 12 different provinces (Dak Lak, Dak Nong, Dien Bein, Ha Tay, Khanh Hoa, Lai Chau, Lam Dong, Lao Cai, Long An, Nghe An, Phu Tho, and Quang Nam)—to help readers visualize, see a general map of Viet Nam in Figure 2.1, Figure 2.2 showing the location of the 12 VARHS provinces, and Figure 2.3 showing the communes. Some 886 of the surveyed households in

Table 2.1 Sample size and survey months

		2002	2006	2008	2010	2012	2014
Sample size	New	932	1,438	1,011	–	553	4
	Total	932	2,324	3,277	3,208	3,704	3,648

Note: Last survey round's 'Total' and current survey round's 'New' do not add up to current survey round's 'Total'. This is due to attrition households.

Source: VARHS data files.

¹ See Glewwe, Agrawal, and Dollar (2004) for a series of studies based on the VLSS and Vietnam in the 1990s.



Figure 2.1 Map of Viet Nam

Source: Recreated from Wikipedia (Wikimedia commons).

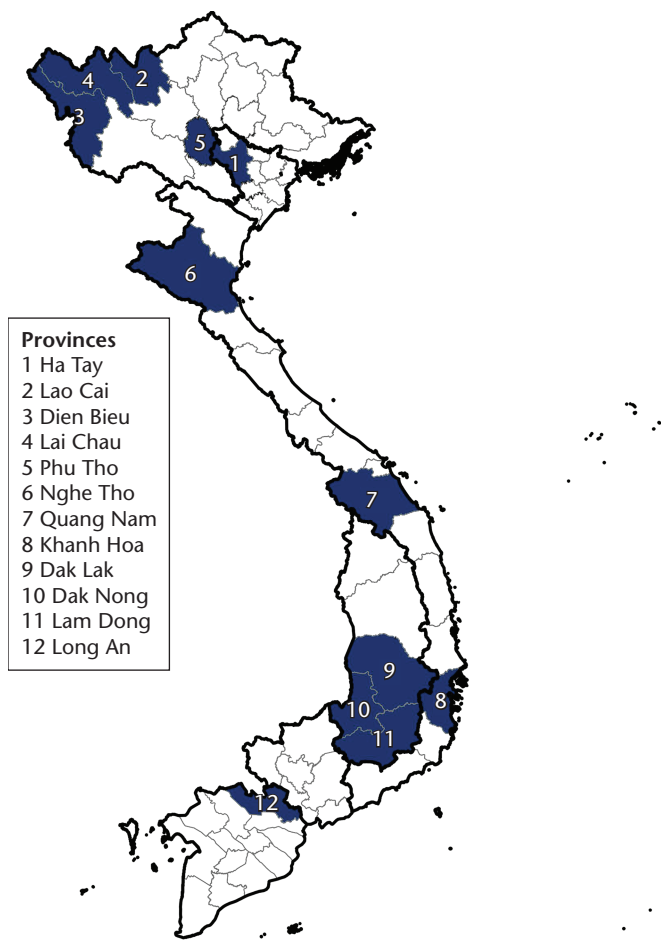


Figure 2.2 Location of the twelve VARHS provinces

Source: VARHS data files.

2006 were ‘survivors’ from the VARHS 2002, and 1,312 were households surveyed in the VHLSS 2004 Income and Expenditure sample.

Sample challenges emerged 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 households were added to the VARHS, so the total number in the VARHS 2006 amounted to 2,324 households.

It is important to emphasize that VARHS 2006 households were chosen to constitute a representative sample of the rural areas in the twelve provinces in that year. The subsequent survey rounds are not provincially representative

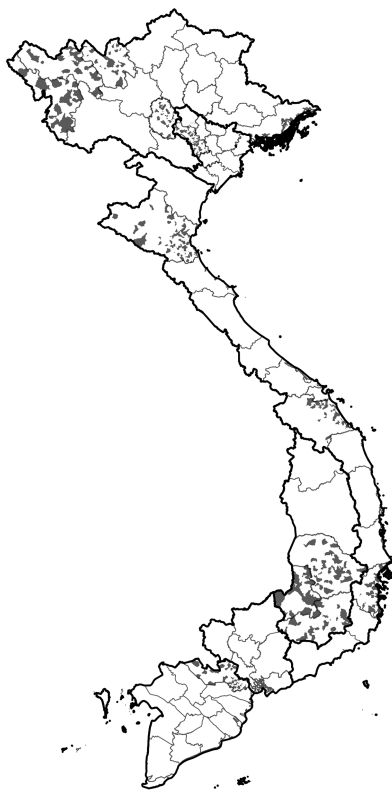


Figure 2.3 The VARHS communes

Source: VARHS data files.

in a strict statistical sense as they are based on households that were present in VARHS 2006. This includes that VARHS households were, in 2006, slightly older than a representative sample would have been.

The 2008 and 2010 survey rounds were expanded in number and interviewed more than 3,200 households. The approximately 1,000 new households added in 2008 were included to evaluate the Danida-supported Agricultural and Rural Development Sector Programme Support (ARDSPS) programme, located in the five provinces covered by the ARD-SPS programme (Lao Cai, Dien Bien, Lai Chau, Dak Lak, and Dak Nong).

In addition to the over 3,200 households interviewed in 2010, the 2012 survey interviewed an extra 553 households, chosen with a view to ensuring better representativeness of the rural population in the surveyed provinces.

The reason for this extension of households is that the sample in VARHS, as noted, was older than the representative sample in VHLSS because a large share of the VARHS households is limited to households that were present in 2006.

To establish the balanced panel between 2006 and 2014, only households interviewed in all survey rounds are included. This results in 2,162 households, which can be followed over an eight-year time period. These households constitute, with one exception, the base sample for the studies in this book.² In some cases, however, the number of households may be smaller due to missing data. 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). One can also control for unobserved, time invariant household characteristics in analytical work, and it is possible to investigate individual-level changes over time. This means that the analyst can go beyond aggregate net changes in, say, landlessness, and ask specifically who gained land, who lost land, and so on. This is critical in the present synthesis context, where a key aim is to uncover changes over time and understand their underlying drivers.

In addition to the household survey, the VARHS also includes a commune-level survey. Interviews with commune administrators were performed in all communes where the VARHS households reside. This resulted in a commune-level panel database providing information on demographics, infrastructure, and local economic conditions. The commune panel includes 390 communes in the 12 provinces mentioned earlier in this section. These communes have been followed from 2006 to 2014.

2.1.3 *Characteristics of the Balanced Sample*

The balanced sample of 2,162 households is spread over 12 provinces and 464 communes.³ Table 2.2 presents the location of the balanced sample households. Almost 22 per cent of the sample live in the former province of Ha Tay (now part of Ha Noi), whereas less than 3 per cent live in Lam Dong. However, Lam Dong neighbours Dak Lak, Dak Nong, and Khanh Hoa, which are also part of the VARHS.

² The one exception to the use of the balanced panel is Chapter 12 on children and 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.

³ Although households are spread over 464 communes, the commune panel consists of 390 communes as a consequence of commune attrition.

Characteristics of VARHS Data and Other Data Sources

Table 2.2 Households and communes (balanced panel)

Province	No. of households	% of sample	No. of communes	% of sample
Ha Tay	470	21.7	68	14.7
Lao Cai	85	3.9	24	5.2
Phu Tho	297	13.7	44	9.5
Lai Chau	109	5.0	29	6.3
Dien Bien	99	4.6	28	6.0
Nghe An	188	8.7	68	14.7
Quang Nam	278	12.9	44	9.5
Khanh Hoa	72	3.3	27	5.8
Dak Lak	131	6.1	37	8.0
Dak Nong	92	4.3	29	6.3
Lam Dong	64	3.0	24	5.2
Long An	277	12.8	42	9.1
Total	2,162	100	464	100

Note: It is possible for households to move. This table is based on location in 2006.

Source: VARHS data files.

Furthermore, in some chapters the results are disaggregated by five regions. These regions are:

- **Red River Delta:** Includes VAHRS 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 and vegetable production.
- **North:** Combines the *Northeast* and *Northwest* regions and includes VAHRS communes from the provinces of Lao Cai, Phu Tho, Lai Chau, and Dien Bien. These provinces are located in the more mountainous and remote areas of Northern Viet Nam on the borders to China and Laos. Except for Phu Tho, the provinces in the North are relatively poor. They also exhibit low population densities of between 50–100 persons per km², except Phu Tho where the population density is nearly 400 (GSO 2016).⁴
- **Central Coast:** Combines the *North Central Coast* and *South Central Coast* regions and 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 by forest. They are dependent on agriculture, primarily rice, and a range of cash crops such as rubber, cinnamon, peanuts, cashew, and coconuts. In recent years, some of these provinces have experienced high rates of

⁴ Population density information is from 2014.

industrial and tourism growth. Population densities vary from between 141 persons per km² 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 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. Although there is a non-negligible production of products such as tea, cocoa, and rubber, the main cash crop cultivated is coffee. The majority of coffee produced in Viet Nam comes from this region (Luong and Tauer 2006). Population densities vary from 88 persons per km² in Dak Nong to 140 in Dak Lak.
- **Mekong River Delta (MRD):** 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 Southeast region immediately north of Ho Chi Minh City (not included in VARHS), the MRD has the third-highest industrial output of any region in Viet Nam after the Southeast region and the Red River Delta region. The MRD, a low-lying coastal region, is considered the rice bowl of Viet Nam. Even though the risk of flooding is severe, it has one of the highest outputs of cereals per capita in Viet Nam. This also means the area supports a high population density of 329 persons per km².

We now focus attention on a few important variables and the geographical differences between the twelve VARHS provinces. In focus here is the gender of the household head, age of the household head, ethnicity, education of all household members aged 15 or above, and education of the household head.

Figure 2.4 illustrates the gender of household heads in the twelve provinces examined in VARHS. The provinces where least households are headed by a male are Phu Tho (72.7 per cent), Quang Nam (68.3 per cent), Khanh Hoa (66.7 per cent), and Long An (72.2 per cent). Five provinces have between 75 per cent and 85 per cent of their households headed by a male. These are Ha Tay (75.1 per cent), Nghe An (77.1 per cent), and the three provinces in the Central Highlands (82.4 per cent in Dak Lak, 78.3 per cent in Dak Nong, and 79.7 per cent in Lam Dong). The provinces in the North region (except for Phu Tho) are the ones where most households are headed by a male. Here, 85.9 per cent of households are headed by a male in Lao Cai, 86.9 per cent in Dien Bien, and 91.7 per cent in Lai Chau.

Information on the age of household heads in 2014 is provided in Figure 2.5. The provinces in the Central Highlands and in the North (except for Phu Tho) clearly have younger household heads compared to the rest of the examined provinces. The average age of household heads is between 50.5

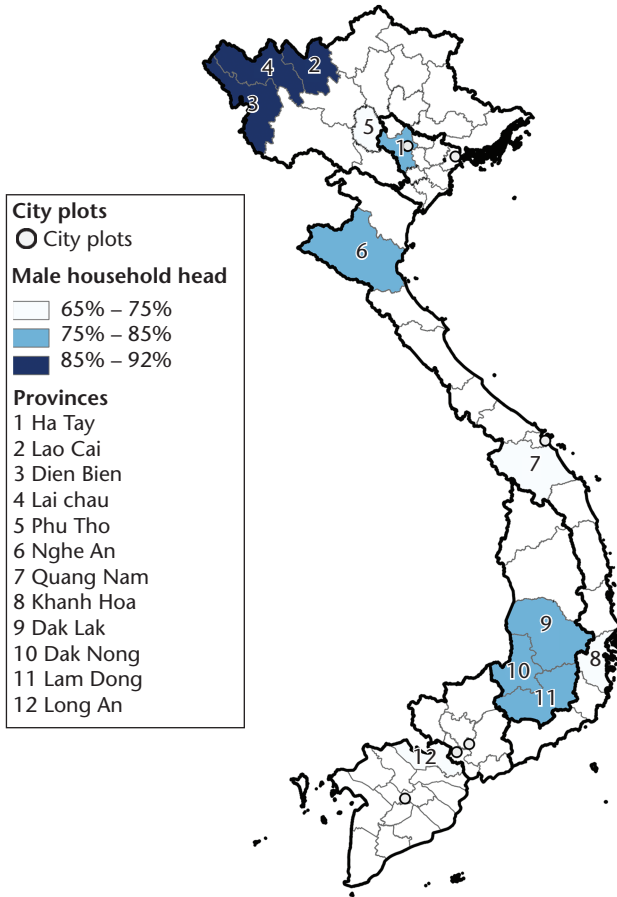


Figure 2.4 Share of households with a male as household head in 2014

Note: City plots are the 6 Vietnamese cities with more than 500,000 inhabitants according to the 2009 population census (Ho Chi Minh City, Ha Noi, Da Nang, Hai Phong, Can Tho, and Bien Hoa). The thick black lines indicate region borders. It should be emphasized that Phu Tho (5) is included in the North, Ha Tay (1) is part of the Red River Delta region, and the Central Coast region includes Nghe An (6) in the North, Quang Nam (7) and Khanh Hoa (8) in the South.

Source: VARHS data files.

and 51.5 years in all three provinces of the Central Highlands. In the North (except for Phu Tho), the average age of households varies between 49.2 years in Lai Chau to 53.7 years in Lao Cai (in Dien Bien the average age of household heads is 52.1 years). The next interval, 55 to 58 years of age, is only represented by Ha Tay (56.4 years old) and Phu Tho (57.9 years old). The provinces with the oldest household heads are Nghe An (58.4 years old), Long An (58.6 years old), Quang Nam (60.0 years old), and Khanh Hoa (60.7 years old).

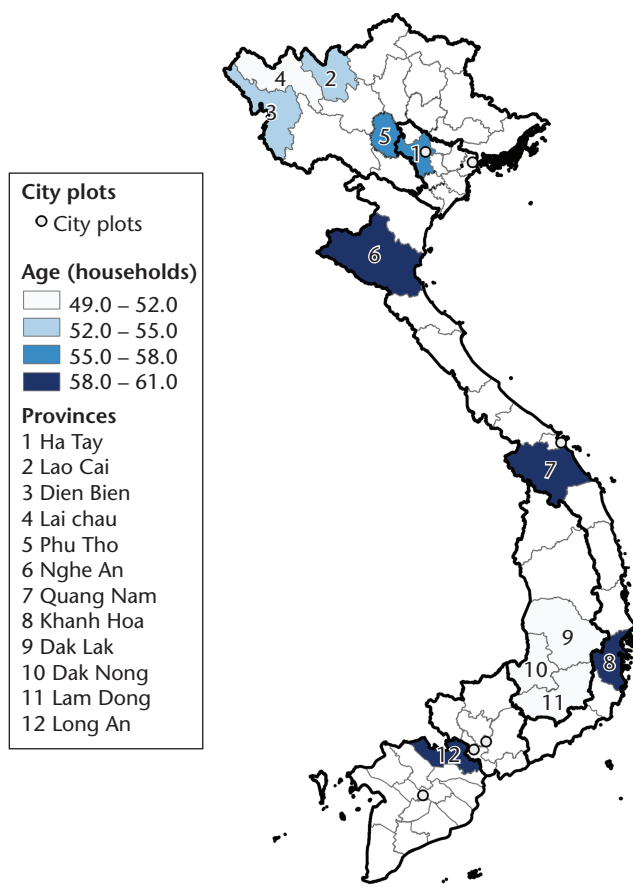


Figure 2.5 Average age of household head in 2014

Note: See Figure 2.4, Note.

Source: VARHS data files.

Figure 2.6 shows the share of the balanced VARHS sample that is of Kinh ethnicity disaggregated by the twelve provinces considered in VARHS. The Kinh people are the majority ethnic group in Viet Nam, and made up approximately 77 per cent of the population (IPUMPS 2016) in 2009. We clearly see that the share of households that are Kinh varies between provinces. In the Northern provinces (except for Phu Tho), the shares of households that are of Kinh ethnicity are as low as 10 per cent in Dien Bien, 14 per cent in Lai Chau, and 24 per cent in Lao Cai.

The reason for these low numbers of Kinh people in Dien Bien and Lai Chau is that another ethnic group constitute the majority—the Thai ethnic group.

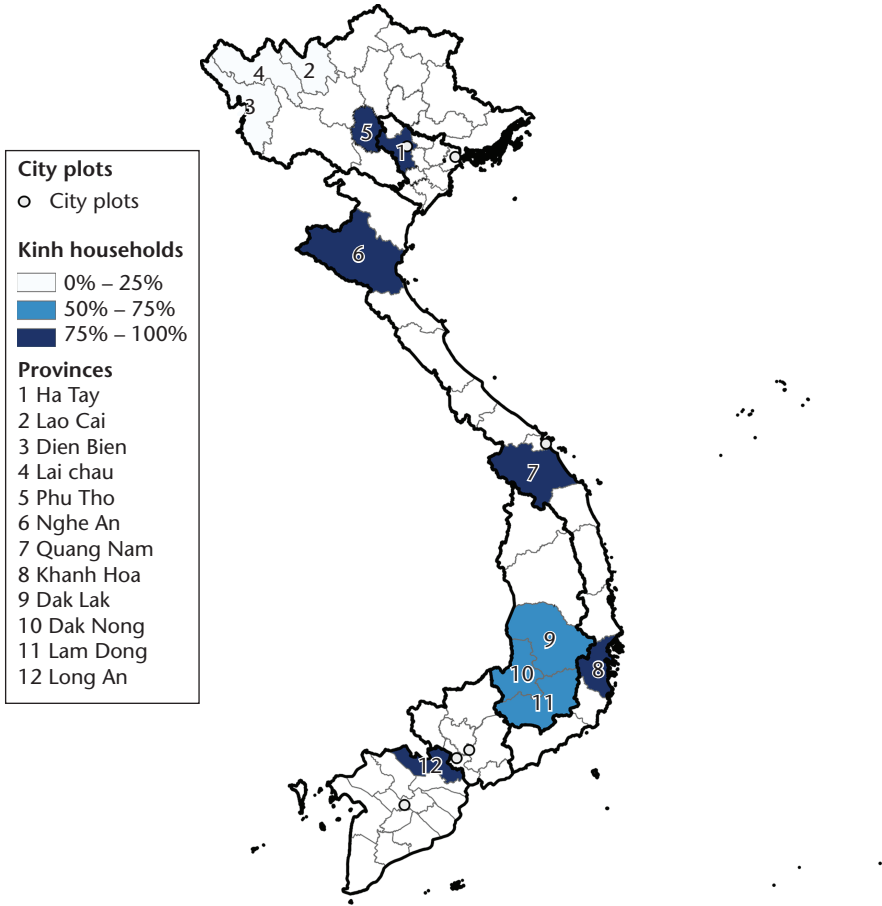


Figure 2.6 Percentage of Kinh households in balanced sample in 2014

Note: See Figure 2.4, Note.

Source: VARHS data files.

Lao Cai, on the other hand, is characterized by a large diversity of ethnic groups, with the Kinh people among the best represented, together with Hmong, Tay, and Dao. In the Central Highlands provinces, between 50 and 75 per cent of households are Kinh. The rest of the provinces all have more than 75 per cent of Kinh households, and three of the provinces almost exclusively consist of Kinh people (Ha Tay, Quang Nam, and Long An).

Average years of schooling for all household members in rural areas aged 15 or above is illustrated in Figure 2.7, whereas average years of schooling for

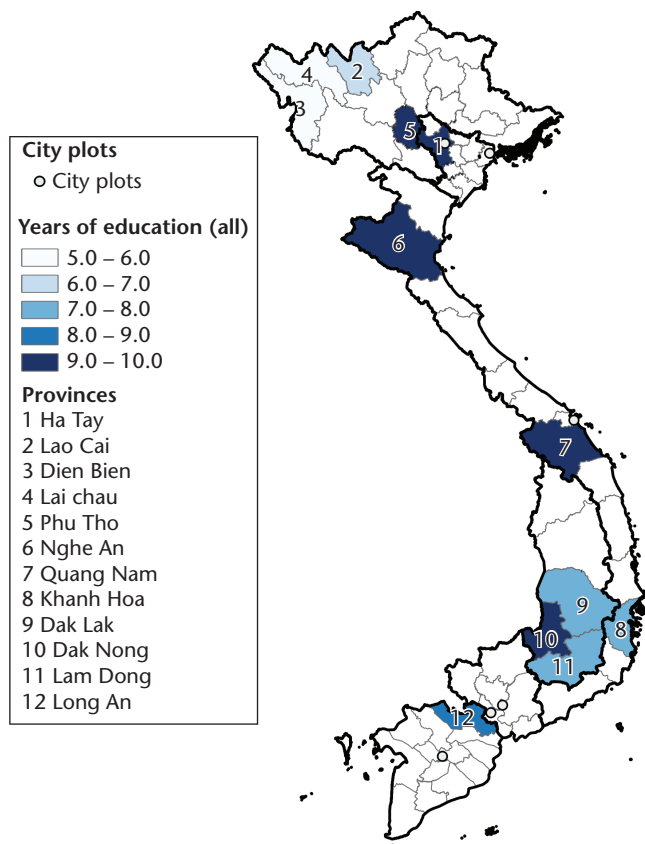


Figure 2.7 Average years of schooling for all household members aged 15 or above in 2014

Note: The years of education is based on the answers to the question: ‘What grade did [NAME] finish?’ Each education category is associated with a number of years in school. City plots are the 6 Vietnamese cities with more than 500,000 inhabitants according to the 2009 population census (Ho Chi Minh City, Ha Noi, Da Nang, Hai Phong, Can Tho, and Bien Hoa). The thick black lines indicate region borders. It should be emphasized that Phu Tho (5) is included in the North, Ha Tay (1) is part of the Red River Delta region, and the Central Coast region includes Nghe An (6) in the North, Quang Nam (7) and Khanh Hoa (8) in the South.

Source: VARHS data files.

household heads is illustrated in Figure 2.8. Education for household members aged 15 or above is, in what follows, referred to as the general level of education.⁵

Provinces in the North region (except for Phu Tho) have the least educated rural areas, whereas Ha Tay and Phu Tho have the best educated rural zones.

⁵ It is worth reiterating that the focus is here on rural areas, ignoring any influence caused by urban people.

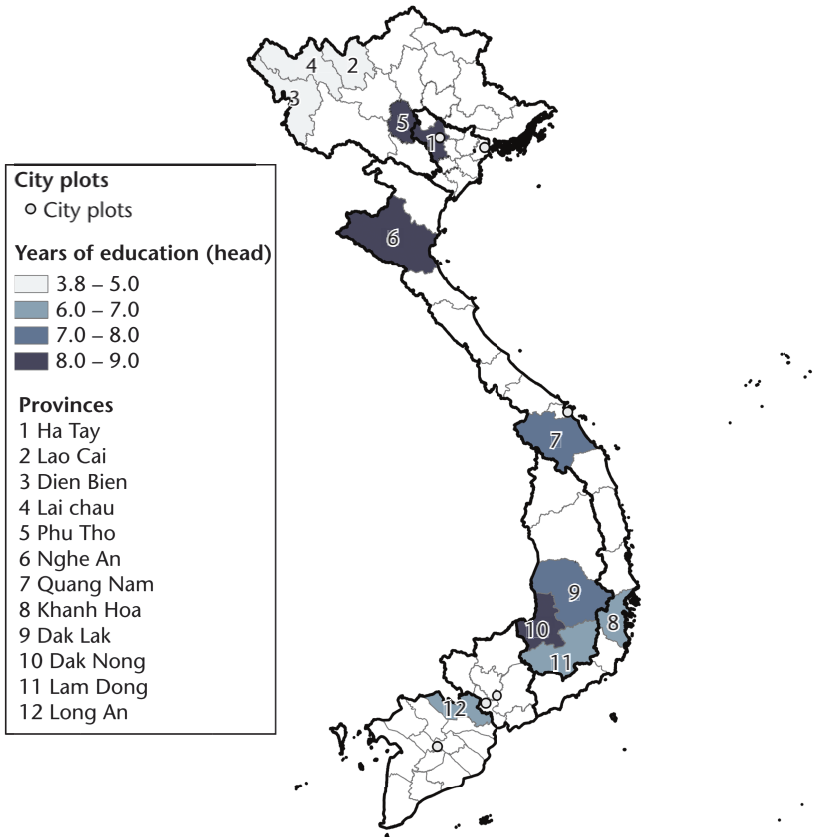


Figure 2.8 Average years of schooling for household heads in 2014

Note: The years of education is based on the answers to the question: ‘What grade did [NAME] finish?’ Each education category is associated with a number of years in school. City plots are the 6 Vietnamese cities with more than 500,000 inhabitants according to the 2009 population census (Ho Chi Minh City, Ha Noi, Da Nang, Hai Phong, Can Tho, and Bien Hoa). The thick black lines indicate region borders. It should be emphasized that Phu Tho (5) is included in the North, Ha Tay (1) is part of the Red River Delta region, and the Central Coast region includes Nghe An (6) in the North, Quang Nam (7) and Khanh Hoa (8) in the South.

Source: VARHS data files.

The gap in general level of education is more than four years between the lowest educated province (Lai Chau) and the two highest educated provinces (Ha Tay and Phu Tho). The gap is even higher when only considering household heads. The gap between the lowest educated and the highest educated province is more than five years.

Only Lao Cai, with an average of 6.2 years, has a general level of education between 6 and 7 years. This indicates that the Northern provinces (except for Phu Tho) are substantially less educated compared to the rest of the examined

provinces. In the Central Highlands, two out of three provinces have a general level of education between seven and eight years, although these are very close to eight years. Also, Khanh Hoa in the Central Coast has a general level of education between seven and eight years. Only Long An in the MRD region has a general level of education between eight and nine years. The five remaining provinces (Dak Nong, Quang Nam, Nghe An, Phu Tho, and Ha Tay) all have a general level of education between nine and ten years.

Years of education for rural household heads are slightly lower than the general level of education. The explanation is that household heads tend to be older than the average population and younger people are generally better educated. The provinces with the lowest average years of schooling for household heads are Lao Cai (3.8 years), Lai Chau (3.9 years), and Dien Bien (4.7 years), even though these provinces, on average, have relatively young household heads. While no province has an average years of schooling for household heads between five and six years, three provinces have an average between six and seven years. These are Long An (6.1 years), Lam Dong (6.6 years), and Khanh Hoa (6.3 years).

Next, two provinces have an average years of schooling for household heads between seven and eight years. Quang Nam has an average of 7.1 years, whereas Dak Lak has an average of 7.4 years. The provinces with the highest educated household heads are Ha Tay (8.7 years), Dak Nong (8.7 years), Nghe An (8.8 years), and Phu Tho (9 years).

2.1.4 *Sample Attrition*

When households drop out and are not re-interviewed in later survey rounds, we say that the survey is subject to sample attrition.⁶ In household surveys like VARHS it is inevitable to have sample attrition as some households refuse to be re-interviewed or when all members of a household die. Both of these reasons for attrition are rare in VARHS. A more common reason for attrition is migration. Based on responses from local authorities, two thirds of migrating households are believed to have migrated permanently, whereas one third is understood to have migrated temporarily. When households migrate it may be too costly or even impossible to relocate them. Whether migrating households differ significantly from remaining households is of importance, as leaving out a specific population group from the sample may bias analytical results.

As presented in Table 2.1, 2,324 households were interviewed in 2006. In 2014, 2,162 of the very same households interviewed in 2006 had been interviewed in all subsequent survey rounds. The attrition rate in each survey

⁶ Chapter 10 includes further analysis of attrition.

Characteristics of VARHS Data and Other Data Sources

Table 2.3 Extent of attrition and comparison of attrition and non-attrition households

	Sample size	Number attrited	Mean: attrited	Mean: non-attrited	t test for NA-A=0
<i>Age of household head</i>					
2006 base	2,324				
2006-8 panel	2,266	58	46.2	39.8	4.06
2006-8-10 panel	2,225	41	45.7	39.7	3.26
2006-8-10-12 panel	2,187	38	43.3	39.6	1.96
2006-8-10-12-14 panel	2,162	25	43.4	39.6	1.69
<i>Average years of education</i>					
2006 base	2,324				
2006-8 panel	2,266	58	4.8	6.1	-2.63
2006-8-10 panel	2,225	41	5.6	6.1	-0.92
2006-8-10-12 panel	2,187	38	4.8	6.2	-2.32
2006-8-10-12-14 panel	2,162	25	6.3	6.2	0.23
<i>Kinh households (%)</i>					
2006 base	2,322				
2006-8 panel	2,264	58	79.3	80.4	-0.21
2006-8-10 panel	2,223	41	80.5	80.4	0.01
2006-8-10-12 panel	2,185	38	73.7	80.5	1.06
2006-8-10-12-14 panel	2,160	25	80.0	80.6	-0.07

Note: The average years of education is only for household members aged 15 or above. Two households did not provide information on ethnicity, and hence, the sample size is 2,322 in 2006 instead of 2,324.

Source: VARHS data files.

round is provided in Table 2.3. The attrition rates between one wave and the next vary between 1.1 per cent and 2.5 per cent. The overall attrition rate from 2006 to 2014 is 7 per cent. This is fairly low considering that there are five waves.

Table 2.3 further investigates whether household heads in attrition households are older or younger than household heads of those remaining in the survey. In addition, Table 2.3 compares average years of education of household members aged 15 and above and the share of households that are of Kinh ethnicity for attrition and non-attrition households. Household heads in attrition households are, on average, older than the remaining household heads. For the last survey round, however, the difference is only borderline significant on a 10 per cent significance level.

Differences in households' average years of education are only significant for two survey rounds. The households that were not re-interviewed in 2008 and the ones that were not re-interviewed in 2012 are, on average, worse educated than the remaining households. From Table 2.3, attrition does not seem to correlate with ethnicity, as no systematic differences occur. The low rate of attrition is, to a large extent, a testament to the professionalism of the VARHS implementation and to the low numbers of migrating households in rural Viet Nam.

Based on responses from local authorities, the VARHS provides information on the perception of why households are absent and if these households were relatively poor or rich within the community. The local authorities were further asked about the occupation and standard of living for the absent households. The most common reasons for migrating are economic or to reunite with family members. Further, the destination is typically another province or a non-bordering district, and more households are believed to have moved to another rural area than to an urban area.

As noted, Chapter 10 takes the attrition analysis further in order to reveal whether the standard of living differs between the attrition and non-attrition households.

2.2 VARHS and Other Data Sources

The studies in this book are primarily based on VARHS. Other data sources do, however, exist. It is therefore of interest to enquire whether VARHS and the other data sources are in accordance with each other. We begin by noting that VARHS was initially a sub-sample of the households which participated in the 2002 VHLSS, chosen to be provincially representative.

2.2.1 *Other Data Sources*

POPULATION CENSUSES

Population censuses were conducted in Viet Nam in 1999 and 2009 (and before that in 1979 and 1989). The intention of the most recent census in 2009 was to gather information on the population and housing situation for the entire territory of Viet Nam—both nationally and locally (GSO 2010a). The complete population census consisted of basic questions about the individual, education, ethnicity, and housing situation. In addition to the complete population census, a sample of 15 per cent was asked further questions regarding prior place of residence, marriage, fertility, death, and household assets. This 15 per cent sample constitutes one of the two sources of information to which VARHS is explicitly compared in this chapter.

The whole country was for the 2009 census divided into 172,000 enumeration areas with an average size of 100 households. Around 60,000 trained surveyors took part in the survey which lasted from 1 to 20 April. Due to the scale of the survey, the population census serves as the most reliable source of basic information about the population. However, the information is not very detailed and more in-depth surveys are needed for specific studies of interest.

VIET NAM HOUSEHOLD LIVING STANDARDS SURVEY (VHLSS)

Since 1993, the VHLSS (and its predecessor VLSS) has collected information on living standards in Viet Nam. From 2002 onwards, the survey has been conducted biennially (i.e. every two years). For every survey round the overall survey is divided into three sub-surveys: (i) a core questionnaire to the majority of households (80 per cent of the sample size goes into this group); (ii) core questions and more detailed questions on specific topics to a minority of households (20 per cent of the sample size goes into this group); and (iii) a community survey.

The sample design of VHLSS relies on a master sample based on the most recent population census, and it is stratified by province and urban/rural status. Until 2008, the master sample consisted of 3,063 communes, and from 2010 the master sample increased the number of communes to 3,133. The next step in selecting the sample is to select three enumeration areas (EAs) per commune. Both communes and EAs are selected based on their size (number of households according to most recent population census), meaning that communes and EAs with a relatively large number of households have a higher probability of being selected for the sample.

Next, households are randomly sampled from the master sample and weights on households are calculated to represent the most recent population census for some basic characteristics. The sample is designed as a rotating panel where half of the EAs are replaced each survey round and new EAs from the same communes enter the survey. These new EAs must not have been selected in the two most recent survey rounds.

The rotating design is summarized in Figure 2.9. In half of the retained communes, households were interviewed in the two previous rounds, whereas households were interviewed only in the previous survey round in the other half of the retained communes. This implies that, in each survey round, half are new households, whereas one fourth was also present in the last survey round, and one fourth present in the last two survey rounds.

For the survey rounds based on the 1999 population census, 3,063 communes were chosen out of a total of 10,476 communes (GSO 2004, 2006, 2008). The total sample size was slightly less than 46,000 households, which corresponds to 15 households per commune. Of these, around 36,700 were chosen for the first group of households receiving only the core questionnaire, and slightly less than 9,200 households were chosen for the second group, receiving the core questionnaire and an extended survey on specific topics.⁷

In 2010 and 2012, the number of communes in the survey increased to 3,133 (GSO 2010b). The sample size increased significantly in 2010 to 69,360

⁷ In 2002, however, the sample size included 75,000 household from which 45,000 received the core questionnaire and 30,000 also received the extended expenditure survey.

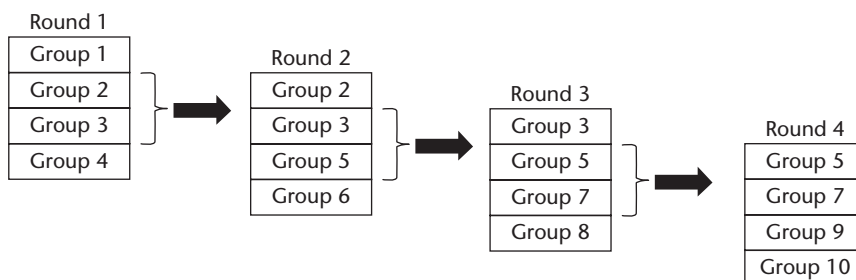


Figure 2.9 Rotating sampling design of VHLSS

Source: Authors' illustration.

households, because a new master sample was created based on the 2009 population census, while at the same time re-interviewing half of the sample households in 2008. In 2012 the sample size, naturally, fell to 46,995 households, which corresponds to 15 households per commune.

A key objective of the VHLSS is to measure consumption poverty rates and other living standard indicators, whereas VARHS is focused on providing data on land, credit, and labour over time. In addition to poverty measures, the VHLSS provides information on health, education, employment, household assets, infrastructure, and general information on the commune. Another stated objective of the VHLSS has been to serve as a monitoring tool for specific programmes and contribute to evaluating the realization of the Millennium Development Goals (MDG).

ADDITIONAL DATA SOURCES

Other data sources exist as well. They include the Labour Force Survey (LFS), Community-Based Monitoring System (CBMS), the Informal Sector Survey (ISS), Young Lives, Demographic and Health Surveys (DHS), World Values Survey (WVS), and a couple of different informal enterprise surveys. Another household panel dataset covering the provinces of Dak Lak, Ha Tinh, and Thua Thien Hue was also initiated over the period 2007–10 by Phung Duc Tung as part of his PhD research (Thung 2012).

Every year since 2009, the LFS has been conducted based on the 15 per cent sample of the 2009 population census. The purpose of this survey is to collect information on the labour market in Viet Nam. Specifically, information on the total size and distribution of the labour force, the unemployment and underemployment for different population groups, composition of labour force by various categories like occupation and industry, working conditions, economically inactive people, and migrants are of interest.

The CBMS was carried out in Viet Nam in 2006 covering fifty-two communes in five provinces (Ha Tay, Yen Bai, Quang Ngai, Lam Dong, and Ninh

Binh). The main objective of the survey was to improve the monitoring of poverty in Viet Nam, and to enhance the capacity of official planners to alleviate poverty. In total, 57,884 households were surveyed and asked general questions about their characteristics, land and asset ownership, education, health, and income of the household.

The Young Lives Project was designed to follow 12,000 children in four different countries, of whom 3,000 are from Viet Nam (Young Lives 2014). The children were initially surveyed in 2002, and they are to be followed for fifteen years, during which time they will be surveyed five times. The most recent survey round (the fourth) took place in 2013. The sites examined are located in Lao Cai, Hung Yen, Phu Yen, Ben Tre, and in areas around the city of Da Nang.

The purpose of the WVS has been to help understand better changing beliefs, equality, subjective wellbeing, economic development, and other socioeconomic issues (WVS 2016). The WVS was last implemented in Viet Nam in 2006, and the country did not participate in the most recent survey round. In 2006, however, 1,495 individuals throughout the country aged 18 and above participated in the survey.

The DHS Programme has been implemented three times in Viet Nam—in 1997, 2002, and 2005. The surveys deviate from each other by containing different health modules like alcohol consumption, iodine salt-testing, cooking fuel, and information on malaria. The two first surveys provided information on HIV associated with behaviour and knowledge, whereas the most recent survey extended the HIV module to include HIV testing. Yet further surveys exist on enterprise related issues. They include the Small and Medium-Scaled Enterprise (SME) Survey, the Provincial Competitiveness Index (PCI), the Viet Nam Enterprise Survey (VES), and the Viet Nam Enterprise Census (VEC).⁸

All of the data sources mentioned in this section provide specific data that may be of use in analytical work. However, the only two sources that can, in a meaningful way, be compared to VARHS, are the VHLSS and the population census. We now turn to this comparison.

2.2.2 Comparison of VARHS with VHLSS and the Population Census

This sub-section compares characteristics of household heads in the 2006 VARHS with household heads in the 15 per cent sample of the 2009 population census (referred to as the 2009 population census in what follows) and in VHLSS 2006.

⁸ See <<http://eng.pci vietnam.org/>> and <https://www.gso.gov.vn/Default_en.aspx?tabid=491>.

Table 2.4 presents information on gender, age, illiteracy, and ethnicity of household heads in VARHS 2006 compared to VHLSS 2006 and the 2009 population census. Small differences exist for the gender variable. Comparing VARHS with the 2009 population census, only Khanh Hoa has a deviation of more than 5 percentage points (5.2 percentage points). In addition, there is no systematic bias between VARHS and the two other data sources—for seven out of twelve provinces, the share of male-headed households is larger in VARHS compared to VHLSS and the population census.

The next variable, age of household head, appears more biased. For every province, except for Lam Dong, the average age is highest in VARHS and second-highest in VHLSS.⁹ This age difference is, however, as expected because VARHS households are ‘survivors’ from the VARHS 2002 and a sample of households from the VHLSS 2004. Consequently, newly established and younger households are not present in VARHS 2006. In Figure 2.5 we found that the provinces in the North (except for Phu Tho) and the provinces in the Central Highlands had considerably younger household heads in 2014 compared to the rest of the provinces. This characteristic is clearly also present in VARHS 2006, which can be verified by the two other data sources (cf. Table 2.4).

In the VARHS 2006, around 34.6 per cent of household heads are below 40 years of age in the ‘young’ provinces (provinces in the North, except for Phu Tho, and in the Central Highlands), whereas the same figure is a mere 18.2 per cent in the ‘old’ provinces (Ha Tay, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, and Long An). At the other end of the scale, 14.8 per cent of household heads are aged 60 or above in the ‘young’ provinces, whereas the corresponding number for the remaining provinces is 28.4 per cent. Similarly, in VHLSS 2006 and the 2009 population census, provinces in the North (except for Phu Tho) and provinces in the Central Highlands have a much larger fraction of their household heads being less than 40 years of age and a lower fraction aged 60 or above. As is also evident in VARHS 2006, the fraction of household heads in the age group between 40 and 59 is fairly similar across ‘young’ and ‘old’ provinces in both VHLSS 2006 and the 2009 population census.

As illustrated in Figure 2.6, there are substantial differences in ethnicity among provinces based on VARHS information. Table 2.4 shows that these differences are present in other data sources as well. The share of household heads that are of Kinh ethnicity deviates by no more than 5 percentage points from VARHS to at least one of the two other data sources (except for Lam Dong, where it deviates by 7.5 percentage points to the census). It should, however, be mentioned that, for Nghe An and Quang Nam, the share of

⁹ Lam Dong is the province with the fewest households (cf. Table 2.2). Thus, the scope for uncertainty is high.

Characteristics of VARHS Data and Other Data Sources

Table 2.4 Comparison of gender, age, ethnicity, and illiteracy for household (hh) heads

	Male (hh heads)			Age (hh heads)		
	2006 VARHS (%)	2006 VHLSS (%)	2009 census (%)	2006 VARHS (%)	2006 VHLSS (%)	2009 census (%)
Ha Tay	78.6	78.3	77.1	50.7	49.6	46.3
Lao Cai	88.9	87.9	88.3	47.5	45.1	39.9
Dien Bien	90.2	90.5	88.5	46.5	42.3	39.9
Lai Chau	92.2	91.1	90.6	43.6	42.1	39.0
Phu Tho	78.5	78.3	77.8	52.1	49.6	47.2
Nghe An	83.2	81.9	81.9	52.2	51.3	46.8
Quang Nam	72.7	77.8	74.2	54.4	51.4	49.3
Khanh Hoa	68.8	67.9	74.0	54.9	47.9	46.4
Dak Lak	82.5	88.3	84.8	46.9	44.2	43.2
Dak Nong	84.3	86.9	87.7	45.7	42.4	40.6
Lam Dong	79.4	80.8	81.1	44.9	47.0	43.5
Long An	74.6	71.4	72.2	52.3	50.8	47.7

	Kinh ethnicity (hh heads)			Illiteracy (hh heads)		
	2006 VARHS (%)	2006 VHLSS (%)	2009 census (%)	2006 VARHS (%)	2006 VHLSS (%)	2009 census (%)
Ha Tay	99.0	99.5	98.5	5.5	5.1	3.1
Lao Cai	23.3	30.3	24.4	20.0	16.7	28.6
Dien Bien	7.1	10.7	10.8	36.6	45.2	34.0
Lai Chau	13.9	3.3	11.2	46.1	46.7	39.9
Phu Tho	82.2	82.2	81.5	1.9	5.4	2.7
Nghe An	89.8	89.2	72.6	6.6	6.4	6.6
Quang Nam	98.7	94.8	79.4	7.4	10.4	9.6
Khanh Hoa	92.2	92.6	81.9	10.4	12.3	13.7
Dak Lak	71.3	75.7	64.9	14.0	12.6	10.5
Dak Nong	76.9	78.6	66.2	5.6	3.6	10.3
Lam Dong	63.2	73.1	70.7	19.1	11.5	11.1
Long An	99.7	100.0	99.8	7.0	10.3	7.3

Note: For the 2009 population census and VHLSS 2006, only rural households are included. The figures of illiteracy are for people above 5 years old, and it is assumed that people who have finished primary school are literate.

Source: VARHS data files, VHLSS data files, and a 15 per cent sample of the population census 2009.

household heads that are of Kinh ethnicity is substantially larger in VARHS 2006 compared to the census in 2009. In the VARHS 2006 the shares are 17.2 and 19.2 percentage points higher in Nghe An and Quang Nam, respectively, compared to the 2009 population census.

The last variable of interest in Table 2.4 is illiteracy. Overall, the VARHS figures resemble the VHLSS and census figures. Household heads are considerably more likely to be illiterate in the North (except for Phu Tho), where the illiteracy rate reaches as much as 46 per cent in VARHS and VHLSS. Also, within the North region (except Phu Tho), the data sources are ordering the provinces similarly as Lai Chau has the highest illiteracy rate followed by Dien Bien and at last Lao Cai. Next, the illiteracy rate in the Central Highlands and Khanh Hoa is still more than 10 per cent in the 2009 population census.

As an outlier, however, Dak Nong has a relatively low illiteracy rate in the VARHS and VHLSS data. Except for Dak Nong, the three different data sources are consistent on the provinces with the lowest illiteracy rates (Phu Tho, Ha Tay, and Nghe An).

2.3 Conclusion

The purpose of this chapter was to start familiarizing the reader with the VARHS database, present geographical variation among provinces for key variables, introduce other data sources, and compare VARHS to two provincially representative databases.

Overall, the VARHS database has been very successful in tracking the initial households from 2006, leaving analysts with a unique panel dataset. Illustrating key variables in map format, we saw that large variation occurs among provinces. Especially, the provinces in the North region (except for Phu Tho) are more male dominated, the household heads are relatively young, fewer households are of Kinh ethnicity, and they have much less education compared to the rest of the examined provinces.

Finally, we saw in this chapter that VARHS households are—except as expected for age—quite similar to households in the VHLSS and the population census. This suggests that the VARHS and the results put together in this book are likely to apply to a more extensive part of the Vietnamese population than initially planned for.

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Part I

A Rural Economy Transformation

3

Local Transformation

A Commune-Level Analysis

Ulrik Beck

3.1 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.

There are, however, several intermediate levels, which form part of the framework within which households act. This is a part of the transformation process that runs the risk of being overlooked if one relies solely on data collected at the more disaggregated household level. 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 of the structural transformation that has taken place in the last eight years. Vietnamese communes typically consist of a few separate villages and, in 2014, the average number of households in communes participating in the Viet Nam Access to Resources Household Survey (VARHS) was 2,079. 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.

In order to clarify the framework conditions under which households operate, and in order to illuminate the transformation process at the local level, the VARHS includes a commune questionnaire, which has been administered to administrators in all communes in which the VARHS is collected. This study

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Table 3.1 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 (21.0)	48 (44.0)	20 (26.0)	7 (18.0)	125 (32.1)
3	24 (36.9)	10 (10.0)	24 (22.0)	45 (58.4)	27 (69.2)	130 (33.3)
Total	65	100	109	77	39	390
Average monthly income per capita in 2014, commune average=100	101.5	74.5	96.8	121.2	129.6	100.0

Notes: Income tertiles are based on stated average commune income. Due to bunching of answers, there are not exactly 1/3 of communes in each of the three tertiles. Column frequencies in per cent are reported in parentheses. Income is calculated as an unweighted mean of the average per capita income in each commune.

Source: Author's calculations based on VARHS database.

utilizes the resulting commune-level panel database to provide an overview of economic conditions and transformation in the years 2006–14. 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 that were interviewed every second year from 2006 to 2014. Table 3.1 shows how the communes are distributed within the five regions. It also shows how communes are distributed within three income tertiles. It is immediately clear that there are differences both within and between the five regions. In the provinces of the Red River Delta and the Mekong River Delta (MRD), which are close to the large population centres of Hanoi and Ho Chi Minh City, many communes are doing quite well. This is especially the case for the only province in the sample that belongs to the MRD, 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 predominantly remote and mountainous North region, more than two-thirds of communes belong in the lowest (first) income tertile. Within the North region, the province of Phu Tho is doing much better than the remaining, more remotely located Northern provinces. If Phu Tho is removed from the North region, 85 per cent of the remaining North communes fall into the lowest income tertile. The Central Coast region is doing markedly better than the North region, but not quite as well as the Central Highlands region where most communes are in the highest income tertile. The communes of the Central Highlands region are, on average, doing better than the Red River Delta communes in terms of per

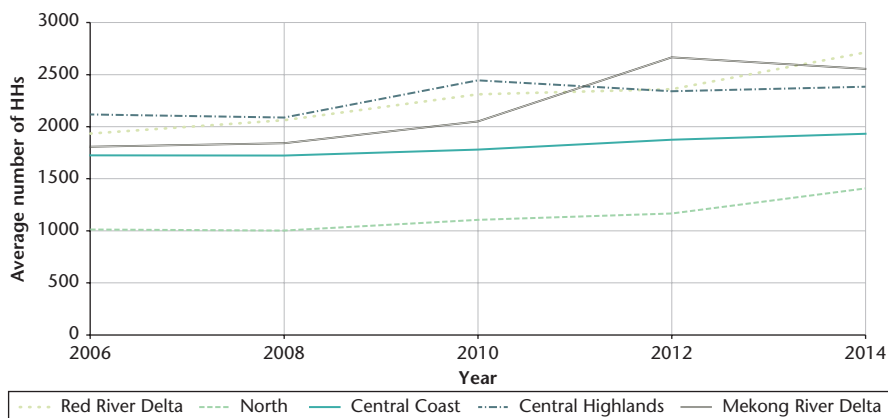


Figure 3.1 Average number of households in VARHS communes by region

Source: Author's calculations based on VARHS database.

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 decreases that wedge between income and consumption. This can help to explain why the Central Highlands appear to be doing so well compared to the other regions in this table. Even though this is not the case for all indicators of welfare, in 2010 only the Northern Mountain regions and the North Central Coast had higher poverty rates than the Central Highlands region (World Bank 2012).

Figure 3.1 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.

3.2 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 3.2 shows the evolution of the most important occupations in the communes. In almost all of them, agriculture is one of the three most important occupations, with upwards of 90 per cent of all households taking part. Aquaculture, other services, construction activity, and other occupations have all gained importance

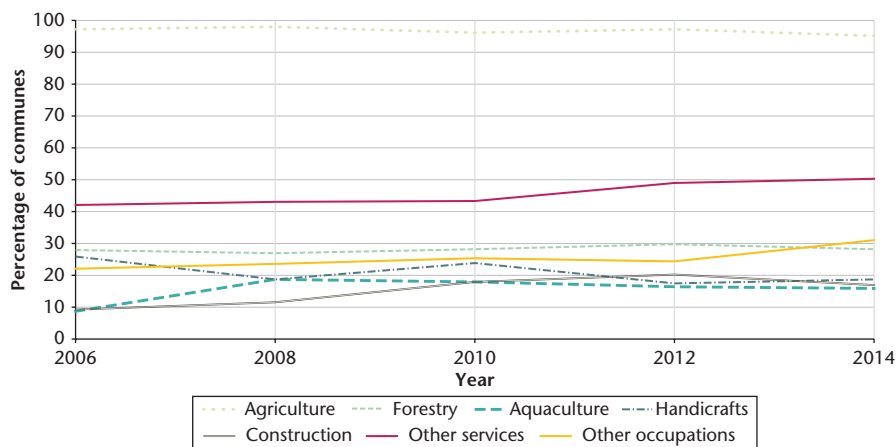


Figure 3.2 Most important occupations by year, % of communes

Note: The graph shows the share in % 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.

Source: Author’s calculations based on VARHS database.

over the period.¹ The increase in aquaculture as an important occupation corresponds well to a well-documented increase in aquaculture production in Viet Nam (see, for instance, the Food and Agricultural Organization (FAO) Fisheries and Aquaculture Statistics Database). The increase in construction activity reflects the high levels of economic growth experienced in Viet Nam over the period. While the occupational shifts mentioned are statistically significant and point towards structural transformation, the occupation structure has not changed radically. The picture that emerges is instead one of diversification at the commune level into a wider range of activities without leaving the main occupation of agriculture behind.

The country-level averages can hide interesting geographical variation. In order to explore this, Figure 3.3 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

¹ The changes in occupational choice are all statistically significant at the 5 per cent level, using a two-sided t-test comparing 2006 and 2014 occupations at the commune level.

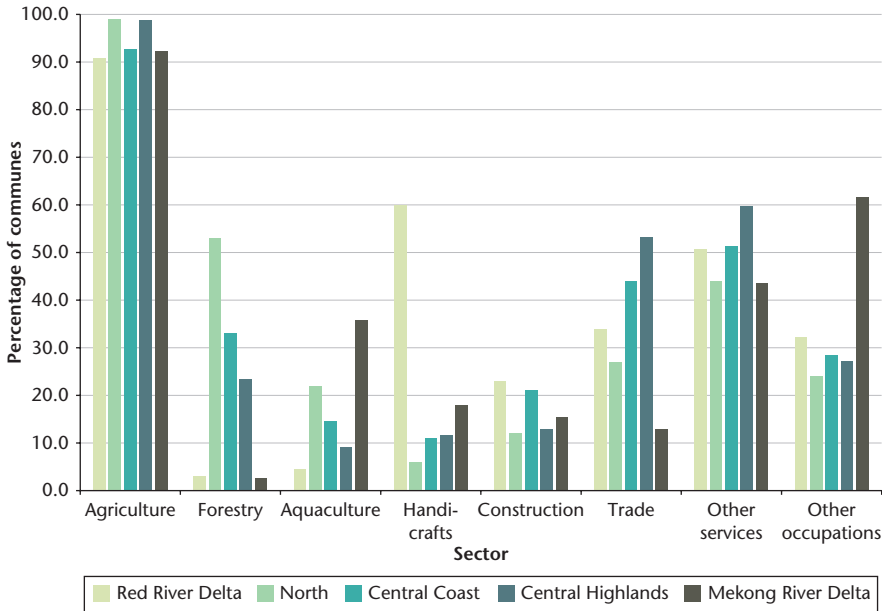


Figure 3.3 Most important occupations by region in 2014, % of communes

Note: See Figure 3.2, Note.

Source: Author's calculations based on VARHS database.

provinces in the Red River Delta and MRD regions do so. Handicrafts and other occupations are more common occupations around the big population centres as well, and in the specific provinces of VARHS, handicrafts is a particularly common occupation in the Red River Delta area of ex-Ha Tay. Many communes in the MRD province of Long An engage in activities that fall under the category of other occupations, including transport and manufacturing, both of which are typical of rural areas in close proximity to large urban population centres.

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 3.4 shows how the allocation of land for different uses varies between regions as well as over time. In the Red River Delta region, 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 uses 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 (more than 50 per cent and 30 per cent in 2006, respectively). As population densities

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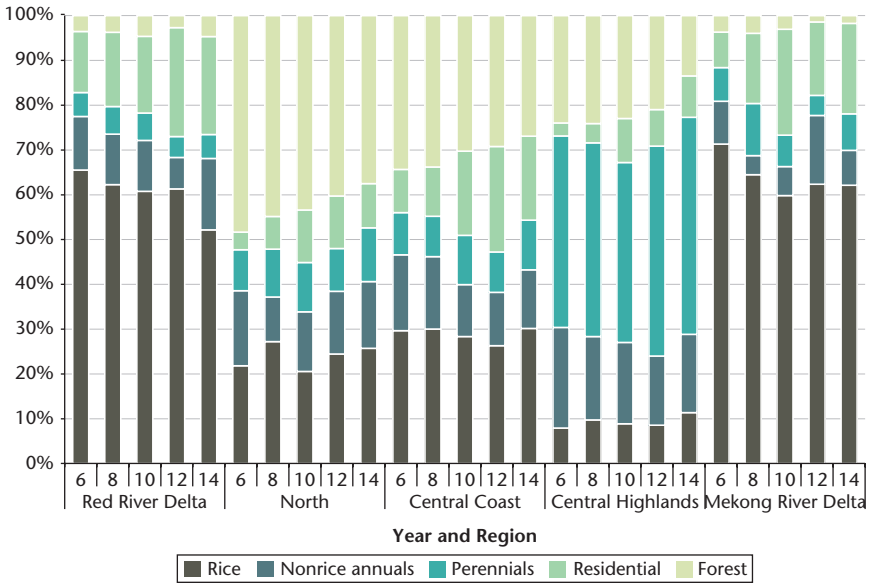


Figure 3.4 Average land use shares by year and region

Source: Author's calculations based on VARHS database. 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.

and income levels rise, some of this land has been converted into agricultural and residential land. In the North, which is still heavily focused on agriculture, as shown in Figure 3.3, much of the newly cleared land was converted into agricultural uses. As shown, construction and other activities such as tourism have become increasingly important in the Central Coast region. It is therefore not surprising that a larger share of the deforested land is converted into residential land in this region.

The structure of land use in the Central Highlands region is quite different due to the high propensity of cash crop agriculture, primarily of coffee but also of rubber, tea, cocoa, and other types of cash crops. A large share of land (around 50 per cent in 2014) is devoted to perennial crops while only about 30 per cent is used for rice and other annual crops. There is also a minor trend of conversion of forested areas into agricultural and residential land in this region.

Consistent with its nickname as 'the rice bowl of Viet Nam', the majority of land in the MRD 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 has varied between regions. Clear correlations between income levels and the structure of land uses stand out. Most land in the two relatively prosperous 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. This is a sign of both population increases and expansion of the economic activities undertaken in these regions. In general, the share of land used for residential purposes has increased, which reflects both rising incomes across the country and rising population densities.

3.3 Provision of Public Goods and Infrastructure

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.

The set of services offered at the commune level establish the framework conditions under which households work, earn income, and make decisions. A priori, we expect substantial improvements over this period: public investment in infrastructure was above 10 per cent of GDP per year between 1997 and 2009 (Thanh and Dapice 2009). 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 (Vietnam Development Report 2012). These figures document a high level of growth but are also indicative of low initial levels of infrastructural services.

That importance of infrastructure and public goods in a transitioning economy such as Viet Nam is well documented in the academic literature. This includes an estimated return to education of 13 per cent per year of primary education in Viet Nam (Moock, Patrinos, and Venkataraman 2003). It also includes evidence of positive impacts of rural road improvements in Viet Nam on primary school completion rates and on the presence and frequency of markets (Mu and van de Walle 2011). Mu and van de Walle (2011) also found that rural road improvements led households to switch from agriculture to non-agricultural activities, thus supporting the structural transformation process. Health is an important part of human capital, and it is therefore not surprising that health shocks have been found to have negative effects on income and welfare (Wagstaff 2007; see also Chapter 10 of this volume). This provides a rationale for an extended network of clinics and hospitals. However, it should be noted that availability of health facilities is only one part of the equation; the cost to the households of obtaining health care is another. Before the Doi Moi reforms, health care in Viet Nam was largely covered by the

state, although patients covered the costs of drugs. The Doi Moi reforms cut state support for the health sector; government hospitals and clinics were allowed to charge patients additional fees; and private health facilities were legalized. This led to increased out-of-pocket expenses for households. In recent years, Viet Nam has moved towards a single-payer system, although out-of-pocket expenditures are still substantial, standing at 57 per cent in 2010 (Somanathan et al. 2014).

Even though the level of the commune is a natural level of analysis for provision of infrastructure and other types of public goods, 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) and funded at the provincial level. Commune authorities can request provision of these facilities but they do not make the decision. For other types of facilities, such as roads and streetlights, the funding and decision process differs depending on the type supplied. 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 have private primary and secondary schools. The results of the following should therefore be interpreted as an analysis of the conditions of households living in these communes and not as a view into the decisions of commune authorities as to which facilities and services to provide to the community.

Figure 3.5 shows the presence in the communes of six types of facilities from 2006 to 2014. There is evidence of some improvement. For example, the share of communes that had markets and secondary schools is significantly higher in 2014 than it was in 2006. Likewise, the share of communes that 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 that 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 2006–12. 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 somewhat aggregated commune level, is a complex process where setbacks can occur in some aspects in some years while others improved. It also highlights the importance of not over-interpreting short-term changes. A longer time horizon, such as the one of VARHS, which covers eight years, is needed in order to conduct meaningful inference.

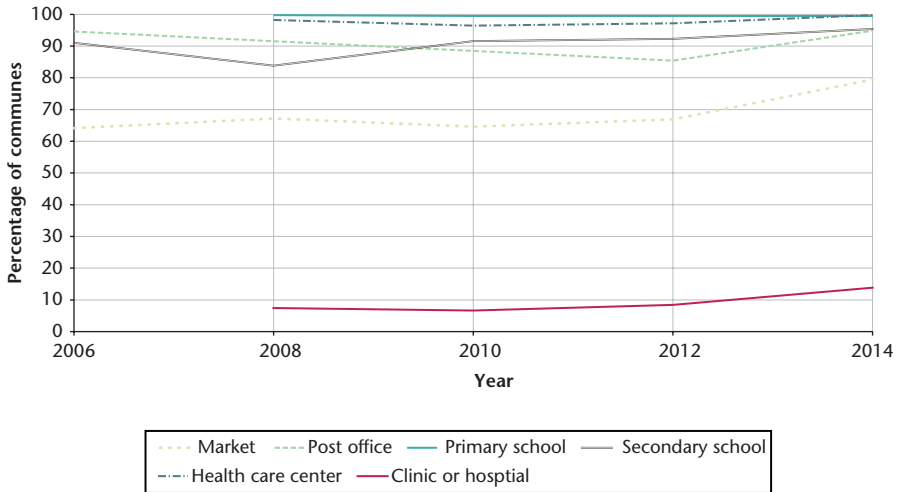


Figure 3.5 Presence of six commune facilities over time, % of communes

Note: Information on primary schools, health-care centres, and clinics or hospitals is only available from 2008. Information on post offices is not available for 2008 and 2010.

Source: Author's calculations based on VARHS database.

Figure 3.6 investigates how the distances to the nearest bus stop, the nearest main road, the district centre, and the distances to the nearest extension centre and extension 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 that have less than 2.5 km to go to reach to these locations has increased. However, there is less improvement at the other end of the distribution: the share of communes that do not have facilities within 20 km, for example, is largely unchanged over the period for all indicators. For a large group of households, distances have been reduced over the period, but the most remote households are not becoming more integrated. This is potentially worrisome as it indicates that some communes are not reaping the benefits of the improvements that have taken place at the aggregate level over this period. However, it is also possible that this is simply a snapshot of a transformation process that is in progress but not yet completed, and that, at this specific point in time, the progress of transformation is not equally far progressed in all communes. If this is the case, it is possible that the communes that are currently lagging behind will start to catch up in the near future without further intervention or additional policies. Nonetheless, the heterogeneity of the transformation process is a topic that warrants careful attention in the coming years, and if the poorest communes do not show signs of catching up, additional measures should be taken to help facilitate a decrease of the gap.

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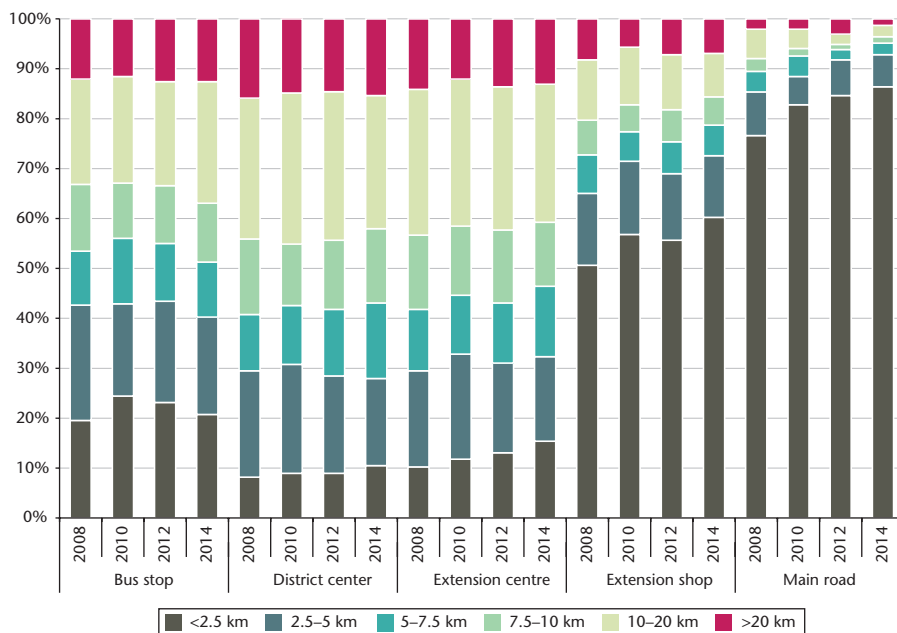


Figure 3.6 Distances to transportation and other facilities by year, % of communes

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.

Source: Author's calculations based on VARHS database.

Figure 3.7 shows how distances varied in 2014 by region. The close proximity to the urban centres of Hanoi and Ho Chi Minh City are apparent in the distances for the Red River Delta and the MRD regions. Here, infrastructure tends to be more developed and distances shorter. The North region, with its mountainous terrain and low population density, is the clear loser on all distance measures except distance to a main road. In the North, more than 20 per cent of communes have more than 20 km to the nearest bus stop. This is the case for less than 5 per cent of communes in the Red River Delta. Likewise, more than 30 per cent of communes in the North are more than 20 km from 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 Central Highlands communes have the second-longest distances after the North region.

Figure 3.8 shows the prevalence of streetlights 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 that have streetlights and water distribution, less than 50 per cent

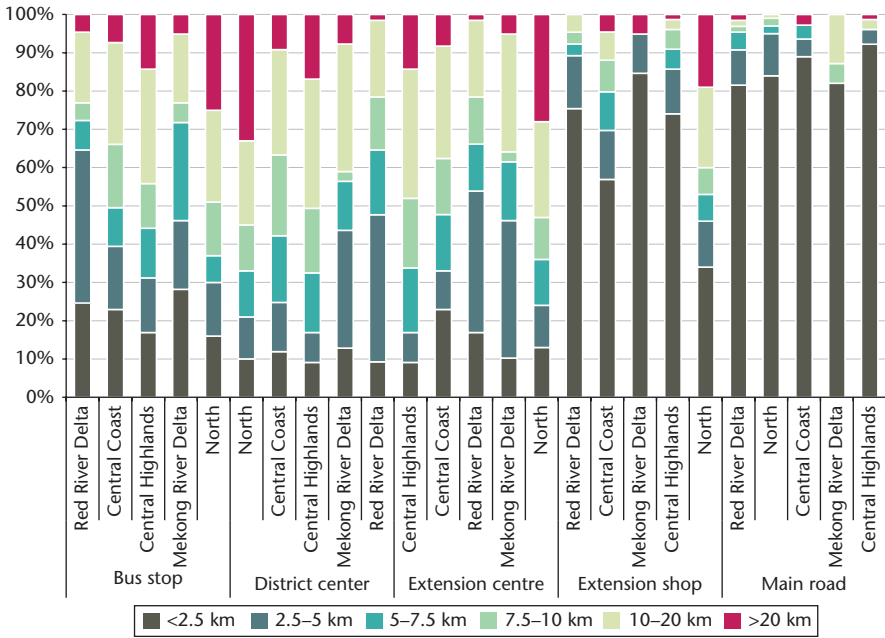


Figure 3.7 Distances to transportation and other facilities in 2014 by region, % of communes

Note: See Figure 3.6, Note.

Source: Author's calculations based on VARHS database.

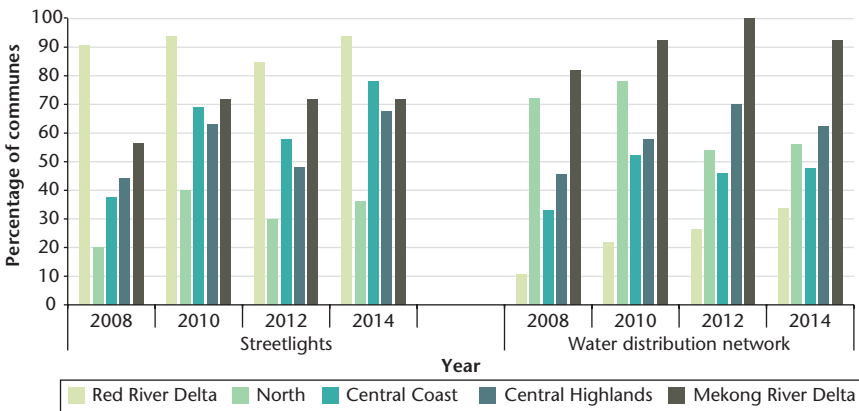


Figure 3.8 Percentage of communes with streetlights and drinking water distribution network by region and over time

Source: Author's calculations based on VARHS database.

of households are placed directly on the streetlight 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 streetlights. In 2014, more than 90 per cent of communes had at least some streetlights. 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 MRD 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.

A third type of infrastructural network is internet access. 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 be considered a proxy measure for high-speed wireless internet access. As Figure 3.9 shows, 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

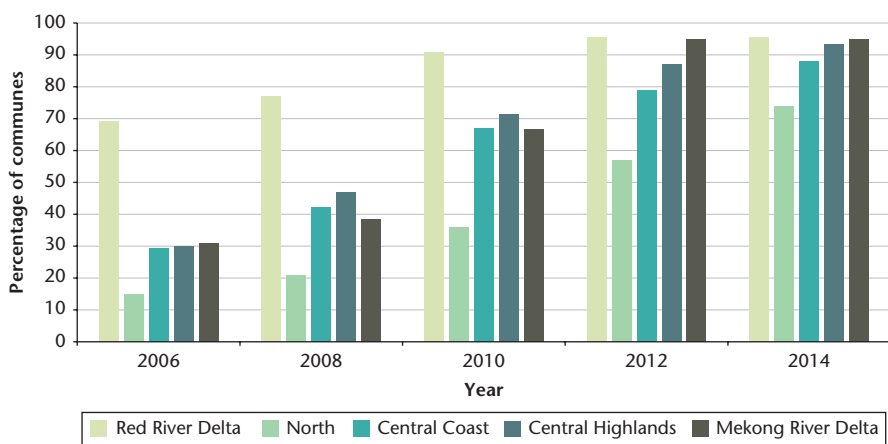


Figure 3.9 Percentage of communes with at least one internet access point by region and over time

Source: Author's calculations based on VARHS database.

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 in the North had access. Chapter 8 explores internet availability in more detail using information at the household level.

In conclusion, it is possible to observe real improvements across a multitude of indicators related to commune facilities and infrastructure 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 seems to have had an effect on the ground: distances to roads and extension shops have been reduced and the existence of water distribution networks and internet access points has become more widespread. While some progress can be observed in all the regions of the country that VARHS covers, stark interregional differences are present. 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 MRD were in 2006. On many others, such as distance to crucial pieces of infrastructure, such as main roads, extension shops, and bus stops, as well as infrastructural indicators such as streetlights and water distribution, the poorest regions were, in 2014, still very far from 2006 levels of best-off regions.

3.4 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 penultimate section instead considers subjective answers of commune administrators as to which problems affect their commune the most.

Figure 3.10 shows which problems commune administrators listed as having affected the commune the previous year, starting in 2010 when this set of questions was first asked. The questionnaire also includes questions on which problems commune administrators at the time thought would affect the commune in the coming two years. The answers in 2014 to this question are also included in the figure to give an insight into commune administrators' thoughts on which problems they thought that they would face in the near future. This section of the questionnaire was expanded in 2012 to include a question on climate change.

The overall message is quite positive. All the problems listed in the figure, except climate change, affect a smaller share of communes in more recent years, compared to 2010. The problem affecting the highest share of communes since 2010 was natural disasters and diseases. In 2010, more than 60 per cent of communes were affected by this. The importance of natural disasters and diseases has declined slightly since then. This can be either due to changes in

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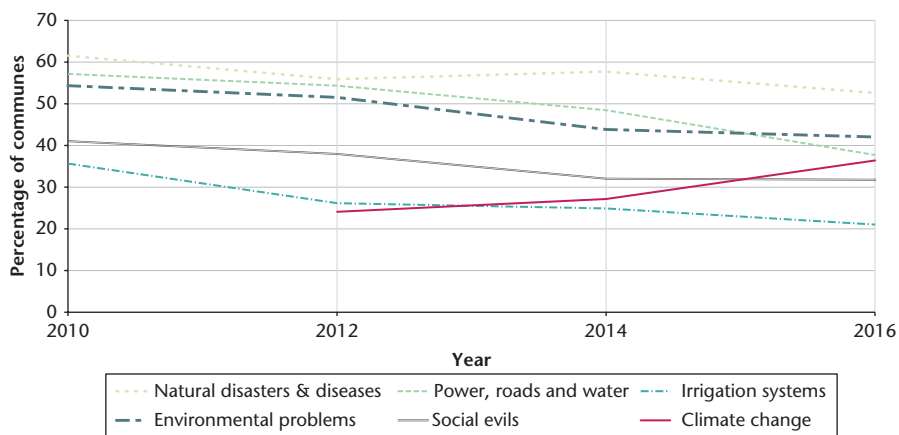


Figure 3.10 Percentage of communes affected by different commune problems in the past, present, and future

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 very 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.

Source: Author's calculations based on VARHS database.

the resilience of communes or simply due to fewer or less severe incidents in 2012 and 2014 than in 2010. The second most widespread problem in 2010 was power, roads, and water. The share of communes who 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 earlier results, which found improvements in distances to roads as well as improvements in power and water distribution networks. As mentioned earlier in this section, the only problem that 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 expect this to be among the most important in the coming two years. Climate change can result in changes of the mean temperatures, mean precipitation, and so on, as well a higher frequency of extreme weather events. Using only observations from one's own commune, climate change can be hard to observe since adverse weather events such as floods, storms, and year-on-year temperature changes happen even in the absence of climate change. It is possible that natural year-on-year variation is driving the increase in commune administrators who worry about climate change. Another possibility is that the results simply reflect increased awareness of the issue and no real change in conditions on the ground. Climate change is an issue that has received increased attention from

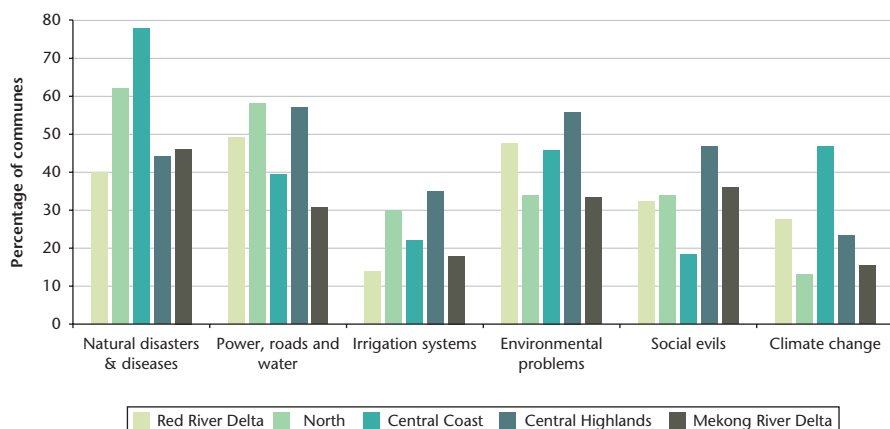


Figure 3.11 Percentage of communes affected by different problems in 2014 by region
Source: Author's calculations based on VARHS database. Respondents were asked to list all problems affecting the commune. The list of problems also included health and education, access to health and education, quality of health and education, gender discrimination and family, and ethnic discrimination. These were left out of the figure since very few communes chose these options. Climate change was not included as an option in 2010.

media outlets as well as policy makers in recent years. However, one should not dismiss out of hand 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 3.11 breaks the 2014 answers down by regions. There are differences across regions both in the share of communes that 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. Power, roads, and water are less important in the MRD, where around 30 per cent of communes experienced these issues as a problem. It is, however, quite important in the more mountainous regions of the North and the Central Highlands where population densities are lower and there are 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, prostitution, and gambling. More than 45 per cent of communes in the Central Highlands have problems with these compared to 32 per cent at the national level. The Central Coast is also the region where most commune administrators felt 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 the MRD, this share was less than 20 per cent.

3.5 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 2006–14. 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 that have taken place over the period are substantial, the observed changes should not be overstated. On the ground, 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 that 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 towards the end of the period.

The study also documents steady improvements in the provision of public goods and access to basic infrastructure in 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.

In the provision of some infrastructural services, it appears that while many communes experience progress on these fronts, the worst-off communes have not been as fortunate. This means that while the economic growth of Viet Nam has been quite broad-based, there may be a need to do even more in the future in for these communes to catch up to the rest of the country.

Section 3.4 showed how commune problems, as experienced by commune officials, have changed over time. This piece of evidence is quite positive. Most problems affected fewer 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 that is unsolvable at the commune level and even at the national level. What can be done at both levels is to help farmers and other households to *adapt* to climate changes. These matters should receive increased attention in the coming years and decades.

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4

Commercialization in Agriculture, 2006–14

Chiara Cazzuffi, Andy McKay, and Emilie Perge

4.1 Introduction

Agriculture has always been the predominant production activity in rural Viet Nam. Today it remains a major activity in almost all rural areas, even though there has been a substantial development of non-farm activities in many such areas more recently. Without doubt, a key part of Viet Nam's economic transformation over the past thirty years has been the substantial progress made in agriculture. Data from the Food and Agricultural Organization (FAO) show that production of the country's dominant crop, rice, increased almost every year between 1975 and 2013, and increased by a factor of over four during this period (Figure 4.1). Starting off as a net importer of rice, the country switched, in the 1980s, to being a substantial exporter of rice, and is now the second biggest rice exporter in the world according to the International Rice Research Institute (IRRI). Over this time period, Viet Nam has also become much more involved in the cultivation of cash crops, notably coffee, and fishery products are also an area of substantial export growth.

Agriculture in Viet Nam has changed substantially since the reunification of the country in 1975, particularly following the launch of the Doi Moi reform programme in 1986. Following reunification, agricultural production continued to be organized on a collective basis. Viet Nam was a very closed and highly controlled economy at that time, but this was also a period when agricultural performance was poor. The country experienced substantial food shortages, if not famine, at different periods in the 1970s and 1980s. This led the government to develop a major focus on food security, a concern which remains to the present day, as evident in the government's active response to the 2007/8 food crisis (McKay and Tarp 2015).

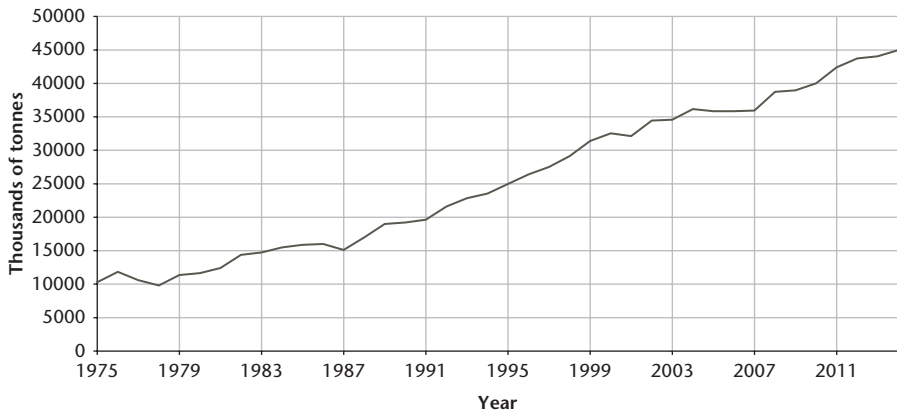


Figure 4.1 Rice production in Viet Nam, 1975–2014 (tonnes)

Source: Data from FAOSTAT <<http://faostat3.fao.org/home/E>>.

A first gentle step towards liberalization was the introduction of a product contract system in 1981, which allowed some cooperatives to give individual households access to some plots of land, though still requiring them to sell their produce to the cooperative (Marsh, MacAulay, and Van Hung 2006). But much more substantial reforms came into place following the 1986 Doi Moi reforms. At this point, the need for giving a much greater role to individual households and the private sector was recognized. Resolution No. 10, passed in 1988, gave households greater production rights, including the right to choose their own buyers.

A series of land reforms were then introduced. In 1988 land was divided among households, who were given fifteen-year leases (Glewwe 2004; McCaig and Pavcnik 2013). The 1993 Land Law then gave farmers land use rights, now with tenure of twenty years (fifty years for perennial land). This included rights to transfer, exchange, lease, inherit, and mortgage their land, and so gave farmers greater security. Land titling was introduced at this time and implemented relatively quickly, such that, by 1997, half of land had been titled (Benjamin and Brandt 2004; McCaig and Pavcnik 2013). Farmers were allocated with land-use certificates (LUC) or ‘red books’, generally in the names of both the household head and spouse. A series of further revisions were made in 1998, 1999, and 2001, after which a new Land Law was introduced in 2003 (Marsh, MacAulay, and Van Hung 2006; Markussen, Tarp, and van den Broeck 2011). But, at the same time, the authorities, generally at commune level, continue to place significant restrictions on the use of land, in particular requiring the cultivation of rice on many plots. Much of this is motivated by concern with food security, given that rice is also the staple

consumption commodity in Viet Nam. On non-restricted plots, though, households are able to decide what to cultivate.

Restrictions on internal and external trade of agricultural outputs and inputs were gradually relaxed over this period. In particular, quotas were used to limit rice exports, motivated by food security concerns, but these were significantly relaxed over the 1990s. Restrictions were also placed on internal trade at this time and on imports of fertilizers, but again, over time, these were relaxed. As a result, households became free to sell their output as they choose to, and generally had access to production inputs. Rice productivity increased substantially, for instance from 3.3 tonnes per hectare in 1992 to 4.9 in 2006 (Benjamin et al. 2009; McCaig and Pavcnik 2013). Increasingly, over time, households who produced sufficient quantities were generally selling to private traders or enterprises, while those producing smaller quantities often sold to other households when they had a surplus. The private sector is certainly the dominant buyer of rice in rural Viet Nam.

The Viet Nam Access to Resources Household Survey (VARHS) enables a detailed analysis of the roles played by households in different agricultural activities, and the panel feature of the data allows the dynamics of this role to be investigated over the period 2006 to 2014. The large majority of households interviewed in VARHS earn at least some of their income from agriculture, even if, over time, non-agricultural livelihoods are becoming increasingly more important, as expected with economic development. Although, in several provinces, wage earnings have overtaken agriculture as the main source of income (see also Chapter 10), most households still have some income from agriculture or natural-resource-based activities. In provinces in the Central Highlands and Northern Uplands, agriculture remains the dominant activity.

The VARHS 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 data enables a substantial and detailed analysis of these issues. This chapter is only a start at this, presenting an initial analysis, looking at households' engagement in three important areas of activity: rice cultivation, production of cash crops, and engagement in household-level aquaculture activities. Since most households grow rice, the chapter focuses on commercialization, seen through sale of rice. But it also considers coffee production, a key cash crop in Viet Nam, as well as household engagement in aquacultural activities on their own land.

Again, the analysis is based on the 2,162 households included in the balanced 5-wave panel between 2006 and 2014, looking in particular at the extent to which households cultivating rice sell it and on what scale. For most households engaged in agriculture, rice commercialization 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. Part of the analysis here compares the five cross-sections that make up the panel dataset, 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 4.2 briefly reviews some relevant international literature, after which Section 4.3 provides an introduction to the extent of household participation in these activities. Section 4.4 examines patterns of engagement in rice cultivation and sales, cash crops, and aquaculture by geographic region and income quintile, following which Section 4.5 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 4.6, after which Section 4.7 concludes.

4.2 Some Relevant Literature

This chapter 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 transaction costs and market failures in smallholder decision-making. Differential asset endowments, together with differential access to public goods and services that facilitate market participation, are identified as key factors underlying heterogeneous market participation among smallholders (Key, Sadoulet, and de Janvry 2000; Barrett 2008). Differences in transaction costs across households are also important determinants of market participation: each household faces some fixed time and monetary costs in searching for available marketing options, and, if high enough, these costs, invariant of the quantity transacted, may prevent market participation altogether. According to Goetz (1992), transaction costs affect market participation behaviour through the labour–leisure choice: thin markets make it 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 households' cost of observing market prices in order to make transaction decisions, thus reducing households' leisure time (Goetz 1992).

For staple food markets in particular, another important factor influencing the participation decision is risk, and household attitudes towards it. 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 their own consumption requirements can be met. On the other hand, lack of liquidity resulting from an absence of alternative income sources and credit may sometimes also force households to sell rice to generate cash in order to meet other non-food expenditures.

The determinants of smallholder participation in agricultural markets have been investigated empirically frequently in the context of sub-Saharan Africa. These studies identify strong positive associations between market participation and: (1) household income and assets (especially land, but also livestock, labour, and equipment);¹ (2) access to credit and insurance;² (3) input use and access to extension services;³ and (4) low levels of transaction costs, including transport costs and information costs.⁴

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

With respect to Viet Nam, Rios, Shively, and Masters (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). Such a finding suggests 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, Shively, and Masters 2009). It seems then, that even in the early 1990s, Viet Nam had much better coverage of basic rural infrastructure in most regions compared to countries with similar levels of income (Aksoy and Isik-Dikmelik 2007).

The analysis in this chapter draws and builds on prior analyses by the authors of some of these issues based on earlier waves of VARHS (McCoy, McKay, and Perge 2010; Cazzuffi et al. 2011; Cazzuffi and McKay 2012). However, these 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 open access fisheries (McCoy, McKay, and Perge 2010).

4.3 Agricultural Activities in the VARHS Panel

In the VARHS panel dataset, 100 per cent of households in 2006 reported income from crops, livestock, or aquaculture as one or more sources. This

¹ Nyoro, Kiiru, and Jayne (1999); Cadot, Dutoit, and Olarreaga (2006), Stephens and Barrett (2006); Boughton et al. (2007); Levinsohn and McMillan (2007).

² Cadot et al. (2006); Stephens and Barrett (2006). ³ Alene et al. (2008).

⁴ Heltberg and Tarp (2002); Alene et al. (2008); Ouma et al. (2010).

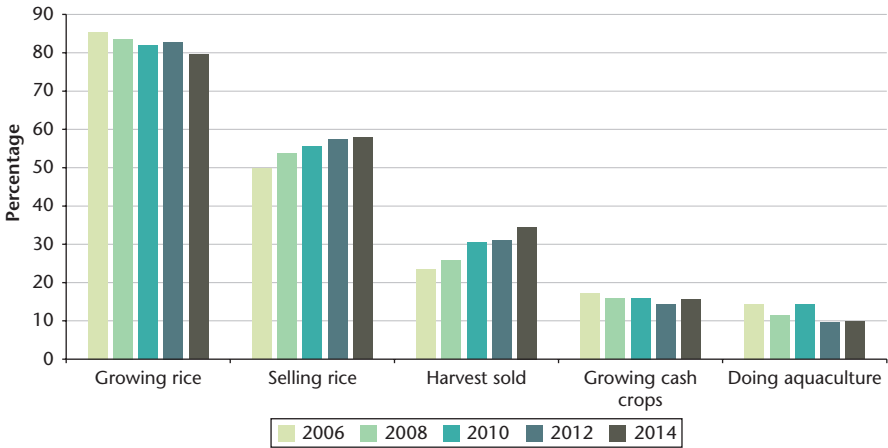


Figure 4.2 Some summary characteristics relating to commercialization for the full sample

Source: Authors’ computations based on VARHS data for years 2006 to 2014.

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 Section 4.1 about the importance of agricultural or aquaculture activities for almost all households.

Figure 4.2 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. As well as many households having been required by crop restrictions to grow rice, most locations covered by the survey are very suitable for rice cultivation.

The next set of columns in Figure 4.2 relates to the proportion of rice-growing households that 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 the number of households growing rice may have decreased between 2006 and 2014, an increasing proportion of these are selling. This latter effect outweighs the former, such that the absolute numbers who sell show an increase. The survey also reports on channels of sales, the most important channels being sales to traders or sales to other individuals or households. Channels vary by province and, unsurprisingly, the scale of sales reflects the channel used. The following set of columns of Figure 4.2 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 subsequently fallen. This increasing commercialization takes place alongside continued increases in rural household income over this period (see McKay and Tarp 2015).

The remaining groups of columns in Figure 4.2 relate to the extent of household engagement in cash crop production and in aquaculture activities on their own land. A small minority of households participate 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 households; furthermore, climatic and other conditions also need to be appropriate. The dominant cash crop cultivated by households in the survey is coffee, which is grown predominantly in the Central Highlands provinces. Other cash crops, grown on a smaller scale, include tea, cocoa, cashew nut, sugarcane, pepper, and rubber. Around 10 per cent of households earn some income from aquaculture, which requires households to convert one or more of their plots into a pond; this can also be a relatively labour-intensive activity and one 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 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 dataset; the remainder of this chapter now analyses these three activities separately and in more detail.

4.4 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 in Section 4.3, Table 4.1 shows variations in its importance by province and by household income quintile. The numbers of households cultivating rice are very high in the three Northern Upland provinces (Lai Chau, Dien Bien, and Lao Cai) 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 and in Khanh Hoa in the South Central Coast, relatively few households grow rice. The remaining provinces lie between these extremes. In a number of these provinces, such as Ha Tay and Quang Nam, the proportion of households growing rice is falling over time. In these locations, non-agricultural activities, notably wage work, become increasingly important

Table 4.1 Proportion of households growing rice, by year, province, and quintile

	2006	2008	2010	2012	2014
<i>Province</i>					
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
<i>Consumption quintile</i>					
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

Source: Authors' computations based on VARHS data for years 2006 to 2014.

over time (see McKay and Tarp 2015). Examining this by quintiles of per capita food consumption, 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 and higher levels of development. To some extent, the quintile pattern correlates with the geographic pattern: the Northern Upland provinces referred to here are disproportionately found in the lower income quintiles.

The VARHS data can also be used to estimate productivity in rice production, by dividing total production by the area cultivated. This gives average figures of 5.9 tonnes/ha in 2006, 5.4 in 2008, 6.0 in 2010, 5.2 in 2012, and 6.5 in 2014. These figures show variability from one year to another, which is not surprising. It is difficult to draw any strong conclusions about trends over the period on this basis, particularly as yield inevitably fluctuates from one year to another. On a longer time horizon and with aggregate national data, Abbott and colleagues (forthcoming) identified an increase in agricultural productivity between 2000 and 2011; that is not inconsistent with these yield data. But the more important point from these survey data is that these figures are very similar to both the rice yield figure for Viet Nam reported by the IRRI in 2008, which was 5.2 tonnes/ha, and to the figures quoted in Section 4.1. These latter figures are national while the VARHS figures relate to just these twelve

Table 4.2 Proportion 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

Source: Authors' computations based on VARHS data for years 2006 to 2014.

provinces, but the very close nature of the estimates provides reassurance about the reliability of the data collected on rice cultivation in VARHS.

The geographic disaggregation of the proportion of rice growers selling their output is presented in Table 4.2, showing the very high market engagement in the Long An province in particular. While between 55 and 70 per cent of rural households in this province grow rice, almost all of them sell. The Long An province is very much a commercial heartland of Viet Nam. Many households there 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 and around Ho Chi Minh City. When these households choose to grow rice they almost all aim to sell, including to exporters, and as can be seen in Table 4.3, 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, where most households grow rice. It is clear that many of these households 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. Although this province has much easier access to Hanoi and bigger urban centres than the Northern Uplands provinces, still relatively few rice growers sell. This clearly reflects the scale of production plus potentially also the importance of market access to participate in rice commercialization. Among the other provinces, Quang Nam, Dak Lak, and Khanh Hoa have relatively high proportions of rice growers engaged in sales.

The geographic distribution of the proportion of output sold is also shown in Table 4.3. In almost all provinces, except 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

Table 4.3 Average proportion of rice output sold, by location, quintile, and year

	2006	2008	2010	2012	2014
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
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

Source: Authors' computations based on VARHS data for years 2006 to 2014.

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 by 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 higher quintiles. Of course, both rice cultivation and sales can fluctuate from one year to the next, an issue that will be explored in Section 4.5, using the panel.

Tables 4.4 and 4.5 report on the percentage of households engaged in cash crops and in aquaculture 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 engaged in cash crop cultivation even if the relationship is less strong in 2014.

The highest incidence of aquaculture is observed in the Dien Bien province; 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.

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Table 4.4 Proportion of households growing one or more cash crop, by province, quintile, and year

	2006	2008	2010	2012	2014
<i>Province</i>					
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
<i>Consumption quintile</i>					
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

Source: Authors' computations based on VARHS data for years 2006 to 2014.

Table 4.5 Proportion of households engaged in aquaculture activity on their own land, by province, quintile, and year

	2006	2008	2010	2012	2014
<i>Province</i>					
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
<i>Income quintile</i>					
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

Source: Authors' computations based on VARHS data for years 2006 to 2014.

4.5 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 dataset, 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, growing rice, selling rice, growing cash crops, and earning from aquaculture, in all years (Table 4.6). Those not engaged in these activities in any of the five years are also included in these data. The patterns of those growing rice in the panel vary by province and quintile in much the same way as in the cross sections; and in most locations those that grow rice do so consistently year on 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 there 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, although in part 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 many of these

Table 4.6 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
<i>Quintile</i>				
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

Note: * from among those growing each year.

Source: Authors' computations based on VARHS data for years 2006 to 2014.

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; the numbers with consistent earnings from this activity 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.

4.6 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 in Section 4.5, 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 4.7), the striking difference between them 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 but 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.

A similar comparison of those cultivating to cash crops with those that do not (McKay, Cazzuffi and Perge 2015: table 8) shows that households cultivating these crops have substantially higher incomes (and agricultural incomes) on average than those who do not, although, interestingly, they are not systematically 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, spend much more on inputs overall (although less on inputs specifically for rice), and are

Table 4.7 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
Per cent irrigated	0.705	0.766	0.711	0.841	0.745	0.856	0.801	0.879	0.193	0.182
Per cent 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

Source: Authors' computations based on VARHS survey data for years 2006 to 2014.

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. For aquaculture (McKay, Cazzuffi, and Perge 2015: table 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 among households engaged in aquaculture activities are less apparent.

We turn now to modelling the determinants of these different activities—selling rice (for those producing), cultivating cash crops, and engagement in aquaculture—exploiting the balanced panel dataset. In each case the outcomes are zero-one variables; these outcomes for the panel households are modelled as a function of household characteristics in the same time period, using either a linear probability model or a probit model. Table 4.8 shows the outcomes for the agricultural variables. The first model is estimated based on the pooled dataset and including district-level fixed effects. The second and third model exploit explicitly the panel features, the former using a linear probability model and household-level fixed effects, and the latter a probit model with household-level random effects as well as province-level fixed effects. As some of the explanatory variables here are liable to be endogenous, these models should be interpreted in terms of showing association rather than causality.

In each of the three models, households which sell rice are likely to cultivate larger areas, are likely to have more of their area irrigated, are likely to use hybrid seed and to hire more labour, are more likely to have received extension support, and are more likely to have a market in their commune. Unsurprisingly, larger and poor households are less likely to sell, but more surprisingly, Kinh households and households who speak Vietnamese are also less likely to sell in these models. Apart from the last findings, these results are quite intuitive in terms of explaining who is likely to sell rice in Viet Nam. These results are relatively consistent across the three modelling approaches.

Fewer strong correlates are identified for the likelihood of growing cash crops (last three columns of Table 4.8). There is a strong geographic effect here, with cash crops being cultivated much more in the Central Highlands provinces (coffee especially) compared to the others included in the VARHS sample. Larger land area is associated with a higher likelihood to grow cash crops, and those growing cash crops are much more likely to have received credit (though this may be precisely a consequence of them choosing to grow cash crops). The third model shows a positive association between being of Kinh ethnicity and growing cash crops, though this is not evident in the other models. And there is weak evidence that those with their own means of transport are more likely to

Table 4.8 Regression results for correlates of selling rice and growing cash crops

	Sales of rice			Cultivation of cash crops		
	Pooled OLS with district FE	Household FE panel model	RE probit model	Pooled OLS with district FE	Household FE panel model	RE probit model
	coef/t	coef/t	coef/t	coef/t	coef/t	coef/t
Percentage of land area with restrictions	0.032** (2.305)	0.004 (0.308)	0.045 (0.989)	0.022*** (3.570)	-0.001 (-0.242)	0.083 (0.741)
Total land area	0.003 (0.790)	0.004 (0.973)	0.006 (0.427)	0.003 (1.438)	0.003* (1.736)	0.098*** (2.875)
Percentage of land area irrigated	0.054*** (2.817)	0.030* (1.899)	0.139*** (2.698)	0.023*** (2.658)	0.001 (0.241)	0.085 (0.691)
Area used for crop cultivation	0.022*** (3.107)	0.009 (1.081)	0.079*** (2.674)	0.009*** (2.791)	0.000 (0.056)	0.014 (0.259)
If household received credit	0.008 (0.676)	0.012 (0.967)	0.042 (1.064)	0.022*** (4.204)	0.014*** (2.932)	0.394*** (3.929)
If household has red book for its land	0.029 (1.492)	-0.006 (-0.255)	0.062 (0.958)	0.009 (0.997)	-0.024*** (-2.742)	-0.365** (-2.029)
Distance to nearest road	0.000 (1.121)	0.000 (0.375)	0.004 (1.360)	0.000 (0.593)	-0.000 (-0.053)	0.005 (0.639)
If market in commune	0.046*** (3.472)	0.079*** (5.277)	0.160*** (3.649)	-0.005 (-0.808)	-0.006 (-1.084)	-0.124 (-1.038)
If uses hybrid seed	0.023*** (4.433)	0.012** (2.524)	0.073*** (4.167)	-0.005* (-1.934)	0.002 (1.012)	0.020 (0.470)
Expenses on crop inputs	-0.002 (-1.181)	0.002 (0.987)	0.046*** (3.949)	0.001 (1.153)	0.000 (0.238)	0.026 (1.470)
Amount of hired labour	0.095*** (3.710)	0.070** (2.537)	0.424*** (3.158)	0.005 (0.671)	0.008 (1.180)	0.258 (1.601)
If household does wage work	0.018 (1.528)	0.004 (0.284)	0.049 (1.153)	-0.014*** (-2.636)	-0.000 (-0.036)	-0.077 (-0.708)
Household size	-0.010*** (-2.803)	-0.017*** (-3.054)	-0.053*** (-3.785)	0.000 (0.199)	0.001 (0.362)	0.019 (0.479)
If member of farmers' union	0.014 (1.187)	-0.003 (-0.254)	0.041 (0.954)	0.006 (1.088)	-0.004 (-0.725)	-0.075 (-0.683)
If member of women's union	-0.004 (-0.299)	-0.007 (-0.522)	-0.013 (-0.285)	-0.011** (-1.963)	-0.006 (-1.163)	-0.188 (-1.630)
If received extension	0.035*** (2.821)	0.012 (1.025)	0.087** (2.259)	0.006 (1.131)	-0.002 (-0.391)	-0.068 (-0.730)
If owns a radio	-0.003 (-0.172)	-0.015 (-0.913)	-0.029 (-0.553)	0.011 (1.633)	0.006 (1.019)	0.125 (0.993)
If has own transport	0.035* (1.932)	0.021 (1.143)	0.111* (1.913)	0.015* (1.835)	0.012* (1.828)	0.259* (1.769)
If of Kinh ethnicity	-0.082*** (-2.732)	-0.123* (-1.762)	-0.318*** (-3.532)	0.053*** (4.225)	0.008 (0.291)	0.316 (1.401)
If female headed	0.028* (1.818)	0.008 (0.209)	0.043 (0.652)	-0.005 (-0.632)	-0.017 (-1.207)	0.084 (0.395)
If speaks Vietnamese	-0.121*** (-2.779)	-0.106** (-2.059)	-0.346** (-2.272)	0.030 (1.500)	0.025 (1.260)	0.998* (1.709)
If poor (MOLISA)	-0.042*** (-2.762)	-0.058*** (-3.155)	-0.156*** (-2.915)	0.001 (0.076)	0.009 (1.353)	0.110 (0.794)
Age	0.000	0.002	0.001	-0.000	-0.001**	-0.011*

(continued)

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Table 4.8 Continued

	Sales of rice			Cultivation of cash crops		
	Pooled OLS with district FE	Household FE panel model	RE probit model	Pooled OLS with district FE	Household FE panel model	RE probit model
	coef/t	coef/t	coef/t	coef/t	coef/t	coef/t
If can read and write	(0.569) 0.002 (0.080)	(1.389) 0.003 (0.099)	(0.699) 0.078 (1.023)	(-1.635) -0.016 (-1.640)	(-2.106) -0.016 (-1.510)	(-1.791) -0.291 (-1.357)
2006 dummy	(dropped)			(dropped)		
2008 dummy	0.073*** (4.147)			-0.011 (-1.372)		
2010 dummy	0.076*** (4.247)			-0.010 (-1.189)		
2012 dummy	0.057*** (3.127)			-0.040*** (-4.730)		
2014 dummy	0.106*** (4.857)			-0.002 (-0.198)		
_cons	0.275** (2.088)	0.630*** (5.545)	0.178 (0.726)	-0.080 (-1.286)	0.216*** (4.997)	-7.355*** (-8.529)
Household FEs		y			y	
District FE	y			y		
Province FEs			y			y
/lnsig2u			-0.563*** (-6.500)			2.155*** (22.406)
Number of observations	7,335	7,335	7,335	8,004	8,004	8,004
Rho		0.432	0.363		0.818	0.896
Sigma_u		0.356	0.755		0.344	2.937
Sigma_e		0.408			0.162	

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. OLS=Ordinary Least Squares; RE=random effects; FE=fixed effects.

Source: Authors' calculation based on VARHS 2006–14 panel dataset.

grow cash crops, a factor which also had a similarly weakly significant influence in the previous models on the likelihood of selling rice.

Equivalent models for the likelihood of engaging in aquaculture are presented in Table 4.9. Here land area, receipt of credit, being literate, and being a male-headed household are all positively associated with engagement in aquaculture. Larger households are also significantly more likely to undertake aquaculture, an activity with high labour requirements. Poor households are less likely to be involved in aquaculture. We have already noted that those engaged in aquaculture 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, McKay, and Perge 2010).

Households that speak Vietnamese are slightly less likely to engage in aquaculture, perhaps reflecting the geographic pattern of this activity—with this activity, for instance, being relatively popular in the Northern Uplands.

Table 4.9 Regression results for correlates of engagement in aquaculture

	Base model			With shocks	Shocks and investments
	Pooled OLS with district FE	Household FE panel model	RE probit model	RE probit model	RE probit model
	coef/t	coef/t	coef/t	coef/t	coef/t
Percentage of land area with restrictions	-0.0171** (0.00856)	-0.00631 (0.00773)	-0.0665 (0.0673)	-0.0720 (0.0677)	0.0306 (0.0818)
Total land area	6.69e-07*** (2.01e-07)	2.44e-07 (2.27e-07)	2.41e-06** (1.22e-06)	2.33e-06* (1.22e-06)	4.72e-06* (2.43e-06)
Percentage of land area irrigated	0.00847 (0.0116)	0.00110 (0.00913)	0.0246 (0.0793)	0.0274 (0.0796)	0.111 (0.0907)
If household received credit	0.0272*** (0.00724)	0.0443*** (0.00701)	0.390*** (0.0613)	0.396*** (0.0617)	0.269*** (0.0705)
If household has red book for its land	0.0107 (0.0121)	-0.00643 (0.0130)	0.0523 (0.115)	0.0416 (0.115)	0.135 (0.131)
Distance to nearest road	-5.36e-06 (4.46e-05)	3.97e-07 (3.96e-05)	-0.000148 (0.000810)	-0.000141 (0.000764)	-0.000161 (0.000853)
If market in commune	0.000191 (0.0124)	-0.0368*** (0.00783)	-0.393*** (0.0773)	-0.406*** (0.0779)	-0.258*** (0.0828)
If household does wage work	-0.0101 (0.00749)	0.00696 (0.00793)	-0.00705 (0.0653)	-0.00881 (0.0655)	0.0345 (0.0763)
Household size	0.00693*** (0.00231)	0.0116*** (0.00331)	0.0632*** (0.0231)	0.0651*** (0.0232)	0.0188 (0.0255)
If member of farmers' union	0.00384 (0.00750)	-0.00264 (0.00759)	0.0106 (0.0649)	0.00248 (0.0653)	-0.0198 (0.0755)
If member of women's union	0.0132* (0.00777)	-0.00623 (0.00800)	0.0545 (0.0679)	0.0567 (0.0684)	0.0144 (0.0767)
If owns a radio	0.00254 (0.00951)	-0.00284 (0.00890)	-0.00162 (0.0770)	-0.000920 (0.0776)	0.0129 (0.0901)
If has own transport	0.0107 (0.0113)	0.00504 (0.00999)	0.132 (0.0908)	0.116 (0.0913)	0.0818 (0.102)
If of Kinh ethnicity	0.0245 (0.0172)	0.0516 (0.0397)	0.0448 (0.147)	0.0304 (0.148)	-0.00448 (0.146)
If female headed	0.0321*** (0.00947)	0.0338* (0.0201)	0.414*** (0.125)	0.406*** (0.125)	0.295** (0.124)
If speaks Vietnamese	-0.0451 (0.0288)	-0.0727** (0.0308)	-0.453* (0.234)	-0.447* (0.234)	-0.160 (0.341)
If poor (MOLISA)	-0.0613*** (0.00985)	-0.0253** (0.0106)	-0.415*** (0.0944)	-0.421*** (0.0947)	-0.369*** (0.112)

(continued)

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Table 4.9 Continued

	Base model			With shocks	Shocks and investments
	Pooled OLS with district FE	Household FE panel model	RE probit model	RE probit model	RE probit model
	coef/t	coef/t	coef/t	coef/t	coef/t
Age	0.000724** (0.000328)	0.000574 (0.000451)	0.00212 (0.00301)	0.00212 (0.00301)	0.00358 (0.00323)
If can read and write	0.0394*** (0.0134)	-0.00621 (0.0158)	0.239* (0.129)	0.232* (0.129)	0.215 (0.144)
If faced a natural shock				-0.139* (0.0760)	-0.0357 (0.0838)
If faced an economic shock				0.0723 (0.133)	0.0714 (0.139)
If made cash investments in aquaculture land					2.227*** (0.122)
2006 dummy	0.0592*** (0.0152)				
2008 dummy	0.0308** (0.0157)				
2010 dummy	0.0366** (0.0158)				
2012 dummy	-0.00412 (0.0134)				
_cons	-0.165* (0.0882)	0.0597 (0.0581)	-3.678*** (0.408)	-3.620*** (0.409)	-3.545*** (0.492)
Household FEs		Y			
District FE	Y				
Province FEs			Y	Y	Y
/lnsig2u			0.639*** (0.0972)	0.642*** (0.0976)	0.216* (0.128)
Observations	8,466	8,466	8,466	8,400	6,568
R-squared	0.204	0.018			
Number of unkid		1,959	1,959	1,959	1,897
Rho		0.512	0.655	0.655	0.554
Sigma_u		0.255	1.376	1.378	1.114
Sigma_e		0.249			

Note: *** p < 0.01, ** p < 0.05, * p < 0.1. RE = random effects; FE = fixed effects.

Source: Authors' calculation based on VARHS 2006–14 panel dataset.

The results in the fourth and fifth columns of Table 4.9 add further variables to the base specification. In the fourth column, natural shocks reduce the likelihood of having been engaged in aquaculture, given that they make this activity infeasible in a particular year, whereas past investment in aquaculture is, of course, positively associated with undertaking the activity. This is an activity requiring a significant degree of planning and investment. The main results here are relatively consistent across the different model specifications, including in relation to the variables added in the fourth and fifth columns.

These regression results are initial estimates, focusing only on contemporaneous correlations, and can only identify associations. They do, though, confirm several of the patterns already suggested in the descriptive analysis in Sections 4.4 and 4.5. 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.

4.7 Conclusions

This chapter has presented an initial analysis of the extent of commercialization of agriculture in these twelve provinces of rural Viet Nam, focusing on the five waves of the VARHS panel. What is clear, first, is the continuing importance of agriculture in rural Viet Nam, and this remains true for households who may now earn more of their income from wages or other sources. Second, agriculture is increasingly commercialized in rural Viet Nam, with rice sales being the main area of commercialization. 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 reflects the scale of production in a given year and perhaps available opportunities. The exception to this is Long An, where the activity is on a much larger scale, with households selling more, much more regularly, compared to any other provinces.

Cash crop production and aquaculture are clearly also commercial activities undertaken by a non-negligible minority of these surveyed households,

although strong geographic patterns exist, 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 many fluctuations from one year to another. While this is potentially a high-return activity for households, it is also 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, and a two-way process of causality is probably 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 further the panel features of the dataset. 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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5

The Rural Non-Farm Economy

Christina Kinghan and Carol Newman

5.1 Introduction

The diversification of economic activity away from the agricultural sector is a key characteristic of economic development. As households transition into different economic activities, it is likely that some will disproportionately benefit while others will be left behind (see Chapter 10). Understanding the outcomes from diversification in addition to the determinants that prompt households to diversify is therefore of great importance to policy makers. Given Vietnam's emphasis on promoting equity and social inclusion (World Bank 2016), establishing the extent to which all households have the same opportunities to pursue diversification is of particular importance.

This chapter examines the extent to which rural Vietnamese households have, in recent times, diversified away from own-farm agriculture into waged employment and entrepreneurial activities, and the impact of this diversification on welfare outcomes. We also examine whether the welfare outcomes for households that participate in more than one type of economic activity are superior to those who remain specialized in agriculture, and the characteristics of households that are most likely to diversify.

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 Vietnam 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.

Imai, Gaiha, and Thapa (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, Pham, and Ulubaşođlu (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, Barrett, and Holden (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 benefited more from off-farm activity than poorer households did.

Similarly, Lanjouw, Murgai, and Stern (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 and colleagues (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 emphasized both the opportunities to be gained from diversification and also the potential for growing income inequality among rural households.

Regarding the determinants of diversification into non-farm activity, Olugbire and colleagues (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 and colleagues (2013) also note a correlation between enterprise size and owner education. They find that the level of savings, prior work experience, and family relations/inheritance were key factors in establishing a non-farm enterprise in the Mekong Delta in 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 influences 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 that increase 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, Hazell, and Reardon (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. Vijverberg and Haughton (2002) also emphasized the role of transition in determining the extent and type of diversification. They posit that household enterprises rise in importance as an economy develops but are then replaced by better economic opportunities. In this way, an enterprise can play an important bridging role, providing an alternative to

agriculture when waged employment is scarce, but with less appeal than external employment.

In summary, the literature suggests that 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 lead to heterogeneous welfare outcomes from non-farm activity. This is of 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.

The rest of the chapter proceeds as follows. Section 5.2 describes the pattern of diversification of rural households in Viet Nam while Section 5.3 documents the transition from specialized agriculture into other activities. Section 5.4 presents an empirical analysis of the impact of diversification on welfare and of the factors that determine the transition from agriculture. Section 5.5 concludes with a discussion of the key findings and recommendations for both policy and future research in this area.

5.2 Description of Non-Farm Activities of Households

Table 5.1 details the economic activities that the sample of Viet Nam Access to Resources Household Survey (VARHS) households were involved in during the 2008–14 time period. A household's economic activity can fall into one of eight categories based on engagement in agriculture, labour, enterprises, or a combination of these, and a category for households that are inactive. The share of households engaged only in agriculture has fallen steadily from 2008–14, highlighting the micro-level structural transformation taking place in Viet Nam at the household level. Few households diversify away from agriculture completely (consistent with the findings of the commune-level analysis presented in Chapter 3), 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 increases consistently throughout the sample period.

Table 5.2 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

Table 5.1 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

Table 5.2 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

employment. We also observe a decrease in income earned by enterprises in 2012. This drop is potentially the result of poor macroeconomic conditions.

Looking at the characteristics of household enterprises, in Table 5.3 we observe that more than 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 the sector is becoming increasingly feminized (Oostendorp, Trung, and Tung 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.

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

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Table 5.3 Enterprise characteristics

	2008	2010	2012	2014	Total
<i>Gender 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
Age	2,297	44.98	11.90	11	91
Education	2,297	7.58	3.50	0	12

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

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 more than 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 11–91 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 5.A1 of the Appendix.

Regarding external employment, Table 5.4 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

Table 5.4 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 enterprise</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%)

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

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 with a formal labour contract. This indicates that the kind of employment undertaken by diversifying households may be informal.

We see further evidence of this when we examine the employers of household members. 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 5.A2 in the Appendix to this chapter.

5.3 Diversification and the Transition from Agriculture in Viet Nam

Table 5.5 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 that 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, more than 50 per cent of those who were previously engaged in agriculture only diversified their economic activities. Interestingly, those households that 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 the 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

Table 5.5 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

Table 5.6 Welfare measures, 2008–14

	Real income per capita	Real food expenditure per capita
<i>2008</i>		
Ag. only	956	237
Labour only	1,752	382
Ent. only	2,769	491
Ag. & labour	1,117	298
Ag. & ent.	2,027	397
Ag., labour, & ent.	1,503	341
Labour & ent.	1,745	415
Total	1,318	311
<i>2010</i>		
Ag. only	1,223	312
Labour only	2,139	377
Ent. only	3,400	504
Ag. & labour	1,369	321
Ag. & ent.	2,173	388
Ag., labour, & ent.	2,014	400
Labour & ent.	2,531	419
Total	1,649	349
<i>2012</i>		
Ag. only	1,627	407
Labour only	2,484	615
Ent. only	4,100	653
Ag. & labour	1,586	415
Ag. & ent.	2,185	449
Ag., labour, & ent.	1,935	445
Labour & ent.	2,755	550
Total	1,890	448
<i>2014</i>		
Ag. only	1,829	413
Labour only	2,394	506
Ent. only	4,541	681
Ag. & labour	1,742	422
Ag. & ent.	2,544	498
Ag., labour, & ent.	2,476	498
Labour & ent.	3,092	531
Total	2,082	455

Note: n = 2,181.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

income. This chapter aims to explore whether this transition leads to improvements in household welfare. To do this, we utilize two different welfare indicators: food expenditure/consumption and household income.

Expenditure on food is the key welfare indicator used in our analysis. It 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.

Table 5.6 contains the group means for these two 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) and real food expenditure (per capita). Disaggregating by economic activity, it is evident that average income is highest for households specializing in enterprise activity only in each year. Households' 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.

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 alone. 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 5.4.

5.4 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 its decision to diversify its 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 in Section 5.2, with households that are involved in agriculture only (i.e. specialized agriculture) forming the base category. The vector X_{it} includes 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 was 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, measured using an index of the assets held by an individual household. Further information on how the asset index was constructed is detailed in Chapter 10. 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 X_{it-1}) should serve as adequate controls. The model includes household fixed effects, α_i , and time dummies, τ_t ; e_{it} is the statistical noise term. Summary statistics for each of the variables included in the analysis are presented in Table 5.A3 of the Appendix.

The results for the key variables of interest are presented in Table 5.7.¹ Table 5.A4 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.

Columns (1)–(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

¹ We exclude households that report having no economic activities.

Table 5.7 Impact of diversification on household welfare

	(1)	(2)	(3)
Ag. & labour	0.074*** (0.027)	0.122*** (0.026)	0.118*** (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)	0.224*** (0.038)
Labour only	0.032 (0.073)	0.061 (0.073)	0.060 (0.074)
Ent. only	0.170** (0.072)	0.214*** (0.069)	0.200*** (0.071)
Labour & ent.	0.073 (0.068)	0.139** (0.067)	0.135* (0.069)
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

Notes: Each specification 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

engaged in agriculture and 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 5.8 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. We find that the transition out of specialized agriculture is welfare enhancing. The per capita consumption of households that move from being engaged in

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Table 5.8 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.		0.236*** (0.081)
Into other		0.125* (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

Notes: Results for the control variables are presented in Table 5.A5 of the Appendix. Each specification 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

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. A full set of results including all of the explanatory variables is detailed in Table 5.A5 of the Appendix.

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 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 5.9. 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.² 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 one-half in 2008 to only one-quarter in 2014. It should be noted that a greater proportion of ethnic minorities remain in specialized agriculture in 2014 compared with Kinh households.³ A more detailed analysis of ethnic minority households is provided in Chapter 13.

Before exploring the pattern of diversification further, we consider briefly the characteristics of the households that remain specialized in agriculture. Performing a similar analysis to that presented in Table 5.9, we find that older households and ethnic minorities are significantly more likely to remain specialized (results not shown). This implies, as suggested in Table 5.9, 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

² See Wainwright, Tarp, and Newman (2012) for a full analysis of the role of diversification in helping households to manage risks using the VARHS data.

³ This analysis focuses on waged employment and enterprise operation as the two main diversification activities undertaken by households. The results highlight that ethnic minority households are more likely to remain specialised in agriculture; however diversification into other areas is also possible. Approximately 80 per cent of ethnic minority households earn income from common property resources compared to only 23 per cent of Kinh households. Looking at the proportion of income earned by ethnic minorities from different sources, however, shows that approximately 50 per cent of income comes from agriculture and 8 per cent from common property resources, revealing that these households are still highly reliant on agriculture.

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Table 5.9 Determinants of the transition out of agriculture

	(1)	(2)	(3)	(4)	(5)
	Transitioned out of ag.	Diversified into labour & ag.	Diversified into enterprise & ag.	Diversified into labour, enterprise, & ag.	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 ^a	-0.005 (0.018)	0.068 (0.053)	0.002 (0.046)	-0.048 (0.037)	-0.071 (0.053)
Lag married ^a	-0.007 (0.019)	0.029 (0.051)	-0.009 (0.040)	-0.039 (0.035)	-0.060 (0.056)
Lag age ^a	0.001 (0.001)	-0.002 (0.001)	0.000 (0.001)	-0.001* (0.001)	0.002* (0.001)
Lag higher ed. ^a	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

Notes: ^a Refers to characteristic of the head of household. Each specification 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

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 maintained 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 level of households is the main determinant of the transition from specialized agriculture and the types of activities into which households transition.

5.5 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

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access, and others. Future research is needed to understand the relative importance of these factors in cultivating enterprises, especially given the focus in Viet Nam's reform agenda up to 2035 of developing a facilitating environment for enterprise operation (World Bank 2016). 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.

Appendix

Table 5.A1 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

Source: Authors' compilation based on survey data comprised from VARHS for the years 2008 to 2014.

Table 5.A2 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

Source: Authors' compilation based on survey data comprised from VARHS for the years 2008 to 2014.

Table 5.A3 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	0.36	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

Source: Authors' compilation based on survey data comprised from VARHS for the years 2008 to 2014.

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Table 5.A4 Impact of diversification on household welfare, results for control variables

	Table 5.7 Column (2)	Table 5.7 Column (3)
Asset index	0.092*** (0.014)	0.094*** (0.015)
HH size	-0.131*** (0.013)	-0.131*** (0.013)
Female	0.001 (0.079)	0.002 (0.082)
Married	0.061 (0.068)	0.065 (0.070)
Age	0.002 (0.002)	0.003 (0.002)
Higher education	0.008 (0.037)	0.006 (0.038)
Children	0.051* (0.031)	0.064** (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		-0.019 (0.014)
L.Asset index		0.019 (0.012)
L.HH size		0.013 (0.012)
L.Female		-0.006 (0.073)
L.Married		-0.050 (0.061)
L.Age		-0.001 (0.002)
L.Higher education		-0.004 (0.032)
L.Children		-0.072** (0.033)
L.Ethnic minority		0.041 (0.112)
L.Natural shock		-0.003 (0.020)
L.Economic shock		0.001 (0.024)

Notes: Each specification 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 2014.

Table 5.A5 Impact of diversification out of agriculture on household welfare, results for control variables

	Table 5.8 Column (1)	Table 5.8 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	-0.130*** (0.013)	-0.131*** (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	0.064** (0.032)	0.066** (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	-0.020 (0.014)	-0.019 (0.014)
L.Asset index	0.019 (0.012)	0.019 (0.012)
L.HH size	0.013 (0.012)	0.014 (0.012)
L.Female	-0.005 (0.073)	-0.001 (0.073)
L.Married	-0.048 (0.060)	-0.047 (0.060)
L.Age	-0.0001 (0.002)	-0.0001 (0.002)
L.Higher education	-0.004 (0.032)	-0.005 (0.032)
L.Children	-0.073** (0.033)	-0.073** (0.033)
L.Ethnic minority	0.044 (0.11)	0.044 (0.11)

(continued)

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Table 5.A5 Continued

	Table 5.8 Column (1)	Table 5.8 Column (2)
L.Natural shock	-0.003 (0.020)	-0.002 (0.020)
L.Economic shock	0.003 (0.0247)	0.001 (0.024)

Notes: Each specification 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.

Source: Authors' calculation based on survey data comprised from VARHS for the years 2008 to 14.

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Part II

Key Production Factors and Institutions

6

Land Issues

Markets, Property Rights, and Investment

Thomas Markussen

6.1 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, Tarp, and van den Broeck 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, Tarp, and van den Broeck (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 and colleagues (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 issues in Viet Nam from different angles. The Viet Nam Access to Resources Household Survey (VARHS) includes a highly detailed land module. In contrast with most other large-scale economic surveys, it collects panel data not only at the household but also at the land plot level. This is highly useful in some of the analyses I conduct.

The chapter first considers access to agricultural land by reporting the share of landless rural households (Section 6.2).¹ It then turns to analysing issues of farm size and land fragmentation (Section 6.3), land sales and rental markets (Section 6.4), and property rights to land (Section 6.5). While the first five sections are mainly descriptive, Section 6.6 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 6.7 concludes.

6.2 Landlessness

I 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 6.1 (panel a) 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.² There is significant variation across regions. Landlessness is highest in the Mekong River Delta (MRD) 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 the Red River Delta might be driven by improving off-farm opportunities in and around Hanoi. It is unclear what explains the large drop in landlessness in the MRD between 2012 and 2014.

Figure 6.1 (panel b) 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 6.1; landlessness is most prevalent in the Southern and

¹ Other overviews of land issues in Viet Nam include Kerkvliet (2006); Brandt (2006); and Marsh, MacAulay, and Hung (2006).

² 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.

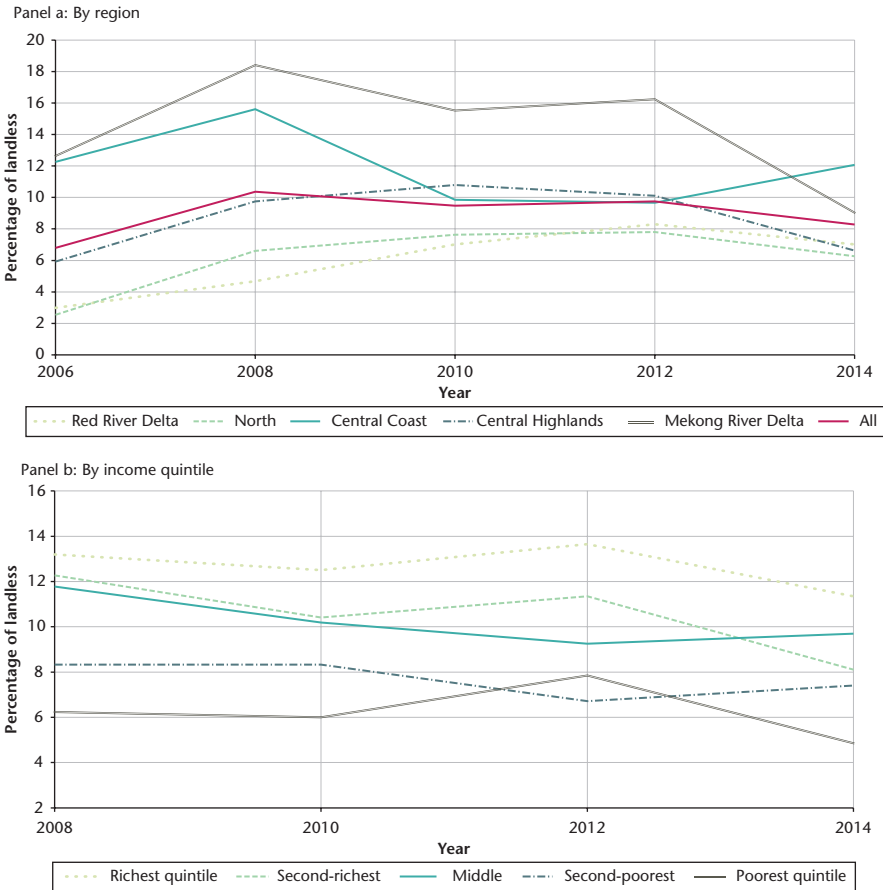


Figure 6.1 Landlessness

Notes: N = 2,162 (Observed in each year, i.e. there are 5 x 2,162 = 10,810 observations). Only households that neither own nor operate any agricultural land are defined as landless.

Source: Author’s calculations based on VARHS 2006–14.

Central Lowlands, which are also relatively rich regions. However, the positive association between landlessness and income is present within each region, except the Central Highlands, where there is no clear correlation between income and landlessness (results not shown). 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.

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.

6.3 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, each farm tends to be divided into lots of 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 6.2 (panel a) shows median farm size (defined as operated agricultural area) by region. 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 MRD, meaning that landholdings per household were significantly lower in Red River Delta (Gourou 1936; Popkin 1979).

The figure shows a moderate decrease in median farm size over time (from around 3,700 m² to around 3,250 m² significant at the 1 per cent level in a median regression).³ 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 larger than in other regions in 2006. A possible explanation is return to scale in commercialized agriculture, in particular coffee production, which is prevalent in the Central Highlands.

Figure 6.2 (panel b) 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

³ The decrease in median farm size is somewhat stronger when the full, representative VARHS sample is used (from 3,700 m² in 2006 to 3,050 m² in 2014).

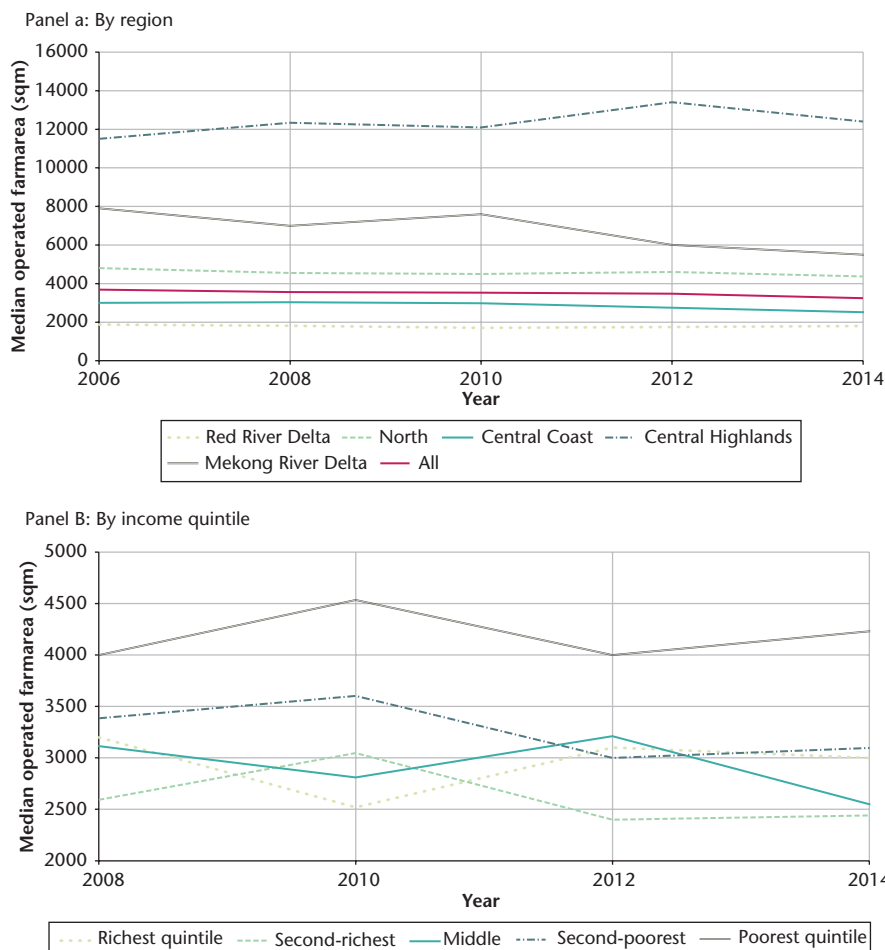


Figure 6.2 Farm size

Notes: 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.

Source: Author's calculations based on VARHS 2006–14.

the figure does not account for the quality of land and that land in the highlands is often of lower quality than in the lowlands. The incidence of 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 (cf. Chapter 5).

While Figure 6.2 considers 'inter-farm land fragmentation' (the division of land between many, relatively small farms), Figure 6.3 presents results on

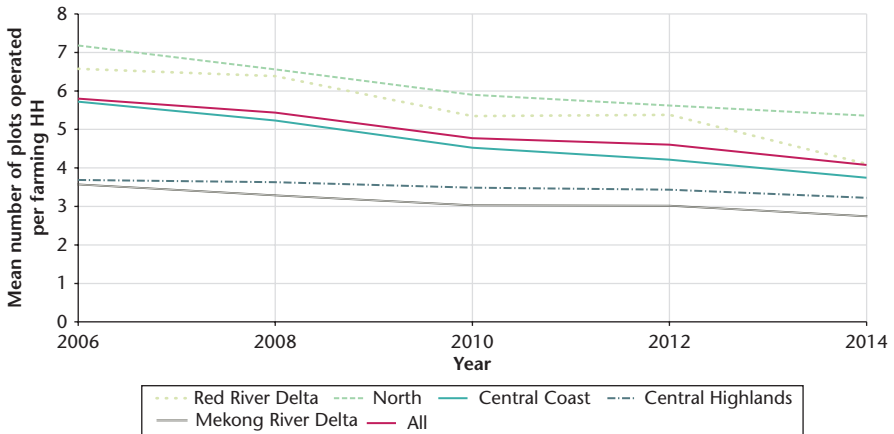


Figure 6.3 Number of plots operated, by region

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

Source: Author’s calculations based on VARHS 2006–14.

‘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. The Viet Nam government 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 6.3 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.

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

6.4 Land Markets

In a dynamic economy such as Viet Nam's, 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 and colleagues (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).

Figure 6.4 shows the share of households that purchased (panel a) or sold (panel b) 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 large 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. Figure 6.4 also shows that participation rates in land sales markets tend to be higher in the MRD than in northern and central areas, although activity levels are much lower in the MRD than in the Central Highlands.

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 6.5 presents 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

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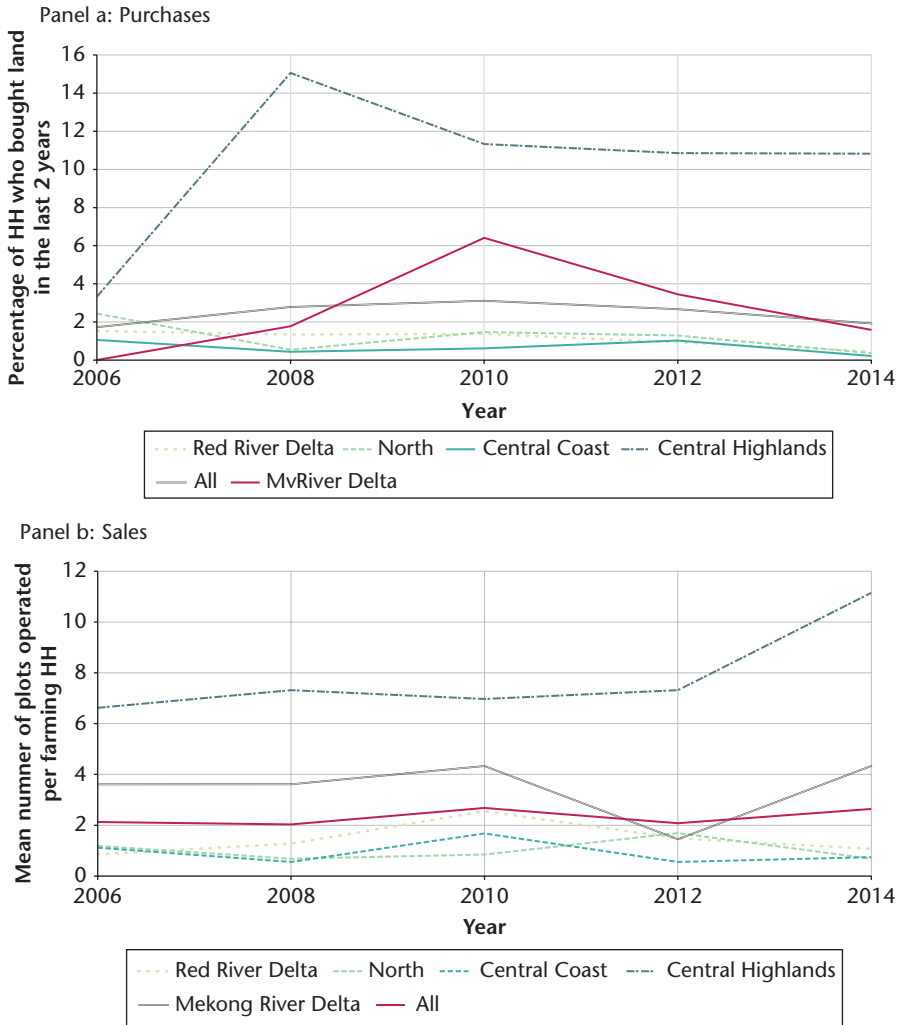


Figure 6.4 Land purchases and sales in the last two years, by region

Notes: Panel a: N = 2,025 households in 2006 (slightly less in later years). Only land-owning households included. Panel b: N = 2,162 households.

Source: Author's calculations based on VARHS 2006–14.

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.

I now turn to considering the land rental market. Figure 6.6 shows, 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

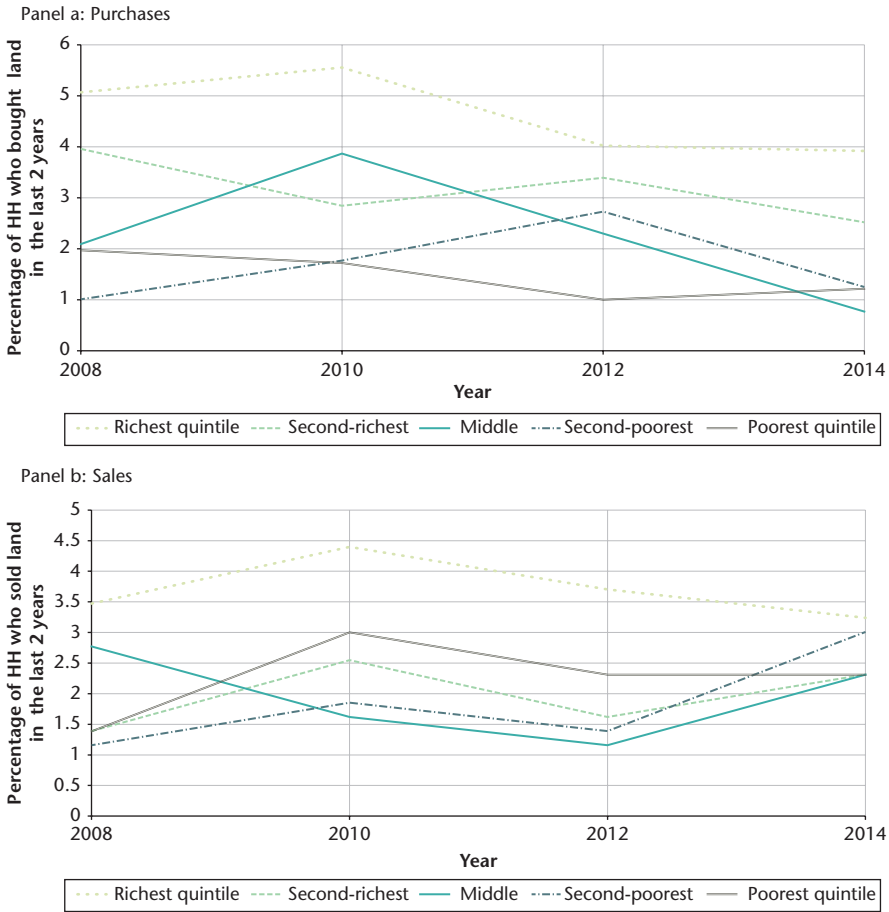


Figure 6.5 Land purchases and sales in the last two years, by income quintile
 Notes: Panel a: N = 1,938 households in 2008 (slightly more in later years). Only land-owning households included. Panel b: N = 2,162 households.
 Source: Author’s calculations based on VARHS 2008–14.

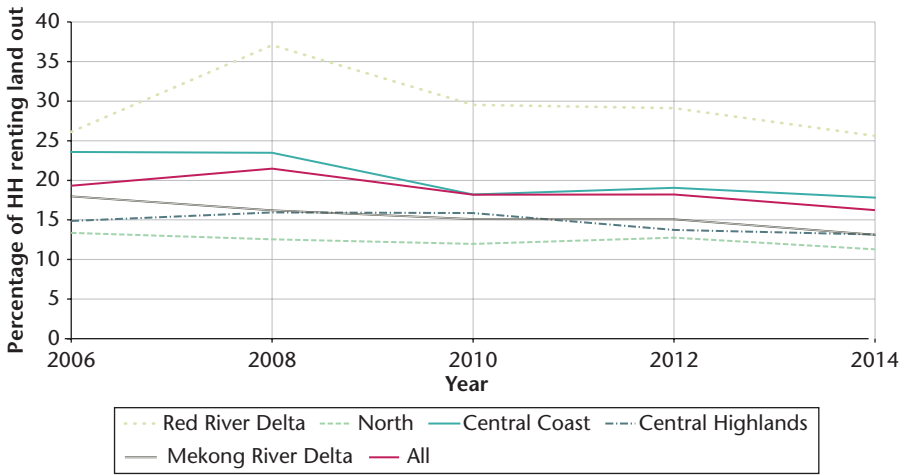
most active region is the Red River Delta, followed by the Central Coast. The North is the least active region in the case of renting in, while the Central Highlands are least active in terms of renting out.⁴ Hence, in the Red River Delta, low activity of land sales markets are, to a large extent, compensated for by high activity in rental markets. In the North, however, this is not the case.

There are clear time trends: the share of households renting land in is decreasing, while the share renting land out is increasing. These opposite

⁴ 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.

Key Production Factors and Institutions

Panel a: Renting in



Panel b: Renting out

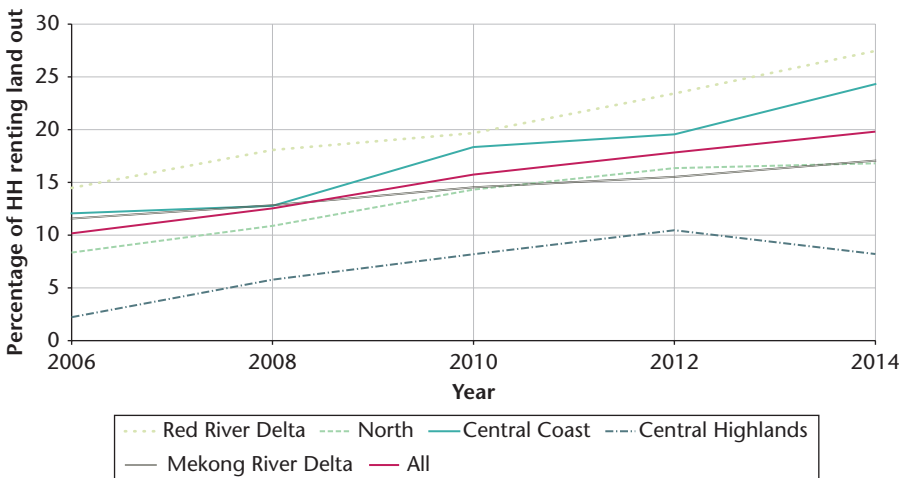


Figure 6.6 Share of households renting land in and out, by region

Notes: Panel a: N = 1,953 households in 2006 (slightly less in later years). Only households operating agricultural land included. Panel b: N = 2,015 households in 2006 (slightly less in later years). Only land-owning households included.

Source: Author's calculations based on VARHS 2006–14.

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 (3 percentage points), suggesting that overall activity levels

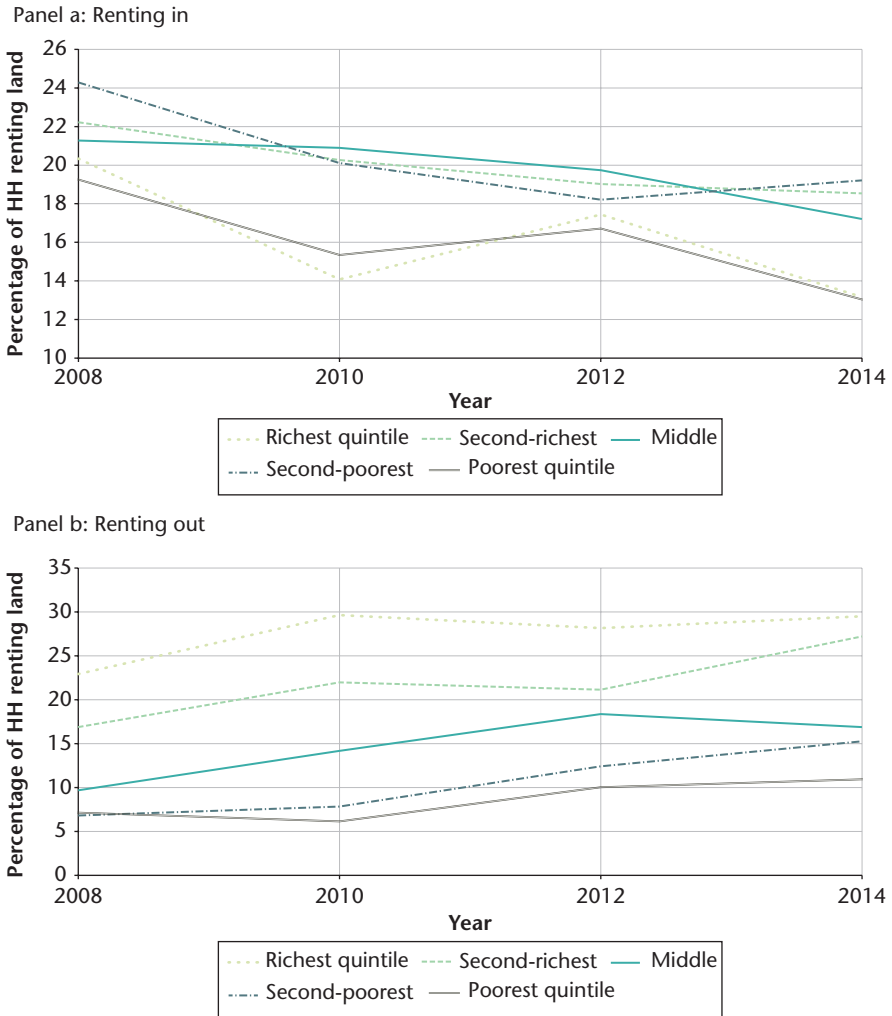


Figure 6.7 Share of households renting land in and out, by income quintile
Notes: Panel a: N = 1,876 households in 2008 (slightly deviations from this in later years). Only households operating agricultural land included. Panel b: N = 1,938 households in 2008 (slightly more in later years). Only land-owning households included.
Source: Author’s calculations based on VARHS 2008–14.

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 6.7 shows rental market participation by income quintile. Results are quite interesting. There is no clear correlation between income and participation rates on the demand side (panel a). 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 (panel b), 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.⁵ These findings are consistent with the results reported in Deininger and Jin (2008) and in Khai and colleagues (2013). Differences across income groups are stable over time.

6.5 Property Rights

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 twenty years' use rights for plots designated for annual crops land and fifty 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 fifty 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. This section focuses on formal property rights to land; that is, LUCs.

Figure 6.8 shows the share of land plots held with an LUC. Only plots owned by households are included, that is, 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

⁵ In principle, an alternative explanation could be that richer households rent out to companies, rather than renting out to poor households. However, data on the identity of tenants show that less than 2 per cent of tenants on plots rented out were firms.

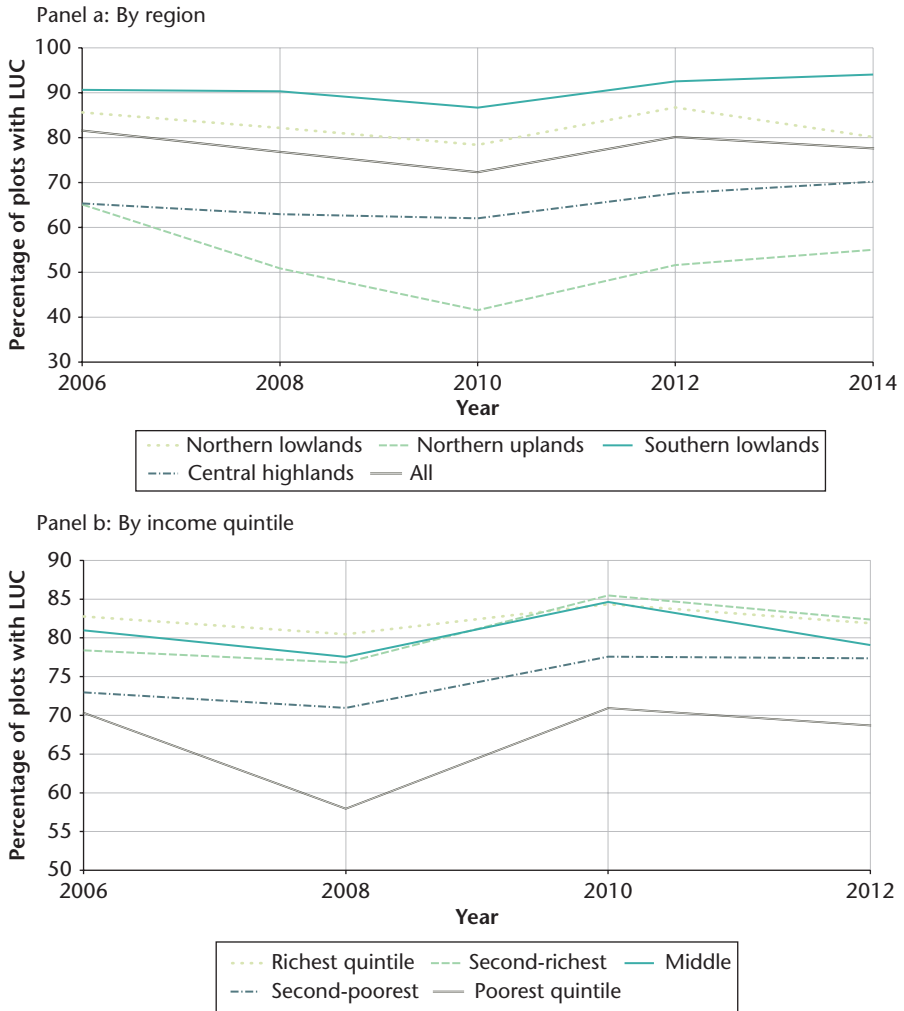


Figure 6.8 Land-use certificates

Notes: Panel a: N = 9,910 plots in 2006 (slightly less in later years). Only plots owned by households included (i.e. plots rented in are excluded). Panel b: N = 9,422 plots in 2008 (somewhat less in later years). Only plots owned by households included (i.e. plots rented in are excluded).

Source: Author's calculations based on VARHS 2006–14.

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 an LUC. This probably explains the downward trend in titling in the Northern Uplands, where forest clearing is most prevalent. There is important, interregional variation in land titling. Titling is most prevalent in the MRD, where almost all plots are held with an LUC. Titling is

least prevalent in the Central Highlands. There is significant heterogeneity within the North. Titling is very widespread in 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.

Panel b of Figure 6.8 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 in panel a of Figure 6.8 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 in Section 6.6 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.

6.6 Effects of Land Titles on Agricultural Investment

Section 6.5 documented the fact that while a large share of plots are held with an LUC ('titled'), titling is not complete, and varies significantly across regions. This section analyses the *effects* of variation in land rights. In particular, I 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.⁶

A large literature investigates the effects of land property rights on agricultural investment.⁷ 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 (both types of landscape are, in many cases, present in the same community). 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

⁶ Most LUCs have been distributed through 'systematic' (supply-driven) titling programmes. Households with plots not covered by such programmes can apply for 'sporadic' (demand-driven) titling. However, this process involves considerable cost to the households, in part because of corruption in land administration (cf. Anderson and Davidsen 2011). This potentially explains why some households do not acquire titles even though they would benefit considerably from having them.

⁷ See, e.g., Feder and Onchan (1987); Besley (1995); Braselle et al. (2002); Carter and Olinto (2003); Jacoby and Mansuri (2008); Do and Iyer (2008); Markussen (2008); Hornbeck (2010).

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, as many potentially important plot characteristics (soil type, quality of irrigation, etc.) are difficult to measure precisely. In addition to using control variables, one might attempt to solve identification problems through instrumental variables methods, as, for example, in Besley (1995). 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 dataset 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, Tarp, and van den Broeck (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.⁸ 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. I 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.

⁸ 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.

I estimate plot level regressions models of the following type:

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

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 an LUC. This is the main variable of interest. $RESTRIC$ is an indicator for crop choice restrictions. On many plots, the choice of which crops to grow is restricted by land use plans. Most commonly, households are compelled to grow rice (Markussen, Tarp, and van den Broeck 2011). This indicator for crop choice restrictions 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. 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 a certain amount of time and skills. The symbol θ_p is a plot fixed effect, equivalent to including a dummy variable for each plot in the dataset; γ_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; and ϵ_{pt} is an error term. I 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. I 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 6.1 presents results of estimating this model. 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 6 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

Table 6.1 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

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

Source: Author's calculations based on VARHS 2006–14.

may in themselves strengthen a household's claim to a plot of land, thus reducing the demand for an LUC (Besley 1995; Braselle, Gaspart, and Platteau 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, and so on. The dataset 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 5 percentage points more likely to have soil and water conservation infrastructure after titling than

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Table 6.2 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

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

Source: Author's calculations based on VARHS 2006–14.

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 a 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.⁹ Overall, the results support the view that stronger land property rights, in the form of land titles, increase agricultural investment by households.

Table 6.2 investigates whether the effect of LUCs on irrigation differs across regions. The table repeats regression (1) in Table 6.1 for each of the five regions analysed. 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, I conducted the analyses separately for Phu Tho and for the highland provinces (Dien Bien, Lai Chau, and Lao Cai). As explained in Section 6.5, 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 6.2: there is no effect of titling in Phu Tho and a strong significant effect in the other three provinces. Compare

⁹ There is a positive but small and insignificant effect of LUCs on irrigation from wells.

this with Figure 6.8 (panel a) and the discussion in Section 6.5, which showed that LUCs are much less prevalent in the highlands than in the lowlands.

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, Tarp, and van den Broeck 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, that is, 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 may easily arise. In contrast, land clearing is almost entirely absent in the lowlands.

6.7 Conclusions

This chapter investigated a number of topics related to agricultural land. First, I showed that landlessness among the VARHS panel households is low (around 8 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, I showed 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 (that is, no evidence of small farms being merged into larger ones). On the other hand, I found 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 m², one-sixteenth of a hectare).

The chapter also considered land markets. I showed 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, combined with

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the rapid changes in economic circumstances, related, for example, to the coffee boom, in these provinces. Rich households are more active than poor 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, I investigated property rights to agricultural land. I found that about 80 per cent of plots are held with an 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 MRD is only about 2 per cent. Richer households are significantly more likely to hold titled plots than poorer households.

I used fixed effects regressions at the plot level to investigate the effects of LUCs on agricultural investment. While I found 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 systematic land-titling programmes in the Northern Uplands and Central Highlands.

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7

Labour and Migration

Gaia Narciso

7.1 Introduction

According to the 2009 Vietnamese census, 6.6 million people migrated within Viet Nam over the period 2004–9 (United Nations Vietnam 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 (United Nations Vietnam 2010), 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 sending households and analyse the labour market effects of migration in rural Viet Nam, on the basis of the Viet Nam Access to Resources Household Survey (VARHS) conducted in 2012 and 2014. The economics literature has extensively explored the determinants of migration. The seminal article 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 analysed 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.¹

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

This chapter discusses differences across households with a migrant on the basis of reasons for migrating and explores the features of migrants and sending households. We try to establish whether a positive or negative self-selection of migrants can be identified. In particular, we focus on the labour market effects of migration. We investigate the move out of agriculture into more waged employment in urban and rural areas, thus complementing the findings presented in Chapter 4 on the non-farm rural economy. Next, we examine the households that receive remittances and how they are used. Finally, we uncover the role of migration as shock-coping mechanisms in rural Viet Nam.

This chapter is organized as follows. Section 7.2 provides a policy background on migration directives in Viet Nam and an overview of the literature. Section 7.3 describes the data, while Section 7.4 investigates the features of sending households. Section 7.5 discusses the characteristics of migrants, while remittance behaviour is explored in Section 7.6. Section 7.7 presents the results of the econometric investigation of the role of migration as a risk-coping mechanism, while Section 7.8 investigates the relationship between migration and access to credit. Section 7.9 concludes.

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

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 (GSO 2011).

The socioeconomic repercussions of migration have spurred the Viet Nam government to implement a number of national regulations aimed at managing internal migration. The range of Decrees and Decisions aim to ensure socioeconomic development, political security and social safety in the receiving areas. The Decisions also state migrants' responsibilities.

In particular, migrants are expected to fully comply with the regulations on migration, in relation to civil registration (the *ho khai* system).²

A few studies have investigated patterns of migration in Viet Nam. Using the VHLSS, Nguyen and co-authors (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, Raabe, and Grote (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 (2016) 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.

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 on the role of internal migration in rural Viet Nam.

7.3 Data

Our data come from the 2012 and 2014 VARHS, which provide a detailed picture of the incomes, assets, and access to resources of rural households in twelve provinces.³ While data have been gathered using this survey instrument since 2006, in 2012, a new module was introduced to capture information on migration.⁴

² It is estimated that over 5 million Vietnamese do not have permanent registration where they live and are therefore excluded from health-care provision, access to schooling, and social protection (World Bank 2016). Loosening the link between access to services and registration would enhance equality of opportunities for migrants (World Bank 2016).

³ See CIEM (2011) and CIEM, DERG, and IPSARD (2013) for comprehensive descriptive reports of the data gathered in each round of the survey.

⁴ The analysis in this chapter relies on the information provided by sending households only.

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Table 7.1 Inter-province and intra-province migration

	2012		2014	
	All migrants (%)	Working migrants (%)	All migrants (%)	Working migrants (%)
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

Source: Author's calculations based on the VARHS database.

According to the 2012 VARHS, about 20 per cent of interviewed households have at least one member who has migrated, of which 48 per cent are working migrants. We do not observe much variation over time, as in 2014 the percentages of households with a migrant and households with a working migrant are indeed very similar (19.60 and 48 per cent, respectively). About 22 per cent of sending households have a permanent migrant in 2012, while 63 per cent of sending households have a migrant who is only away temporarily. Two years later, about 15 per cent of sending households have at least one permanent migrant, while 69 per cent have at least one temporary migrant.

The majority of migration occurs across provinces. In 2012, about 62 per cent of the sending households reported 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 either to move to another province or to move internationally (see Table 7.1). We observe a significant increase in inter-province migration in 2014, as 73 per cent of migrants moved to another province. A significant increase is also noted in international migration, as 10 per cent of working migrants are reported to have migrated abroad.

Table 7.2 presents the percentage of households with a migrant by province and the percentage of households with a working migrant. According to the 2012 VARHS, the province with 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. Most of the provinces show a remarkable increase in the number of households with a migrant. It appears indeed that migration is continuing to rise at a remarkable speed.

Table 7.2 Province of origin

Province	2012		2014	
	Households with a migrant (%)	Households with a working migrant (%)	Households with a migrant (%)	Households with a working migrant (%)
Ha Tay	18.02	9.18	17.32	9.34
Lao Cai	18.09	9.52	5.61	3.74
Phu Tho	16.71	6.23	20.78	10.65
Lai Chau	7.69	1.54	15.55	5.18
Dien Bien	14.29	7.32	24.41	7.09
Nghe An	47.11	36.44	24.12	16.67
Quang Nam	27.22	8.88	17.45	7.99
Khanh Hoa	17.71	7.29	26.85	17.59
Dak Lak	17.68	7.31	28.39	8.02
Dak Nong	17.70	7.96	28.15	11.85
Lam Dong	20.78	2.60	28.20	8.97
Long An	7.19	3.12	13.51	6.61

Source: Author's calculations based on the VARHS database.

Table 7.3 Province of destination

	2012		2014	
	Observations	%	Observations	%
Ha Noi	193	26.55	176	26.99
Ho Chi Minh	120	16.51	134	20.55
Da Nang	70	9.63	49	7.52
Nghe An	40	5.50	19	2.91
Quang Nam	37	5.09	7	1.07
Binh Duong	24	3.30	14	2.15
Phu Tho	22	3.03	15	2.30
Dien Bien	21	2.89	22	3.37
Dak Lak	19	2.61	26	3.99

Source: Author's calculations based on the VARHS database.

Where do migrants move to? Table 7.3 reports the list of the main provinces receiving migrants. Ha Noi and Ho Chi Minh provinces received the highest share of migrants in our sample in 2012, 26.55 and 16.51 per cent, respectively, supporting the idea that migrants tend to converge in big urban cities.⁵ This pattern is even more remarkable in 2014, as Ha Noi and Ho Chi Minh provinces attracted 26.99 and 20.55 per cent share of migrants, respectively, in our sample.

Table 7.4 presents the reasons for migration, distinguishing between temporary and permanent migrants. The majority of temporary migrants are away

⁵ These results might be driven by the distribution of provinces in our sample.

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Table 7.4 Reasons for migrating

	All migrants (%)	Temporary migrants (%)	Permanent migrants (%)
2012			
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
Other	1.08	0.8	4.51
2014			
Work/looking for work	45.54	47.06	24.76
Education	36.63	44.57	1.90
Marriage/family reunification	10.72	2.27	60
Army service	4.04	4.75	0.95
Other	3.06	1.36	12.38

Source: Author's calculations based on the VARHS database.

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.

7.4 Household Characteristics

Are households with a migrant wealthier? In order to address this issue we consider the distribution of sending and non-sending households by expenditure quintile. The results are shown in Table 7.5. A smaller percentage of sending households is in the first food expenditure quintile.⁶ The difference is particularly striking if we look at households with a working migrant, where the percentage of households in the first quintile in 2012 is just 11.34 per cent compared to 22.28 per cent of households with no migrants. A much higher percentage of households with a working migrant is in the last food expenditure quintile, therefore indicating that households with a working migrant are wealthier. The distribution of sending and non-sending households appears to be unchanged in 2014. The aim of Table 7.5 is to present a simple but informative correlation between household wealth and migration status. However, we cannot infer from these summary statistics whether sending 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.

⁶ This result is in line with the findings presented in Chapter 10 on welfare dynamics.

Table 7.5 Distribution of households by migration status and food expenditure quintile

Food expenditure quintile	Distribution of households with a migrant (%)	Distribution of households with a working migrant (%)	Distribution of households with no migrant (%)
2012			
1	13.31	11.34	22.28
2	18.40	18.62	21.18
3	19.96	23.48	18.61
4	19.37	16.60	20.18
5	28.96	29.96	17.75
2014			
1	14.42	10.85	20.77
2	14.42	12.02	20.68
3	21.35	21.71	20.95
4	20.60	21.32	19.85
5	29.21	34.11	17.75

Source: Author's calculations based on the VARHS database.

Table 7.6 Household characteristics by migration status

Variable	Households with a migrant	Households with no migrant	Difference
	(1)	(2)	(1)–(2)
2012			
Age	41.59	41.61	–0.02
Net income ('000 VND)	2270	1820	450***
Kinh	87.47%	78.16%	0.09***
Economic shock	18.98%	18.51%	0.00
Natural shock	37.38%	28.26%	0.09***
2014			
Age	39.84	43.82	–3.97***
Net income ('000 VND)	2467	1940	527***
Kinh	82.21%	79.05%	0.03
Economic shock	13.67%	13.19%	0.01
Natural shock	25.47%	22.73%	0.03

Note: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

Table 7.6 compares sending and non-sending households in terms of a set of demographic features. Heads of non-sending households tend to be older than sending household heads and the difference is statistically significant at the 5 per cent level in 2014, while no statistically significant difference appears in 2012. Sending households have a higher net income than non-sending households and the difference is statistically significant in both years. This finding is indeed consistent with the summary statistics presented in Table 7.5 on food expenditure quintiles. Ethnicity also seems to play a role. A higher percentage of households with a migrant belong to the Kinh ethnic

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group in 2012, compared to non-sending households, suggesting that they either have more opportunities for migration or are more willing to do so.⁷ Finally, a larger proportion of sending households are affected by natural shocks in 2012, but no difference appears to exist in terms of exposure to shocks in 2014.

Given the different reasons for migrating, Table 7.7 presents the characteristics of households with a working migrant with respect to households with no non-working migrant. Heads of households with a working migrant tend to be older than non-working migrant household heads and the difference is statistically significant in 2014. Net household income is higher in households with a working migrant in both years. Kinh households are found to be 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 households with a working migrant with respect to households with no working migrant in either year. We explore this aspect in the regression analysis in Section 7.7.

Table 7.7 Household characteristics by reason of migration

Variable	Households with a working migrant	Households with other migrant	Difference
	(1)	(2)	(1)–(2)
2012			
Age of household head	42.75	40.51	2.24
Net income ('000 VND)	2534	2024	510*
Kinh	89.47%	85.60%	0.04
Total land owned (ha)	5034.41	7194.00	–2159.59**
Economic shock	16.60%	21.21%	–0.05
Natural shock	40.89%	34.09%	0.07
2014			
Age of household head	41.60	38.21	3.58***
Net income ('000 VND)	2732	2220	511***
Kinh	86.43%	78.26%	0.08**
Total land owned (ha)	6503.15	6772.14	268.99
Economic shock	12.79%	14.49%	–0.02
Natural shock	24.80%	26.09%	–0.01

Note: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

⁷ 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 7.8 Migrant and working migrant characteristics

Migrants characteristics (variable)	All migrants		Working migrants		t-Test of difference
	Mean	SD	Mean	SD	
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	***

Note: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

7.5 Migrant Characteristics

Table 7.8 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 that 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 intended 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.

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 7.9 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 of

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Table 7.9 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 related 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

Source: Author's calculations based on the VARHS database.

Table 7.10 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

Source: Author's calculations based on the VARHS database.

migrant workers are employed in top or mid-level occupations. With respect to 2012, the 2014 data show a decrease in the percentage of migrants involved in unskilled occupations. At the same time, migrants appear to be more involved in mid-level occupations, across all fields. The summary statistics presented in Table 7.9 further support the evidence shown in Chapter 4 regarding the movement out of agricultural activities in Viet Nam.

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 7.10 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 found an occupation in the location of destination either through an employment service or, more generally, through self-seeking. This is a rather interesting pattern that suggests migrants may have migrated to a specific destination without the support of an existing migration network.

7.6 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). Although our data do not allow us to uncover the motives for sending remittances, we can explore the characteristics of those who receive remittances and those who do not and analyse the reasons for sending as reported by the receiving households. We observe a slight increase in the percentage of households receiving remittances: about 26 per cent of migrant households in our sample received remittances in 2012, while the percentage rose to 30 per cent in 2014.⁸ Remittance-recipient households differ on many aspects with respect to migrant households that do not receive remittances. Table 7.11 shows that remittance-recipient households have an older household head than non-remittance-recipient households in either year. Net household income of remittance-recipient households is greater and the difference is statistically significant at the 1 per cent level in 2014. We will further investigate the role of remittances in boosting household welfare in the next section. Ethnicity appears to matter, as Kinh households tend to receive more remittances than other ethnic minorities household—the difference is statistically significant at the 5 per cent level in 2014. Finally, remittance-recipient households are as likely as non-remittance-recipient households to be affected by economic of shocks in either year, although they are more likely

Table 7.11 Remittance-recipient and non-remittance-recipient household characteristics

Variable	Remittance-recipient households (1)	Non-remittance-recipient households (2)	Difference (1)–(2)
2012			
Age of household head	46.20	40.02	6.18***
Net income ('000 VND)	2602	2158	444
Kinh	91.54%	86.09%	0.05
Economic shock	14.61%	20.47%	–0.06
Natural shock	48.46%	33.60%	0.15***
2014			
Age of household head	42.40	38.72	3.69***
Net income ('000 VND)	2904	2273	630 ***
Kinh	87.19%	80%	0.07**
Economic shock	14.02%	13.51%	0.00
Natural shock	25.61%	25.40%	0.00

Note: * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

⁸ Chapter 9 further investigates the role of private transfers in the household income composition.

Table 7.12 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

Source: Author's calculations based on the VARHS database.

to experience natural shocks in 2012. We explore further the relationship between remittances and shocks in the next section.

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 that characterizes the relationship between migrants and their family of origin. Ashraf and colleagues (2015), Batista and Narciso (forthcoming), Elsner, Narciso, and Thijssen (2013), and McKenzie, Gibson, and Stillman (2013) 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 7.12 compares how remittances are used by households, with respect to migrants' purpose for sending remittances.

According to column 1, remittances are mainly spent for daily expenses (i.e. daily consumption and bills). The second largest category is savings, followed by expenses for special occasions and medical and educational expenses.⁹ 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.

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,

⁹ The majority of migrants send remittances every month.

a result which is mainly driven by the large number of migrants who moved for motives of education. However, it is interesting to note that a percentage of working migrants also receive transfers (7 per cent in 2012, 15 per cent in 2014), therefore highlighting the potential vulnerability working migrants face—an issue that needs further investigation in future research.

7.7 How Does Migration Impact the Welfare of Sending Households?

To explore this question we create a household panel that tracks sending and non-sending households in 2012 and 2014. We consider the extent to which migration serves as a risk-coping mechanism and estimate the following model:

$$\Delta FoodExp_pc_{ht} = \beta_1 migrant_{ht} + \beta_2 shock_{ht} + X'_{ht}\gamma + \alpha_h + \tau_t + \epsilon_{ht}, \quad (1)$$

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 has a migrant away at time t and 0 otherwise; the indicator variable $shock_{ht}$ measures whether the household experience a shock (either economic or natural shock); and 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 (α_h) and time fixed effects (τ_t). Table 7.13 presents the results of this simple exercise.

The estimated coefficient of the shock variable is not statistically significant (Table 7.13, column 1), a result which is likely due to the different nature of shocks a household can face. Interestingly, migrant households show higher food expenditure per capita and the relationship is statistically significant at the 1 per cent level. This result holds also when we control for the set of household characteristics (column 2). In column 3 we interact the shock dummy variable with the indicator variable of being a sending household. We find that sending households are not affected by shocks differently from non-sending 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 such as education, family reunification, or military service. Column 4 shows that having a migrant outside the household has a positive and statistically significant impact on the change in per capita food expenditure, for households with a working migrant and households with another type of migrant, relative to non-sending 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,

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Table 7.13 Migration and food expenditure

Variables	Change in per capita food expenditure					
	(1)	(2)	(3)	(4)	(5)	(6)
Shock	4.69 (16.505)	4.32 (16.581)	-0.76 (17.840)	4.66 (16.535)	4.28 (16.611)	-0.75 (17.848)
Migrant	85.49*** (20.331)	84.05*** (20.418)	75.24*** (27.263)			
Migrant × shock			20.85 (38.517)			
Kinh		-18.09 (189.883)	-19.27 (190.547)		-18.14 (190.025)	-22.31 (189.797)
Age of household head		0.83 (0.794)	0.82 (0.790)		0.83 (0.793)	0.82 (0.792)
Female household head		44.80 (58.360)	44.91 (58.386)		44.80 (58.352)	45.08 (58.379)
Working migrant				87.81*** (28.502)	86.10*** (28.574)	67.92* (39.651)
Other migrant				83.42*** (25.542)	82.23*** (25.599)	81.14** (33.062)
Working migrant × shock						43.52 (53.394)
Other migrant × shock						2.36 (48.656)
Observations	4,739	4,738	4,738	4,739	4,738	4,738
Number of households	0.024	0.025	0.025	0.024	0.025	0.025
Adjusted <i>R</i> -squared	2,716	2,715	2,715	2,716	2,715	2,715

Notes: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

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 both type of migrant households and the change in per capita food expenditure are still positive and statistically significant.

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 7.14 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 sending households are able to offset the impact of the natural shock on the change in per capita food expenditure. In columns 4–6,

Table 7.14 Migration and natural shocks

Variables	Change in per capita food expenditure					
	(1)	(2)	(3)	(4)	(5)	(6)
Natural shock	-15.55 (17.781)	-15.95 (17.743)	-36.88* (19.160)	-15.58 (17.789)	-15.97 (17.752)	-36.43* (19.142)
Migrant	85.92*** (20.330)	84.47*** (20.417)	57.35** (26.289)			
Migrant × natural shock			81.22** (38.820)			
Kinh		-21.45 (189.400)	-16.57 (191.925)		-21.50 (189.557)	-16.16 (191.410)
Age of household head		0.84 (0.807)	0.86 (0.806)		0.83 (0.807)	0.85 (0.812)
Female household head		45.62 (58.226)	45.96 (58.020)		45.61 (58.220)	45.22 (57.948)
Working migrant				88.49*** (28.479)	86.76*** (28.546)	45.68 (37.095)
Other migrant				83.63*** (25.550)	82.44*** (25.611)	67.59** (32.681)
Working migrant × natural shock						123.15** (53.025)
Other migrant × natural shock						44.01 (49.768)
Observations	4,739	4,738	4,738	4,739	4,738	4,738
Number of households	0.025	0.025	0.027	0.025	0.025	0.028
Adjusted R-squared	2,716	2,715	2,715	2,716	2,715	2,715

Notes: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

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). Again, this result highlights the importance of migration as a shock-coping mechanism.

Table 7.15 explores the role of remittances in acting as a coping mechanism in the event of negative shocks. We replicate our analysis by focusing on remittance-recipient households, rather than just households with a migrant away. The estimation results in column 1 show that being a remittance-recipient household is positively correlated with food expenditure. On average, food expenditure is greater in remittance-recipient households: this result highlights the importance of remittances as a means of covering food

Table 7.15 Remittances and food expenditure

Variables	Change in per capita food expenditure	
	(1)	(2)
Shock	10.13 (16.795)	
Remittance-recipient household	189.45*** (62.278)	151.88*** (57.558)
Remittance-recipient household × shock	-113.81 (76.771)	
Kinh	-3.50 (197.911)	-18.09 (196.105)
Age of household head	0.95 (0.732)	0.95 (0.745)
Female household head	42.24 (58.188)	43.01 (58.256)
Natural shock		-13.54 (18.120)
Remittance-recipient household × shock		-34.40 (81.915)
Observations	4,738	4,738
Number of households	0.023	0.023
Adjusted <i>R</i> -squared	2,715	2,715

Notes: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

expenses for the receiving household. We also interact the dummy variable capturing remittance-recipient household with the shock dummy variable to investigate the role of remittances as a risk-coping mechanism.¹⁰ The estimated coefficient on the interaction term between remittances and shock is not statistically significant. Therefore, we may conclude that, although remittance-recipient household do display higher food expenditure, we do not find robust evidence of remittances as a shock-coping mechanism. We will explore further this aspect in our analysis of the role of remittances in easing access to credit in the next section. Similar results hold when we focus our analysis on the effect of natural shocks (column 2).

7.8 Migration and Access to Credit

How does migration affect the financial behaviour of households? The evidence reported in Table 7.16 shows that households with a working migrant and other migrant households show no statistically significant relationship

¹⁰ Remittance recipient households are defined as households that receive remittances at least once a year.

Table 7.16 Migration, remittances, and borrowing behaviour

Variables	Change in total amount borrowed ('000s)		
	(1)	(2)	(3)
Natural shock	-2.90 (3.103)	-5.82 (4.294)	-5.86 (4.295)
Working migrant	-2.98 (5.783)	-6.13 (7.551)	-9.11 (7.936)
Other migrant	-4.74 (17.337)	-8.75 (24.770)	-9.05 (24.796)
Working migrant × nat. shock		10.19 (8.696)	20.77** (9.821)
Other migrant × nat. shock		12.04 (23.845)	12.66 (23.892)
Remittance-recipient household	10.41 (7.311)	10.10 (7.409)	19.12** (9.666)
Remittance-recipient household × natural shock			-27.17** (13.740)
Kinh	19.92 (17.331)	20.59 (17.658)	19.72 (17.689)
Age of household head	-0.14 (0.112)	-0.14 (0.115)	-0.14 (0.115)
Female household head	-3.65 (4.441)	-3.63 (4.427)	-3.43 (4.401)
Observations	4,835	4,835	4,835
Number of households	0.000	0.001	0.001
Adjusted R-squared	2,745	2,745	2,745

Notes: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Source: Author's calculations based on the VARHS database.

with the change in total amount borrowed. Interestingly, remittance-recipient households experience an increase in the total amount borrowed, a result that 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 households with a working migrant 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.

7.9 Conclusions

This chapter provides an overview of the characteristics of sending households and analyses the effects of migration in Viet Nam, on the basis of the VARHS 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 sending and non-sending households, as households with a migrant are wealthier than non-sending households, as measured by food expenditure quintiles. The econometric analysis shows that migration acts as a shock-coping mechanism, especially in the presence of natural shocks. Households with a migrant away 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 remittance flows counterbalance the need for formal borrowing.

Given the large and increasing migration movements within Viet Nam, it has become crucial to understand the role of migration as a means of poverty reduction and as a risk-coping mechanism and also the features of sending households, especially in the face of shocks affecting household welfare. This chapter makes a significant first step in understanding these issues for the twelve 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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8

Information and Communication Technology

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8.1 Introduction

Across the developing world during the 21st century an important characteristic of structural change has been the emergence of the information and communication technology (ICT) sector. This development has been particularly rapid in Viet Nam, where a true ICT revolution has taken place. This chapter examines household ownership of ICT: the geographic and demographic differences across ownership of different kind of ICT, especially phones and the Internet, and factors related to adoption.

From a macroeconomic perspective, ICT relates to the literature on endogenous growth, which studies how the development of technology through innovations determines growth in the long run.¹ ICT is hence related to structural transformation through technological progress. There are at least two ways through which ICT is related to structural transformation. First, the emergence of the ICT sector itself is part of a structural transformation providing new opportunities for employment and entrepreneurship. Second, as ICT can be viewed as a new general purpose technology, it relates to structural transformation indirectly via transforming existing sectors by improving efficiency in communicating and acquiring information.

The nature of improved information acquisition and communication relates to the microeconomic literature on the use of ICT to overcome information barriers and to reduce information asymmetries. In the case of markets, this means that ICT use can increase market efficiency.

¹ For an overview, see Aghion and Howitt (1998).

Evidence on the effects of ICT on market efficiency using developing country data is mainly focused around the benefits of mobile phones (Jensen 2007; Muto and Yamano 2009; Aker 2010; Fafchamps and Minten 2012; Aker and Fafchamps 2015). The literature finds that the introduction of mobile phones has contributed to more efficient pricing (Jensen 2007) and reduced price dispersion among both consumer and producer prices (Aker 2010; Aker and Fafchamps 2015), or increased market participation (Muto and Yamano 2009).

In the case of Viet Nam, Nguyen and Schiffbauer (2015) find that internet use in firms is positively correlated with higher productivity growth, even more so in firms that are doing e-commerce. To our knowledge there are no previous studies on the benefits of the Internet or phones on a household level in Viet Nam, nor on the drivers of adoption choices.

In this chapter, we find that phone ownership is almost universal in 2014, but the Internet is still a technology used by a smaller minority which is much wealthier and more educated than the average population. Even though internet use is still much less common than phone ownership, we find that same factors—education, income, and wealth—drive both phone and internet adoption. Lastly, we also find that even though this rapid expansion of ICT has taken place, mobile phones and the Internet are still not considered as the most important sources of information among the VARHS households.

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 was universal, and therefore infrastructure constraints cannot fully explain these differences (VNPT 2015). Policies that were implemented in order to increase competition have been instrumental in influencing the adoption of mobile services (Hwang, Cho, and Long 2009). The internet provider market has also been subject to similar policies. According to a World Bank report (Tuan 2011) eleven enterprises had been granted licences to build broadband internet infrastructure in 2011. In practice, however, only three companies had exercised this right on a national scale. These are state-owned enterprise Viettel, the Viet Nam Post and Telecommunications Group (VNPT) and EVN Telecom.²

A growing part of technology adoption literature demonstrates how new technologies spread through social networks: knowledge of benefits and ways of using new technologies can spread through neighbours and friends (Munshi 2004; Bandiera and Rasul 2006; Conley and Udry 2010; Oster and Thornton 2012; BenYishay and Mobarak 2014). This by construction is particularly true for technologies that have network benefits, of which ICT is a

² EVN Telecom has since merged with Viettel (Vietnam News 2011).

perfect example.³ We do not investigate network effects in this chapter, but these findings of the literature are good to keep in mind when interpreting our results.

This chapter proceeds as follows. Section 8.2 presents descriptive statistics on the geographical patterns of ICT adoption. Section 8.3 presents descriptive demographic statistics on ICT ownership comparing adoption rates to national statistics, and Section 8.4 studies the determinants of ownership. Section 8.5 discusses the role of ICT as a source of information, and finally Section 8.6 concludes.

8.2 Geographical Differences

In this section, we investigate geographical differences related to adopting new technologies.⁴ 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 (MRD) (Long An).

Figure 8.1 panel A shows the average share of households per region that have either a fixed-line phone or a mobile phone.⁵ There has been a tremendous increase in phone ownership across the country, and also convergence across provinces. In 2006, the share of households with phones ranged from 13 per cent on average in the Northern provinces to 28 per cent at the MRD (Long An province). The gap has narrowed ranging from 87 per cent in the Central Coast provinces to 95 per cent in the provinces in the Central Highlands in 2014.

The development of television ownership is presented in Figure 8.1 panel B. It follows a similar converging pattern to that of phones, with the difference that the initial levels of ownership rates were much higher in 2006. As with phones, television ownership in the Northern provinces has caught up with the rest of the country. Television and government-owned channels have a dominant role in the Vietnamese media (BBG 2013). Television is considered to be one of the most important information sources also among VARHS households.⁶

Computer and internet adoption is presented in Figure 8.1, panels C and D, respectively. Surprisingly, there is no sign of geographical convergence, but a

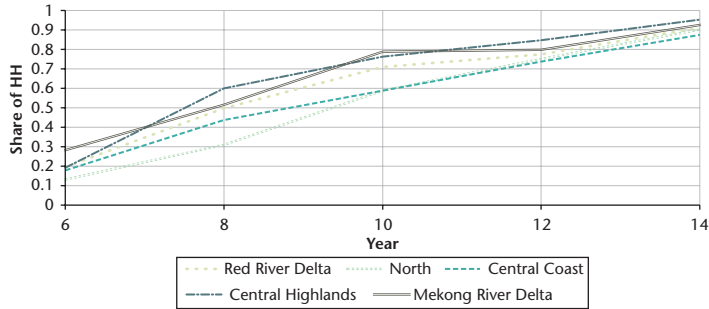
³ See Bjorkegren (2015) for a welfare analysis of the adoption of mobile phones in Rwanda.

⁴ See Chapter 1 for an international comparison of broadband subscription rates.

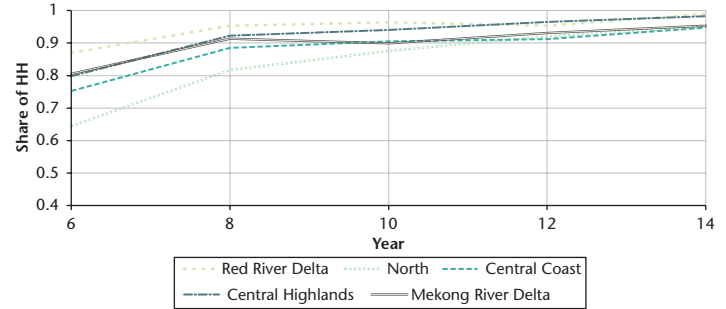
⁵ In VARHS the question about phone ownership refers to both fixed line and mobile phones, hence we cannot differentiate between these two types. This is why we speak of 'phones' throughout the chapter.

⁶ See Section 8.5 for details.

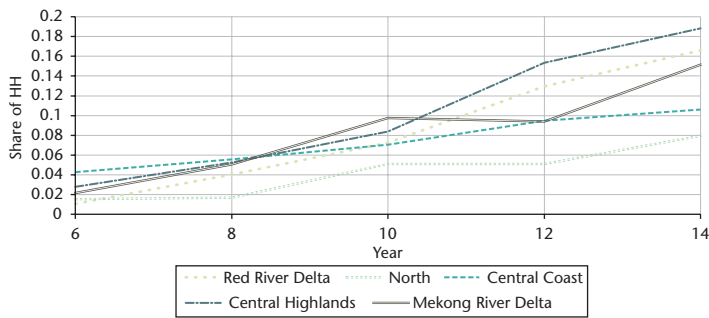
Panel A: Share of households with at least one phone



Panel B: Share of households with at least one color TV



Panel C: Share of households with at least one computer



Panel D: Share of households with access to internet

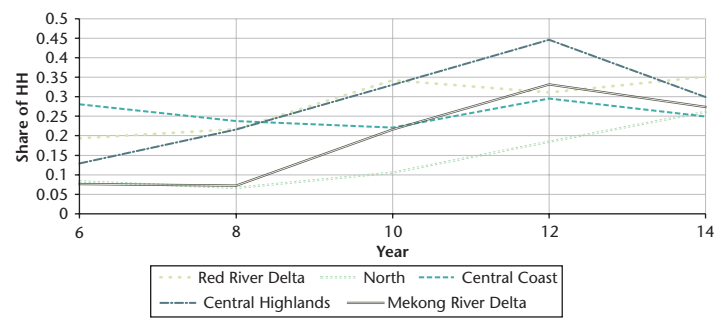


Figure 8.1 Geographical distributions of technology ownership

Source: Author's calculations based on VARHS dataset for 2006–14.

diverging pattern. In 2006, there were almost no computers in any of the provinces and owning computers was still quite uncommon in 2014. 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 on average. 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 that of phones.

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, when they do not own a computer themselves. Therefore, studying internet access, a variable that also takes into account use from work and from an internet café, might give us a more realistic view of computer use.

Development in internet access (limited to categories 'home', 'work', or 'internet café') is presented in Figure 8.1 panel D. The sharpest increase has been in the Northern provinces, where there was nearly zero access in 2006. Internet cafés are losing popularity, a factor that fully explains the decrease between 2012 and 2014 in the Central Highlands, Central Coast, and MRD provinces.⁷ Since we do not observe all ways in which the Internet is used, for instance use from a mobile phone, it is reasonable to assume that our internet measure is biased downwards. This is supported by the comparison between this household-level measure and the commune-level internet access variable presented in Chapter 3, Figure 3.9. We can see that commune-level internet availability is increasing in all regions over the entire time period studied.

8.3 Descriptive Statistics of ICT Ownership

There are several factors that determine the choice of adopting new ICT. In the early stages, infrastructure plays a key role: 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 with and without a phone or an internet connection differ in terms of access to infrastructure, wealth, income composition, and other characteristics.

⁷ The decrease in popularity of internet cafés also explains the slight decrease in internet use in the Central Coast between 2006 and 2010. This is fully attributable to a decline in internet café use in the Quang Nam province. It is noteworthy to point out that the initial level of internet use in 2006 was highest in this region, thus the decrease might reflect that they were ahead of others in substituting internet cafés with other means of using the Internet, which are not captured in our data. Access from work and home are very low values when collapsed to a regional or province level, but these categories are increasing over time in all regions.

8.3.1 Descriptive Statistics on Phone Ownership

From all the technologies studied in our dataset, the expansion of phones has been the most striking one. Figure 8.2 illustrates a tremendously rapid expansion of phone ownership over 2006–14. Between 2006 and 2010 the average number of phones owned by household was close to zero—in 2014 it was two. Between 2006 and 2008, the share of households that had at least one phone

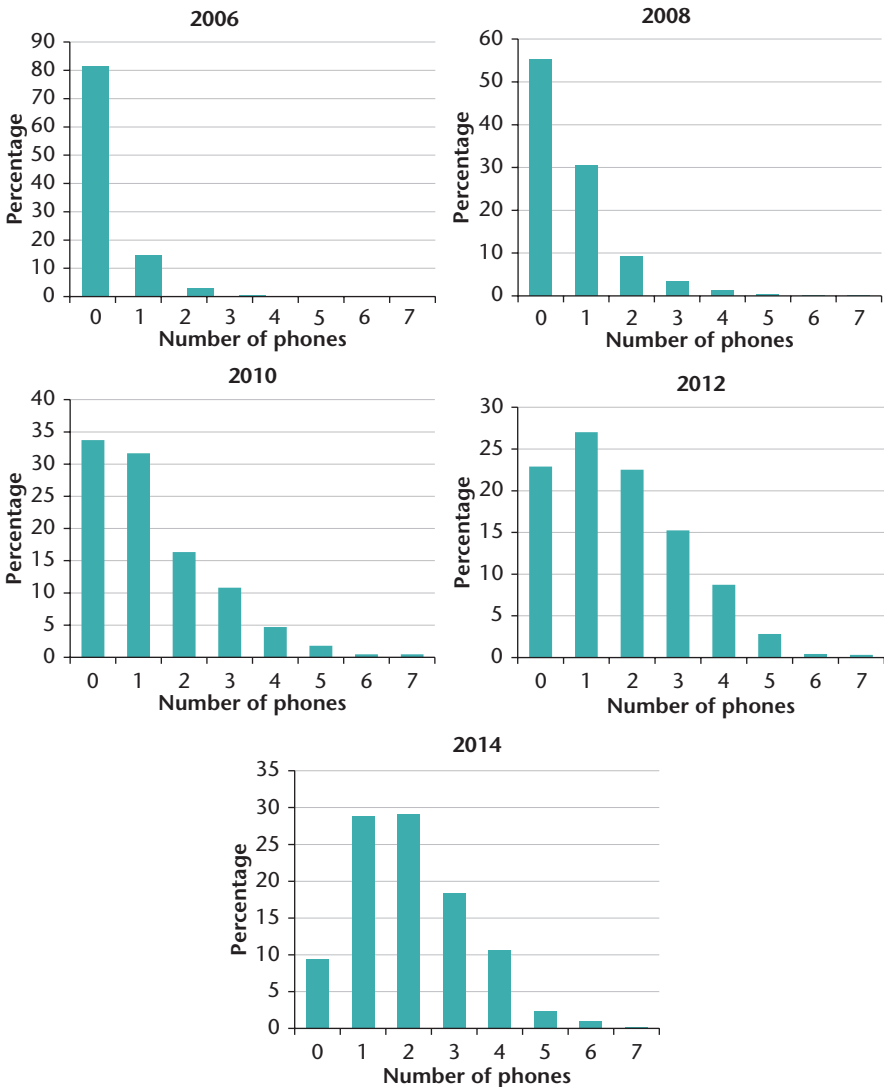


Figure 8.2 Number of phones owned by household

Source: Author's calculations based on VARHS dataset for 2006–14.

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doubled from 18.6 per cent to 38 per cent. In 2014, there was almost full coverage of phones, the share of household with at least one phone being 91 per cent.

In VARHS, we cannot differentiate between a fixed-line phone and a mobile phone. However, it is reasonable to assume that the increases in phone ownership in VARHS are attributable to the increase in mobile phones, not fixed-line connections. According to the General Statistics Office (GSO) of Viet Nam (GSO 2015a), on a national level the number of fixed-line connections has increased by 9 per cent between 2006 and 2012. Over this same time period, the share of fixed-line subscriptions of all subscriptions has decreased from 30.7 per cent to 6.7 per cent, which confirms that most phones must indeed be mobile phones.

The average number of phones owned by a household in VARHS has increased almost sevenfold between the years 2006 and 2012 (from 0.25 to 1.61 phones per household) and almost eightfold between the years 2006 and 2014 (to 1.94 phones per household). A comparison to the national statistics reveals that the adoption of mobile phones has been more rapid in VARHS provinces than in Viet Nam in aggregate: the total number of all telephone subscriptions has increased slower than in VARHS, nearly fivefold between the years 2006 and 2014, from 28.5 to 141.2 million. During the same period, the number of mobile phone subscriptions has gone up more than sixfold (from 19.7 to 131.7 million).

Even though adoption rates have been higher, the VARHS provinces have not yet caught up with the national average in 2014 due to the initially low levels of phone ownership in 2006. In 2006, nationally there were about 0.34 subscriptions per capita compared to 0.25 phones per household in 2006 in VARHS provinces. 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 and 1.61 per household in the VARHS provinces. 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.⁸

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. Anecdotal evidence suggests that quality smartphones are popular and carry a 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 (Heinrich 2014). Apple holds a dominant position in the country, unlike in China where the local cheaper brands dominate the market.

⁸ The national phone subscriptions per capita are author's calculations based on GSO (2015a, 2015b).

Hwang, Cho, and Long (2009) investigate the determinants of mobile phone services diffusion in Viet Nam during 1995–2006, until the beginning of our dataset. 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 market and the subsequent decrease in prices. As 3G and 2G have nationwide coverage in Viet Nam (VNPT 2015), the infrastructure constraints should no longer play a large role in the purchasing decision of a phone in 2014. The quality of the signal might, of course, be weaker in more remote areas.

Table 8.1 describes the differences between households that still do not have a phone in 2014 with those that have one. In 2014 only 9 per cent of households did not yet have a phone.

Table 8.1 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 hh 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 the 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**

Notes: Number of households with a phone 1,959, and without a phone 203. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's computation based on VARHS dataset for 2014.

We can see that households vary tremendously over phone ownership. Households without a phone are small (2.70 members) compared to phone-owner households (4.28 members) and also to the average household (4.13 members). The differences are likewise very large with respect to gender of the household head: Almost half of the households without a phone are female-headed, compared to 22 per cent of households with a phone.

Differences with respect to education level and income are also substantial. Education in years per capita is almost twice as high for households with phones. Income per capita in households without a phone is 61 per cent of the income per capita in households with a phone. Furthermore, almost 40 per cent of the households without a phone are classified as poor by the authorities versus 10 per cent of households with a phone.

The sources of income differ significantly as well: households without phones rely heavily on transfers, both public and private. Transfers account for nearly half of the incomes of these households, when the respective number for phone owners is 17 per cent. Of the actual income-generating activities, wage-earning activities are the most important income source for households without phones, followed by income from crop sales. Income share of own non-farm enterprises is 4 per cent compared to 13 per cent in households with phones.

In terms of remoteness and household infrastructure, households without a phone are less likely to have electricity, but the difference is rather small, electricity being almost universal in 2014. Households with no phone are also less likely to have a toilet,⁹ or access to good water.¹⁰ Finally, households without phone are somewhat more remotely situated, but the differences are quite small.¹¹

As 3G is universal, infrastructure constraints should not play a large role in the purchasing decision of a phone. Very remote areas might still 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 simply have less demand for phones. However, given that these households are also significantly poorer, the decision not to buy a phone might be due to financial constraints.

We have also investigated phone ownership and ownership of other durables or technology to study the assumption that being ‘tech-savvy’ plays a role in the purchasing decision, keeping in mind the fact that wealthier

⁹ Variable toilet gets the value one if the household has a toilet, otherwise this is zero.

¹⁰ Good water is a dummy variable taking value one, if the water comes from 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.

¹¹ Distance to public services, such as health-care facilities, all-weather roads, schools, and People’s Committees are used as measures for remoteness.

households can better afford any kind of durables and technology. Households without a phone own one-third of the number of motorcycles per capita relative to households with a phone. In addition, they are less likely to have internet access,¹² or to own a computer. Contrary to these findings, households without phones own more televisions per capita than households with phones.

Given that households without phones are slightly more remotely located, purchasing a phone might actually be beneficial for these households, if a phone is used to gain information about markets or public services. Coupled with the fact that households which do not own a phone very rarely have access to the Internet or own a personal computer, they seem to have fewer means to benefit from possibilities brought by ICT.

Since a phone functions as a means to keep in contact with one's community, we have also investigated whether there are differences with respect to social capital. It is plausible that households that have a central role in a social network, or 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 therefore might be less inclined to purchase such technology that allows them to keep contact with their community.

The variable 'trust (positive)' is a dummy that takes value one if the respondent agrees with the statement 'most people are basically honest 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'. In conclusion, households without a phone do tend to have slightly less trust in their community than phone owners: over one-half of the respondents in this group agree with this statement.

8.3.2 *Descriptive Statistics on Computer and the Internet*

The ownership of personal computers for the years 2006–14 has increased fivefold from 2.4 per cent in 2006 to 12.9 per cent in 2014, a moderate increase compared to phone ownership.¹³ As smartphones have recently gained popularity in Viet Nam, it is possible that they complement the functionalities of personal computers subsequently decreasing the demand for computers.

¹² Internet use is a dummy getting value one if using Internet from home, work, or internet café.

¹³ For details, see Kaila (2015), a related working paper.

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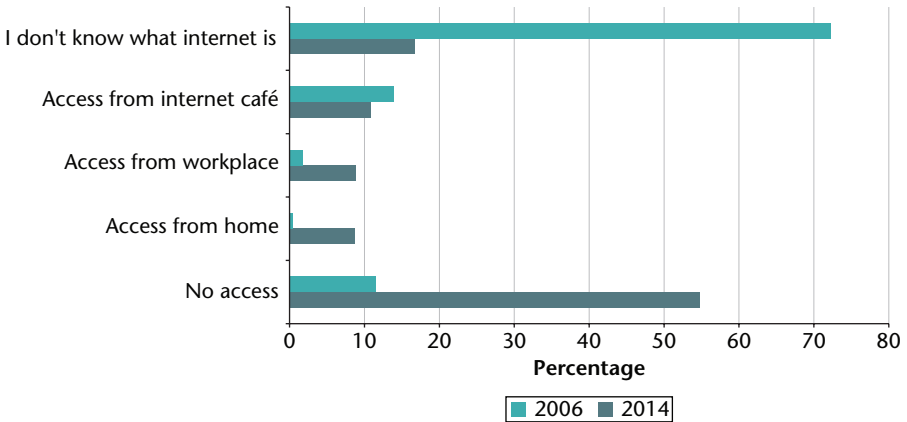


Figure 8.3 Sources of internet access in 2006 and 2014

Source: Author's calculations based on VARHS dataset for years 2006 and 2014.

According to Cimigo (2011), in 2011 the most important activity on the Internet was information gathering, which refers to the use of search sites and reading online news. The Internet was only secondarily used for communication and entertainment.¹⁴ Therefore, it is reasonable to assume that old media, which is under heavy government control (see BBG 2013), are challenged by new information sources.

Figure 8.3 illustrates the development of internet use among VARHS households comparing 2006 and 2014. There has been a large increase in the share of households having internet access, but this development is less striking than that of mobile phones. 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. 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 on aggregate.

¹⁴ It is also noteworthy to point out that online banking has not been a phenomenon in Viet Nam as in eastern Africa. E-commerce is, however, starting to be an important part of internet use (see Cimigo (2011) for details about e-commerce and online banking in Viet Nam, and Mbiti and Weil (2016) on mobile banking in Kenya).

Compared to national development in internet subscription, the VARHS provinces are really lagging behind. According to GSO, the national subscription rate for asymmetric digital subscriber line (ADSL) connections has increased *more than 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 in our data, has increased by only 57 per cent. 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 largely dependent on agriculture, there is less demand for ADSL. Even though we allow 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, there might be measurement error in our internet access measure. 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, 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 the national average on internet access.

Even though internet use has increased relatively moderately, we can observe from the data that knowledge about what the Internet is has increased over 2006–14. In 2006, more than 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. Hence, knowledge about what the Internet is has indeed increased, even though the households have not reported having internet access.

Next, in Table 8.2 we investigate differences across households that have internet access to those that do not in 2014, with respect to the same characteristics as in Table 8.1 on 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.

It is worth pointing out that households with no phones represent a small minority in 2014 (9 per cent), households without internet access are still a large majority (72 per cent). However, the differences between users and non-users of these two technologies are qualitatively similar.

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Table 8.2 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 hh 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 phones	1.74	2.81	-1.06***
Number of phones 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

Notes: Number of households with internet access 615, without 1,547. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's computation based on VARHS dataset for 2014.

Households without internet access are also smaller and more often female-headed than households with the Internet, but these differences are very small compared to the difference in phone ownership. The gap in education per capita is also strikingly large; households without access have close to three years less education. In addition, income differences are very large: households with the Internet earn 60 per cent more than households without the Internet. Again, we also observe that the value of crop production in per capita terms is larger for households with internet access.

Income share of wages is 46 per cent in households with internet access, compared to 30 per cent in households with no internet access. This difference is explained mostly by there being more households with no income at all from wage labour among non-user households than among

user households.¹⁵ Households without internet access are also more dependent on transfers and rely slightly more on agriculture as an income source.

With respect to remoteness, the differences between households with and without internet access are larger than between households with and without a phone. Households without internet access are more remotely located. With respect to infrastructure, we observe very similar results to those of phone ownership: households without access to the Internet are less likely to have a toilet or access to good water.

An explanation might be simple. In 2014, not having a phone seems to be associated with poverty, whereas not having internet access is certainly related to lower income, but 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.

With respect to ownership of other technology, we find that households without internet access have more than one phone less on average than households with access, and the difference is significant even in per capita terms. In addition, 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 nearly zero among households without access. Finally, with respect to trust measures, we cannot say that households with and without internet access differ at all.

Internet access appears to be related to a wealthy lifestyle: working outside agriculture, being more centrally located, and having higher income and education, factors that surely correlated with each other. These findings are also in line with internet use reports that also look at urban population (Cimigo 2011; BBG 2013).

8.4 Determinants of ICT Adoption

Descriptive results give us a good picture of the differences between households that have access to ICT and households that do not. In this section we go a step further and examine which factors are correlated with phone and internet adoption, when other factors are controlled for, and on the other hand, which are not.

¹⁵ The statistically significant differences in several of the income share variables are largely due to the difference in the share of households that have zero income in that category. 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 zero wage income is much larger among households with no internet access.

We regress phone and internet variables on a set of explanatory variables in the following way:

$$\text{tech}_{it} = \alpha + \beta_1 X_{it}^{\text{demo}} + \beta_2 \text{Income}_{it} + \beta_3 X_{it}^{\text{infra}} + \beta_4 X_{it}^{\text{asset}} + \beta_5 X_{it}^{\text{distance}} + \alpha_i + \tau_t + \epsilon_{it}$$

Where tech_{it} is the number of phones per household in the statistical model of Section 8.4.1, and the dummy for internet access in Section 8.4.2. The explanatory variables are grouped in the following way for the sake of illustration: X_{it}^{demo} is a vector of demographic variables including household size, education per capita (in years), dummy taking value 1 if head of the household is female, number of children less than 15 years of age and log of total land area owned by household. Income_{it} is the log income of the household, X_{it}^{infra} is a vector of infrastructure related variables: whether the household has electricity, toilet or good water. X_{it}^{asset} is a vector of technological assets owned by the household: number of motorcycles, colour TVs, and computers. In Section 8.4.1 it also includes a dummy for internet access, in Section 8.4.2 it includes the number of phones. X_{it}^{distance} is a vector of distance measures, α_i are household fixed effects (in Section 8.4.2 random effects are used instead), τ_t are year dummies, ϵ_{it} is an error term and α is a constant. In some specifications we have commune fixed effects instead of household fixed effects or random effects. All standard errors are clustered at the commune level.

It is noteworthy to point out that the purpose of this exercise is not to make causal claims but to investigate partial correlations holding constant other factors. Our regressions estimates cannot be interpreted as causal at least for two reasons: first, there might be unobservable variables that we have not been able to control for, which can confound the results. We have tackled this problem as well as possible by including household fixed effects or random effects as well as regional dummies (the details of the different model specifications are explained alongside the results). Second, it is also plausible that technology ownership has an effect on our explanatory variables, in which case causality could go both ways. Finally, the linear regression assumes a linear functional form for the sake of simplicity, it is not founded in economic theory.¹⁶ Keeping in mind these restrictions to the interpretation of our coefficient estimates, the partial correlations reveal interesting relationships related to technology ownership and household characteristics nevertheless.

8.4.1 *Determinants of Phone Ownership*

In Table 8.3 we have investigated the determinants of phone ownership over 2008–14, where the dependent variable is the number of phones in a household.

¹⁶ In the regressions related to internet access dummy, a probit model is also estimated.

Table 8.3 Dependent variable: number of phones

	(1)	(2)	(3)	(4)	(5)
	OLS	OLS	OLS	OLS	HH FE
Household size	0.144*** (10.10)	0.096*** (9.07)	0.097*** (9.22)	0.095*** (8.46)	0.126*** (8.41)
Education per capita	0.090*** (18.21)	0.054*** (12.65)	0.053*** (12.25)	0.051*** (11.11)	0.032*** (4.37)
Female hh head	-0.067** (-1.97)	-0.051* (-1.76)	-0.053* (-1.80)	-0.046 (-1.45)	0.046 (0.81)
Number of children <15	-0.142*** (-8.24)	-0.106*** (-7.09)	-0.105*** (-7.06)	-0.108*** (-6.84)	-0.130*** (-5.45)
Total area owned (ln)	0.020** (2.09)	0.011 (1.29)	0.013 (1.41)	0.001 (0.11)	0.008 (0.56)
Hh income (ln)	0.388*** (19.47)	0.213*** (12.06)	0.211*** (11.94)	0.199*** (12.39)	0.152*** (7.64)
Electricity	0.123* (1.88)	0.011 (0.17)	-0.010 (-0.16)	0.025 (0.42)	0.090 (1.24)
Toilet	0.247*** (5.54)	0.170*** (4.42)	0.163*** (4.30)	0.127*** (3.20)	0.073* (1.66)
Good water	0.108*** (2.95)	0.043 (1.40)	0.038 (1.25)	0.031 (1.23)	0.048* (1.85)
household has access to the Internet		0.285*** (9.49)	0.283*** (9.45)	0.290*** (9.69)	0.262*** (8.26)
Number of motorcycles		0.353*** (12.19)	0.354*** (12.18)	0.340*** (10.90)	0.291*** (8.60)
Number of colour TVs		0.176*** (5.06)	0.170*** (4.95)	0.156*** (4.95)	0.078** (2.52)
Number of computers		0.393*** (8.78)	0.394*** (8.81)	0.363*** (7.62)	0.304*** (5.58)
Distance all-weather road			-0.003 (-1.39)	-0.003 (-1.35)	-0.003 (-1.22)
Distance People's Committee			-0.002 (-0.55)	-0.003 (-1.09)	-0.005 (-1.14)
Distance public health care			0.001 (0.21)	-0.004 (-0.89)	0.000 (0.06)
Distance private health care			-0.000 (-0.70)	-0.000 (-0.02)	0.000 (0.47)
Distance primary school			-0.005 (-1.05)	-0.003 (-0.66)	-0.002 (-0.45)
Constant	-4.050*** (-16.30)	-2.143*** (-10.61)	-2.086*** (-10.35)	-1.780*** (-9.45)	-2.300*** (-9.25)
Observations	11,976	11,976	11,976	11,976	11,976
Commune	No	No	No	Yes	No
Year	Yes	Yes	Yes	Yes	Yes

Notes: 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. Standard errors in parentheses. Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's computation based on VARHS dataset 2008-14 (balanced panel).

Columns 1–4 show ordinary least squares (OLS) results, controlling for year fixed effects. Column 4 also controls for commune level time-invariant characteristics. Column 5 displays the results with household fixed effects and therefore the coefficient estimates can be interpreted as the relationship between the changes in the explanatory variables and the change in the number of phones, holding unobservable time-invariant household characteristics fixed.

The results show that when controlling for a number of household characteristics, household income has a statistically significant relationship with the number of phones or with the purchasing decision of phones.¹⁷ One important determinant in the number of phones is household size. When controlling for household size however, having more children has a negative coefficient estimate. Hence, the amount of adult members in a household is positively associated with the number of phones.

The remoteness of the household is not a statistically significant determinant of phone adoption, even when we do not control for commune fixed effects. In addition, land size does not seem to play a role. What is interesting is that the ownership of other technology—computers, the Internet, televisions, and motorcycles—has a large positive relationship with the number of phones and on the decision to acquire more. These are all proxies for wealth, but the result could also be interpreted as suggestive evidence that being tech-savvy could play a role in the ownership of phones.

8.4.2 *Determinants of Internet Adoption*

Table 8.4 presents regression results for the determinants of internet access over the period 2008–14. Columns 1–4 show the results from pooled OLS. In column 4, we are controlling for commune fixed effects that absorb all commune specific time-invariant characteristics. Column 5 is a random effects model and column 6 a probit model with random effects (marginal effects reported), as our internet access measure is a dummy. In all specifications, we control for time dummies and cluster the standard errors at the level of the commune.

We can see that the determinants of internet adoption are somewhat similar to those of phones. Owning another type of technology has a strong positive association with having internet access; 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

¹⁷ We also ran the analysis splitting income into different income sources. The effects were qualitatively very similar (results not reported here).

Table 8.4 Dependent variable: internet access

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	OLS	OLS	OLS	RE	RE PROBIT
Household size	0.023*** (0.004)	0.014*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.015*** (0.003)	0.020*** (0.003)
Education per capita	0.027*** (0.002)	0.018*** (0.001)	0.018*** (0.001)	0.017*** (0.002)	0.018*** (0.001)	0.020*** (0.001)
Female hh head	0.018 (0.011)	0.014 (0.010)	0.013 (0.010)	-0.003 (0.011)	0.013 (0.009)	0.008 (0.009)
Number of children <15	-0.037*** (0.006)	-0.029*** (0.005)	-0.029*** (0.005)	-0.028*** (0.005)	-0.029*** (0.004)	-0.038*** (0.004)
Total area owned (ln)	-0.004 (0.003)	-0.004 (0.003)	-0.003 (0.003)	0.001 (0.002)	-0.003 (0.002)	-0.002 (0.002)
Hh income (ln)	0.074*** (0.007)	0.033*** (0.006)	0.032*** (0.006)	0.029*** (0.006)	0.032*** (0.005)	0.031*** (0.005)
Electricity	-0.008 (0.010)	-0.006 (0.010)	-0.014 (0.010)	-0.022* (0.012)	-0.016 (0.015)	0.021 (0.022)
Toilet	0.012 (0.009)	0.002 (0.008)	-0.001 (0.008)	0.002 (0.009)	0.000 (0.009)	0.010 (0.010)
Good water	0.028*** (0.009)	0.020** (0.009)	0.018** (0.009)	0.016* (0.009)	0.019** (0.008)	0.022** (0.009)
Number of phones		0.037*** (0.004)	0.037*** (0.004)	0.037*** (0.004)	0.037*** (0.003)	0.022*** (0.003)
Number of motorcycles		0.017*** (0.005)	0.017*** (0.005)	0.014*** (0.005)	0.016*** (0.004)	0.010** (0.004)
Number of colour TVs		-0.003 (0.007)	-0.005 (0.007)	-0.010 (0.007)	-0.003 (0.008)	0.009 (0.008)
Number of computers		0.333*** (0.014)	0.333*** (0.014)	0.312*** (0.013)	0.323*** (0.011)	0.196*** (0.010)
Distance all-weather road			-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.001** (0.001)
Distance People's Committee			-0.000 (0.001)	0.000 (0.001)	0.000 (0.002)	0.000 (0.002)
Distance public health care			-0.002 (0.001)	-0.001 (0.001)	-0.002 (0.002)	-0.002 (0.002)
Distance private health care			-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000*** (0.000)
Distance primary school			0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)
Constant	-0.848*** (0.070)	-0.409*** (0.062)	-0.387*** (0.061)	-0.372*** (0.063)	-0.387*** (0.052)	
Observations	11,976	11,976	11,976	11,976	11,976	11,976
Commune FE	No	No	No	Yes	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: 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. Standard errors in parentheses. Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01.

Source: Author's computation based on VARHS dataset 2008-14 (balanced panel).

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the 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—the Internet and ICT 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 that do not have the means to purchase these technologies or are not fully aware of their possible benefits.

8.5 Information Sources

Even though the adoption of ICT, phones in particular, has been rapid, we do not yet know how the VARHS households perceive ICT. Figure 8.4

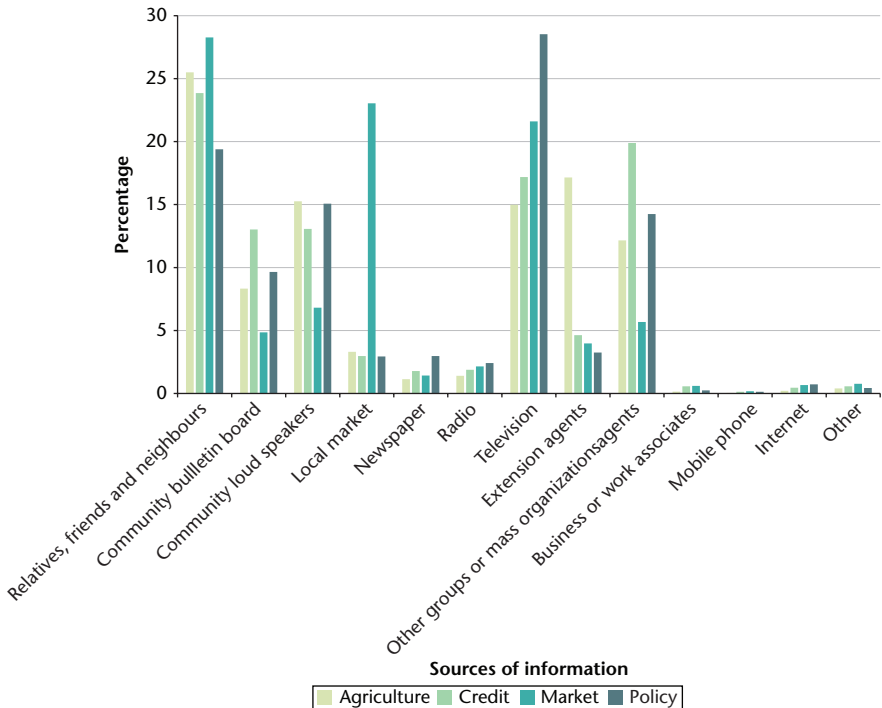


Figure 8.4 Most important sources of information, 2014

Source: Author's compilation using VARHS dataset 2014.

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 minor role as one of the most important information sources, as do mobile phones. This is the case even though available evidence on the Internet suggests that it is used mainly to acquire information (Cimigo 2011; BBG 2013). However, both the Internet and mobile phones can operate as a means of communicating with one’s social network, which is listed as a separate category and not only for obtaining information from outside sources.

Indeed the social network—friends, relatives, and neighbours—is the most important information source for agriculture, credit, and market information. In light of this finding, it is not surprising that technology adoption choices are also strongly affected by social networks as suggested by recent literature (Munshi 2004; Bandiera and Rasul 2006; Conley and Udry 2010; Oster and Thornton 2012; BenYishay and Mobarak 2014).

For government policy, television is the most important source and it is also used extensively to acquire other information. For information about markets, the local market is an important source. For all the categories, more traditional channels of information-spreading, community bulletin boards, community loudspeakers, and other groups and mass organizations (MOs), are still very relevant.

8.6 Conclusions

The spread of ICT has been rapid in VARHS provinces over 2006–14. The increase in the ownership of phones has been extraordinary and probably even faster than in the country on average—the median number of phones in a household has increased from zero to two in eight years. Even though gross domestic product (GDP) growth has also been high in Viet Nam, it is worth pointing out that not all technological development has been as fast as the take-up of ICT services. For instance, mechanization of agriculture has been modest in VARHS provinces compared to the development of ICT.¹⁸

Despite the large relative increases in internet access and computer ownership, the VARHS provinces are lagging behind the national average in ownership levels. As phones become more sophisticated, phone ownership might

¹⁸ For details see Kaila (2015).

aid this issue in the future, provided that smartphones are also gaining popularity in the VARHS provinces.

In 2014, households that did not own phones were much more likely to be female-headed, poor, and less educated than households with phones. Internet access is associated with a relatively wealthier lifestyle than phone ownership in 2014. The determinants of purchasing a new phone or obtaining internet access are nevertheless qualitatively similar: over 2008–14 we observe that education and income are important factors driving ICT adoption. In addition, households that already have technology are more likely to acquire more.

Even though there has been a rapid increase in the number of mobile phones owned and also in internet use between 2006 and 2014, VARHS households did not report using mobile phones or the Internet as a main source for acquiring information about agriculture, markets, credit, and policy in 2014. More traditional channels are still more popular. However, the main use of the Internet is to acquire information and to get access to news. Therefore, as the popularity of ICT increases, old information sources will surely be challenged.

As households that already have technology seem to be acquiring more of it, barriers to adopting technology might be related to not knowing about the benefits. When ICT becomes part of people's everyday lives, it can be exploited in various realms of life in such ways that were unimaginable before. Therefore, having access to technology could serve as a means to empowerment. Households without access to any ICT services might be at risk of exclusion from economic activity and have less means to make economic choices. It is thus crucial that the rural population can afford to keep up with a certain level of ICT.

Investigating whether there are barriers to access to ICT and knowledge about its use is a challenge for policy makers and further research on the topic. In a growing economy, knowledge about ICT will surely bring about possibilities for the young generations of today.

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9

Social and Political Capital

Thomas Markussen

9.1 Introduction

This chapter investigates the evolution of different dimensions of social capital in rural Viet Nam between 2006 and 2014 and models the relationship between social capital and income at the household level. 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 I 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 relationship between social capital and economic development is to some extent reflected in previous studies of social capital in Viet Nam. While Newman, Tarp, and van den Broeck (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 uses the Viet Nam Access to Resources Household Survey (VARHS) to investigate social and political capital in Viet Nam from different angles. Due to changes in the VARHS questionnaire between 2006 and 2008, many of the analyses omit results for 2006. The chapter first presents descriptive statistics on the distribution of different dimensions of social capital across regions and socioeconomic 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. 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, I find no effect of membership in ‘mass organizations’ (MOs), such as the Women’s and Farmers’ Unions.

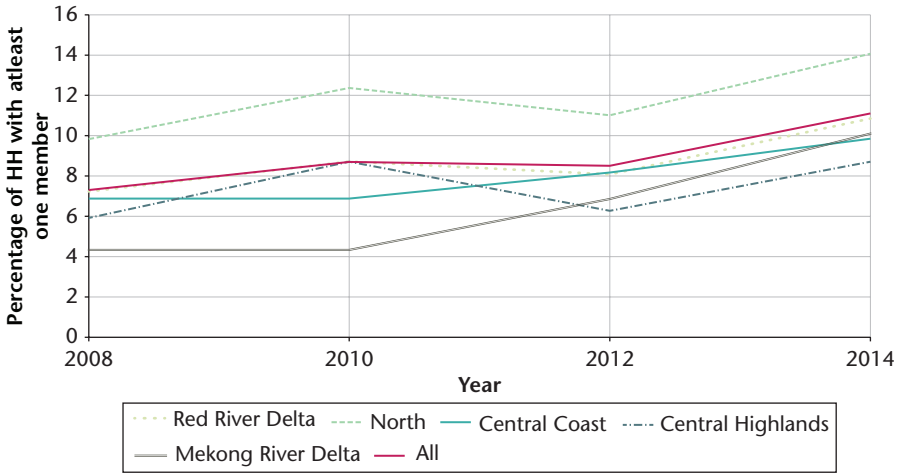
9.2 Communist Party Membership

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. Note that membership of the Party is far from open to all. Applicants go through a lengthy period of monitoring by current Party members and it is generally a privilege reserved for a minority of the population (see Markussen et al. 2014 for an analysis of the effects of Party membership on subjective wellbeing). Figure 9.1 (panel a) shows the share of households with at least one Party member across five different regions and over time.¹

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

¹ 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.

Panel a: By region



Panel b: By income quintile

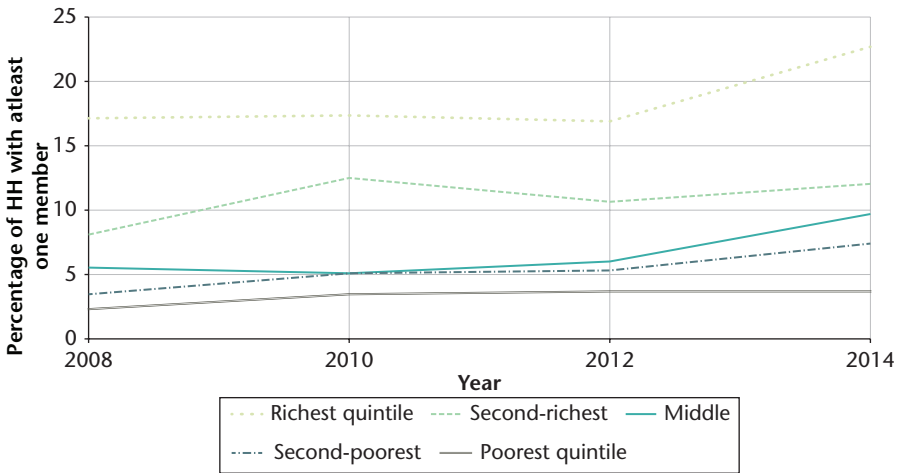


Figure 9.1 Communist Party membership

Notes: N = 2,162 households (Each household is observed four times, so the total number of observations is $4 \times 2,162 = 8,648$). Income quintiles are calculated on the basis of per capita income and are defined ‘within year’, i.e. the sample is divided in five groups of equal size within each year.

Source: Author’s calculations based on VARHS 2008–14.

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 (MRD), where the share of households with Party members more than doubles.

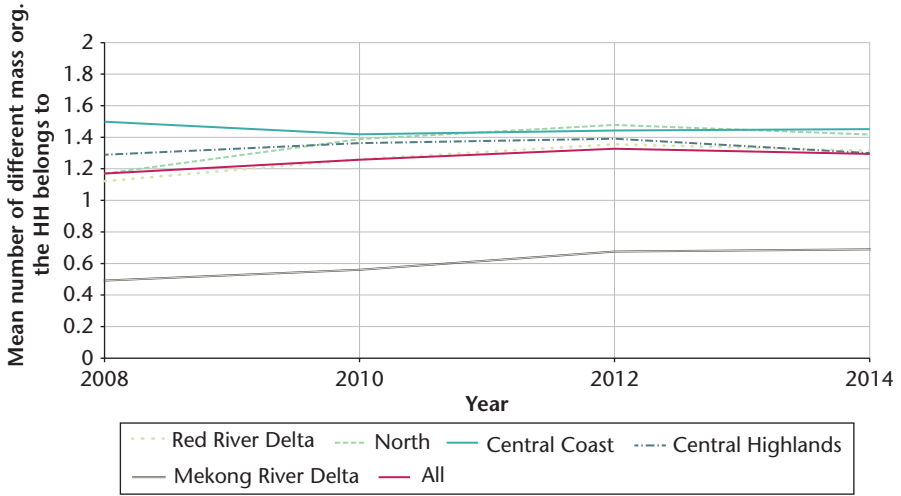
Figure 9.1 (panel b) shows the distribution of Party membership across income quintiles (VARHS collects highly detailed and comprehensive data on household income). The figure reveals an extremely strong income gradient in Party membership. Membership is four to seven times more common in the richest 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 in Section 9.7 throws more light on these issues. For now, it is sufficient to note the tension between the egalitarianism of communist ideology and the socioeconomic profile of Party members in rural Viet Nam.

9.3 Mass Organizations

Apart from the Party, the most important type of formal associations in rural Viet Nam are the so-called 'MOs', which include the Women's Union, Farmers' Union, Youth Union, and Veterans' Union. Membership is voluntary, but MOs are closely linked with the state and sometimes participate in local government decision-making. For example, in some communes the women's and farmers' unions 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 MOs and the state, it is probably more relevant to view vibrant MOs 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 MO membership is therefore interesting to investigate. Figure 9.2 (panel a) shows the average number of different MOs households belong to, by region and over time.

The figure shows that households are, on average, members of about 1.3 different MOs, with a slight increase from 2008 to 2014. About 75 per cent of households are members of at least one MO. The MRD stands out as the region with by far the fewest MO 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

Panel a: By region



Panel b: By income quintile

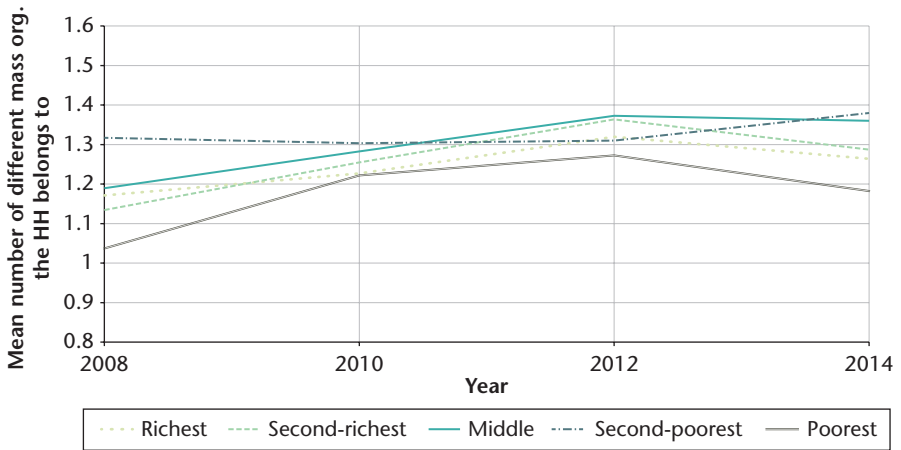


Figure 9.2 Mass organization membership

Note: N = 2,162 households.

Source: Author's calculations based on VARHS 2008–14.

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 9.2 (panel b) shows MO membership by income quintile. In marked contrast with the results on Party membership (Figure 9.1 (panel b)), there is no strong income gradient in membership of MOs. The Party is exclusive, MOs are inclusive.

9.4 Other Voluntary Associations

Now consider voluntary groups other than MOs. These include business associations, credit groups, religious groups, sports and cultural groups, groups for the elderly, and a number of other groups. Figure 9.3 compares frequency of membership in, respectively, MOs and other voluntary groups.

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

However, the relative increase in non-MO membership from 2008 to 2014 (42 per cent) is much higher than the increase for MOs (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-MO groups is still significantly higher in 2014 than in 2008. Hence, the

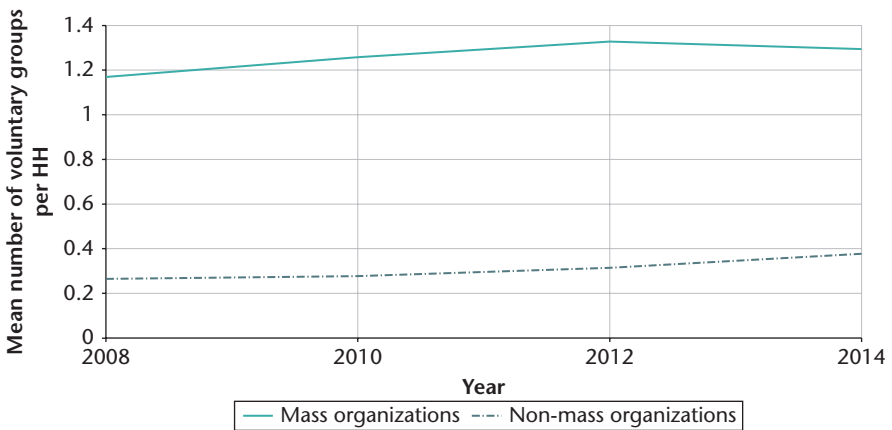


Figure 9.3 Membership of mass organizations and other voluntary groups

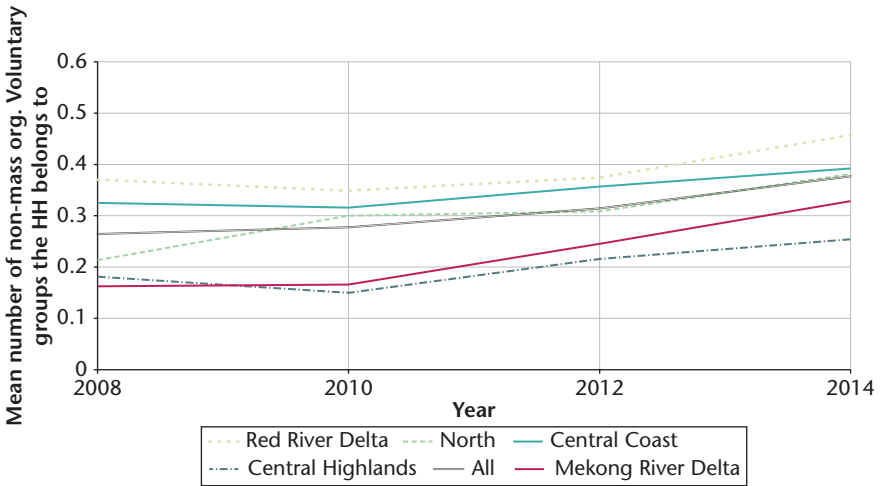
Note: N = 2,162 households.

Source: Author's calculations based on VARHS 2008–14.

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 9.4 shows the development of non-MO memberships 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

Panel a: By region



Panel b: By income quintile

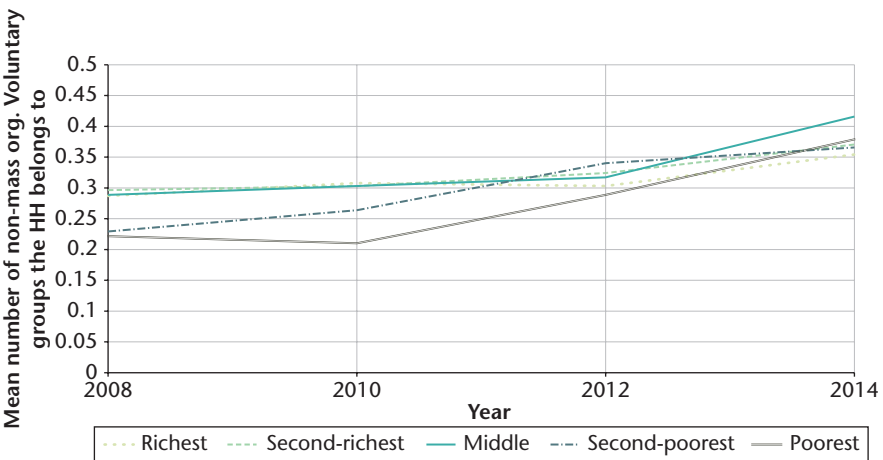


Figure 9.4 Non-mass organization membership

Note: N = 2,162 households.

Source: Author's calculations based on VARHS 2008–14.

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.

Figure 9.4 (panel b) shows that, in 2008 and 2010, membership of non-MO 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.

9.5 Trust

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 indicators, such as those measuring 'trust' are particularly interesting to investigate in a country such as Viet Nam. Measures of 'generalized trust', that is, 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 La 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, I regard the question as a measure of generalized trust and I combine answers to the two questions in an index of trust. Figure 9.5 shows the share of respondents who agree with each of the statements described earlier in this section.²

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. This may either

² Note that, in 2006, two additional questions were inserted in the questionnaire between the first and the second of the questions discussed earlier in this section. 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.

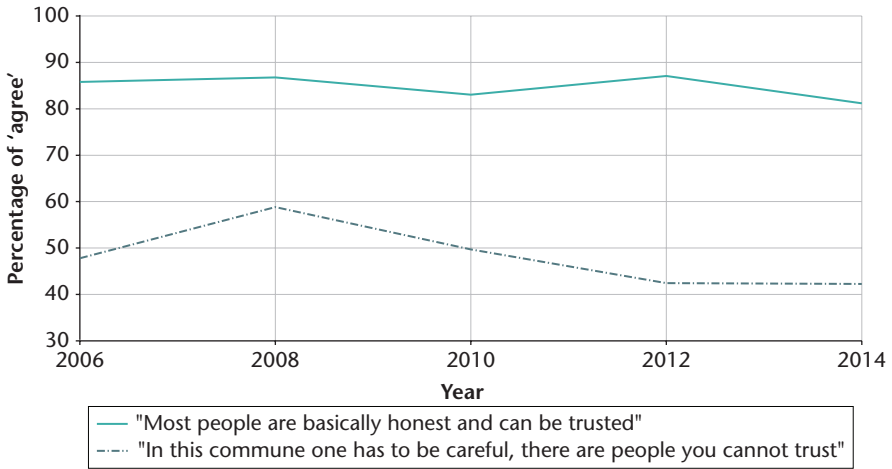


Figure 9.5 Generalized trust and mistrust

Note: N = 2,162 households.

Source: Author’s calculations based on VARHS 2006–14.

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 9.6, the two trust measures are collected in an index. Figure 9.6 (panel a) 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.

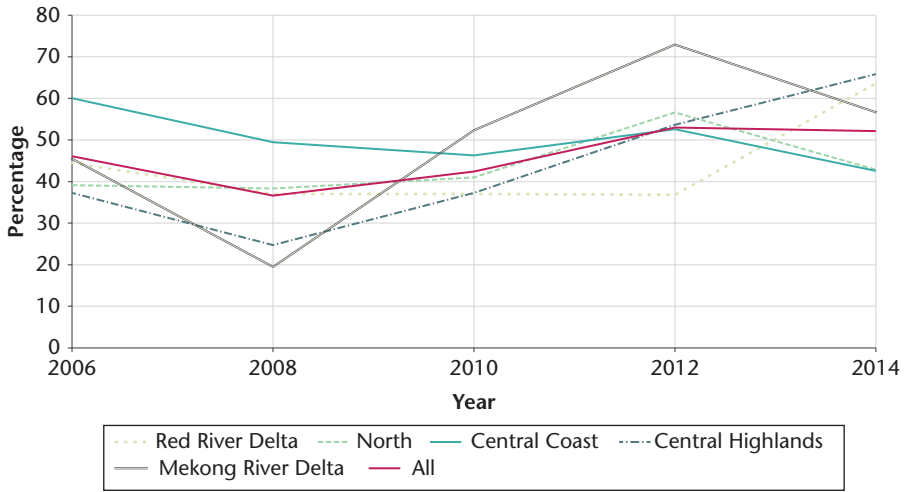
Figure 9.6 (panel b) shows the average score on the generalized trust index by income quintile. There is no strong correlation between income and trust. It is curious that the order of the richest and poorest groups is completely reversed between 2008 and 2014, but it is probably too early to draw strong conclusions from this result.

9.6 Family Ties

It is well documented that family ties are strong in Viet Nam. For example, the 2001 World Values Survey (WVS) in Viet Nam asked respondents about the importance of different ‘life domains’. A total of 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

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Panel a: By region



Panel b: By income quintile

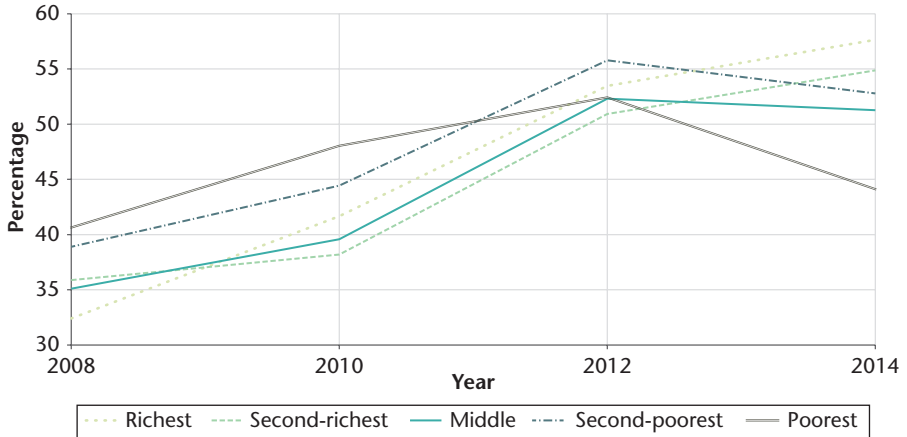


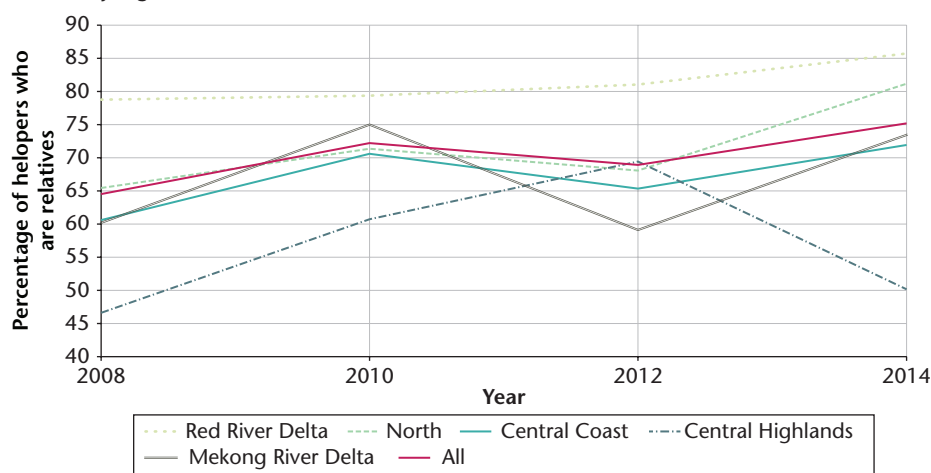
Figure 9.6 Generalized trust

Notes: 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'.

Source: Author's calculations based on VARHS 2006–14.

play a large role in, for example, land rental markets and in terms of getting access to emergency funding (see later in this section). This suggests that stocks of 'bonding social capital' are high in rural Viet Nam. This is a strength when, for example, 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

Panel a: By region



Panel b: By income quintile

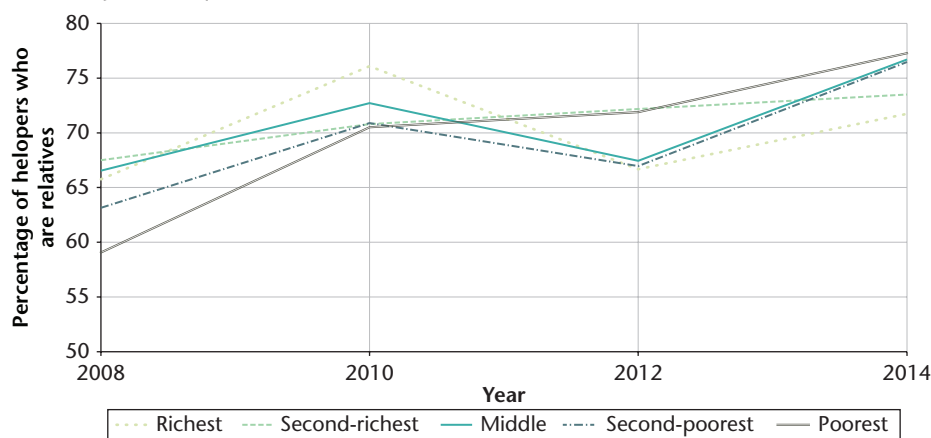


Figure 9.7 Share of financial helpers who are relatives of the respondent

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

Source: Author's calculations based on VARHS 2008–14.

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.

VARHS 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?’ Slightly over 90 per cent list at least one such person. Respondents are asked to provide details about the three most

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important helpers, for example, whether they are relatives or not. Figure 9.7 shows the average share of financial helpers who are relatives of the household, focusing on the three most important helpers (we only have detailed data on the three most important helpers in each household). Again, changes in question formulation lead us to leave out results for 2006.

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 9.7 (panel b) 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.

In Figure 9.8, I 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

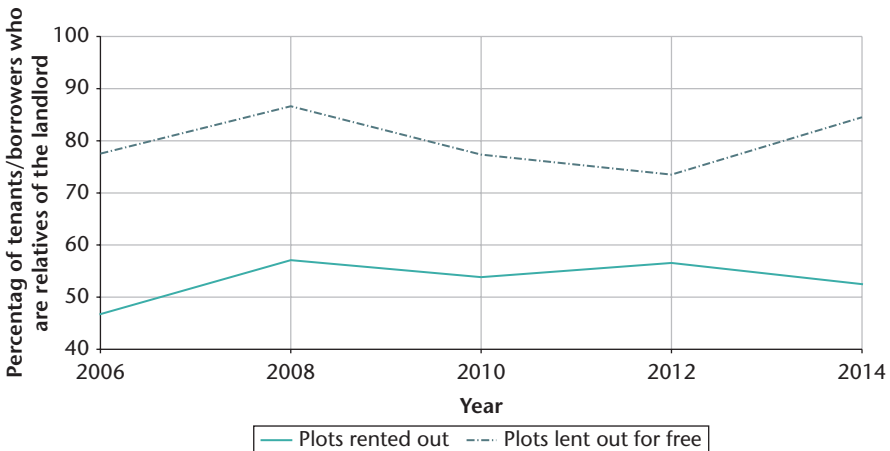


Figure 9.8 Share of rented plots where the tenant is a relative of the landlord

Notes: 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).

Source: Author's calculations based on VARHS 2006–14.

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 arrangements where the land was lent out for free. Because the number of plots rented out is relatively small, I 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.

Hence, I 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.

9.7 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 in gaining access to good jobs or to cheaper supplies of credit and labour, thereby increasing their ability to invest and to profit from their businesses. Also, social capital is 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 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.

I estimate models of the following type:

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

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. α_i is a household fixed effect and φ_t is a year-dummy. ϵ_{it} is an error term, allowed to be correlated within communes, the primary sampling unit of the VARHS. β and γ are vectors of parameters to be estimated. In the set of social capital measures, I include the variables discussed earlier: 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. 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, this is a measure of linking social capital, or political capital.

In the set of control variables, I 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 in this section. 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 these factors may affect both social capital and income and generate spurious correlations between our variables of interest. In this respect, VARHS 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. I cannot rule out that income is used as a criterion for Party membership, for example. I 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.

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 9.1) and then also estimate models where all variables are entered together (Table 9.2). Table 9.1 presents only fixed effects regression (note that bi-variate relations between social capital measures and income are shown in the figures that present results by income quintile). Table 9.2 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).

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Table 9.1 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. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Author's calculations based on VARHS 2008–14.

Consider now the results in Table 9.1, where social capital measures are entered one by one (with the exception of the measures of MO and non-MO membership, which are entered together).

Table 9.1 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 (Narayan and Pritchett 1999: 143).

Next, consider Table 9.2, 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 9.1. Regressions 3 and 4 include number of working-age household members and asset variables along with the control variables used in Table 9.1.

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

Table 9.2 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

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

Source: Author's calculations based on VARHS 2008–14.

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consistent with the findings of a strong correlation between income and Party membership in Figure 9.1 (panel b). 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. Compared with Table 9.1, the effect of 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 9.1. 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.

There are no significant, positive effects of MO membership or of membership in other voluntary groups (in fact, the effect of MO membership is weakly significantly negative in random effects models). This means that there is no apparent, private economic return to activities in these groups. 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 3 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 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 seek a comprehensive understanding of the factors behind household welfare and economic development.

I 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 57–8 years. The effect of female household 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 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 (cf. Chapter 13). 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.³

³ 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.

9.8 Conclusions

This chapter has documented the evolution of various aspects of social capital over time and the distribution of social capital across regions and socioeconomic 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 MOs is less common in the South than in the North but there is no income gradient in MO memberships. 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. 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 Distribution Issues

10

Welfare Dynamics: 2006–14

Andy McKay and Finn Tarp

10.1 Introduction

A key interest in using household-level panel data is to analyse the evolution of welfare over time. Among the wide range of information collected in the Viet Nam Access to Resources Household Surveys (VARHS) is data which enables the construction of measures of households' food consumption, their income from different sources and their ownership of a wide range of assets. Each of these can form the basis for a welfare measure in its own right. And measures of each of these are available, on a comparable basis, across the five waves since 2006. Taking advantage of the panel feature of the data set offers an important opportunity to examine the dynamics of welfare in rural Viet Nam. The fact that three separate measures are available enriches the analysis and provides cross checks. More specifically, the VARHS makes it possible to identify cases of consistent progress over the five waves, cases of regress, and cases of volatility in living conditions. It also contributes to understanding the factors which are associated with these changes.

In analytical work based on panel data, it is important to be mindful of the presence of attrition, an issue already introduced in Chapter 2. It is considered in what follows specifically in relation to the analysis of the dynamics of household welfare.

An extensive literature has looked at poverty dynamics based on household survey data. These have included a number of studies for Viet Nam, drawing on the data sets available from the different rounds of the Viet Nam Household Living Standards Survey (VHLSS) or the previous Viet Nam Living Standards Surveys (VLSS). Examples of such studies include Glewwe and Nguyen (2002), Justino, Litchfield, and Pham (2008), Baulch and Dat (2011), Imai, Gaiha, and

Kang (2010), and Coello, Fall, and Suwa-Eisenmann (2010). These studies report consistent progress in households escaping from poverty on a large scale over the 1990s and 2000s, evidence which is consistent with existing cross sectional poverty estimates and the general macro developments reported in Chapter 1.

The focus here is on welfare dynamics without making reference to any specific poverty line. Quite a lot of literature has examined this question as well, but mostly in countries other than Viet Nam—examples include Dercon (2004), Fields and colleagues (2003), Jalan and Ravallion (2004), Lokshin and Ravallion (2006), Beegle, De Weerd, and Dercon (2011), and Hirvonen and de Weerd (2013). Other studies have sought to model asset dynamics, including Carter and Barrett (2006), Lybbert and colleagues (2004), and Barrett and colleagues (2006). The analysis in this chapter draws on insights from this literature.

This chapter is structured as follows. Section 10.2 explains the construction of the welfare measures and presents some initial characteristics of the data. In turn, Section 10.3 analyses the structure of income in more detail. The main welfare dynamics analysis is then presented in Sections 10.4–10.6. Section 10.4 contains a further descriptive analysis, whereas Section 10.5 examines the issue of attrition. Section 10.6 presents an econometric analysis, and Section 10.7 offers our conclusions.

10.2 Measuring Household Welfare

As noted in Section 10.1, there are three different ways of assessing the welfare levels of households based on the VARHS data: food consumption, income, and assets. Information is collected on household consumption of main food commodities over the preceding four weeks (from purchases, own production, or other sources). In all five waves households were asked about their summary income from different main sources (agriculture, wage, non-farm non-wage, transfers, etc.). It is, in addition, possible to construct other measures of household income from the VARHS data, using detailed questions about agricultural sales and input purchases, on members' engagement in wage work, on household non-wage non-farm activities, and on common property resources, as well as receipts of transfers. But as not all of these components were collected in the 2006 survey, this measure can only be computed for the last four waves. The main focus here is on measures available throughout the period considered, but this second income measure is briefly referred to as well.

Both the food consumption and income 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 price adjustment over time for the income measure is made using the rural value of the consumer price index (CPI) for Viet Nam at the province level; and the adjustment over time for the food consumption measure is made using the province-level value of the food price index from the consumer price index. Both indices were supplied by the General Statistics Office of Viet Nam (GSO). 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. A summary measure is needed. Asset prices may not be reliable, and some assets may not be easily valued at all, so we construct a summary measure here 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 Table 10.A1 in the Appendix.

Summary statistics for the different welfare measures for the households included in the panel for the five waves are presented in Table 10.1 and kernel density plots for the same variables are presented in Figure 10.1. Both the mean and median values 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 increases in most periods. The kernel densities show a general pattern of rightward shifts, though not always across the whole distribution.

Turning to income, for the years for which both measures are available, the estimates are of similar orders of magnitude. Using the summary income measure, the mean and median values both increase consistently between 2006 and 2010, and particularly strongly between 2008 and 2010. They then

Table 10.1 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 1	Mean	13,068	16,983	28,517	24,090	27,376
	Standard deviation	19,224	25,447	42,743	31,095	37,680
	Median	8,614	10,755	18,822	16,860	18,954
Household income 2	Mean		15,483	19,848	22,738	25,051
	Standard deviation		19,681	30,600	27,025	26,968
	Median		10,977	13,976	16,860	18,789

Source: Authors' computation from VARHS panel database.

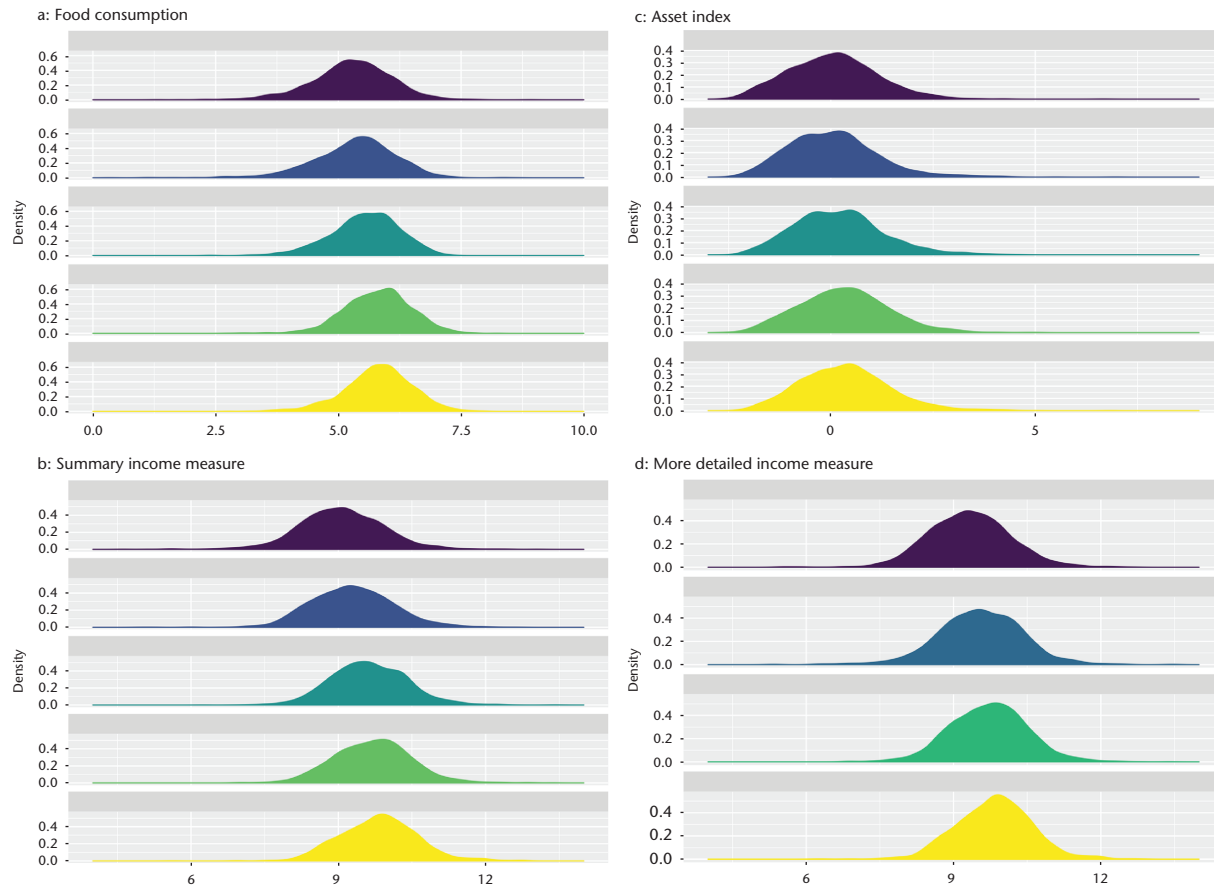


Figure 10.1 Kernel density plots of different welfare measures

Source: Authors' illustration based on data from VARHS database. In each case the oldest year is at the top of the panel.

fall between 2010 and 2012 before rising again in 2014. The kernel density plots show a pattern of shifts to the right over time, again demonstrating the large increase in the summary income measure between 2008 and 2010. The more detailed income measure shows a rather smaller increase between 2008 and 2010. It may be that the summary measure was less accurately reported in 2010 than in other years and the detailed one is more accurate (which cannot be known for sure). But it is also likely that inflation over this period, where food prices increased sharply, has been underestimated because the CPI places too little weight on food for these rural households. This is not an issue with the food consumption measure.

In all cases though, the overall pattern of the three measures available for the full period is of the welfare levels being much higher in 2014 than was the case in 2006.

For the most part, the different welfare measures show very similar patterns of change over time; the only notable difference being between the summary income measure and the other two. It is, however, fully expected that income will be somewhat more volatile over time, reflecting short term factors, than the food consumption or asset measures. Thus, this difference is not surprising, reinforced by the fact that income is also likely to be less accurately measured than the other two measures.

10.3 Sources of Income

Before turning to analysing welfare dynamics in detail, we first consider sources from where households derive their incomes. The summary measure of total household income was estimated as a sum of reported income from each of several main sources; and the percentage composition of total income for the five years of the panel is reported in Table 10.2.

The two most important sources of income are agricultural income and wage income. Between 2006 and 2014 the relative importance of wage income gradually increased and that of agricultural income fell, but both sources remained 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. While this proportion was higher in 2006 and 2008 and 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. Some 65 per cent of households reported earning wage income and for the remaining income sources the proportions were smaller. While

Table 10.2 Composition of household income using summary income measure (%)

	2006	2008	2010	2012	2014
Wage	28.6	28.2	29.7	33.2	35.7
Agriculture	36.9	41.3	36.7	30.0	28.4
Common property resources	2.7	3.4	3.2	2.9	2.1
Non-farm non-wage	13.9	12.3	11.8	11.8	12.1
Rental	0.5	0.7	0.8	1.0	0.7
Other	17.3	14.0	17.8	21.2	21.0
<i>Six mainly agricultural provinces</i>					
Wage	22.9	14.8	18.3	21.8	26.0
Agriculture	54.4	62.6	57.5	53.6	50.0
Common property resources	4.3	6.3	4.8	5.3	3.9
Non-farm non-wage	8.8	7.2	8.4	6.5	6.4
Rental	0.4	0.3	0.5	0.7	0.3
Other	9.3	8.8	10.4	12.0	13.5
<i>Six less agricultural provinces</i>					
Wage	30.7	33.1	33.9	37.4	39.2
Agriculture	30.5	33.5	29.1	21.3	20.5
Common property resources	2.1	2.4	2.5	2.0	1.4
Non-farm non-wage	15.7	14.2	13.1	13.7	14.2
Rental	0.6	0.8	0.9	1.1	0.9
Other	20.3	16.0	20.5	24.5	23.8

Source: Authors' computation from VARHS panel database.

agriculture therefore continues to play a central role in the livelihood of most of these rural households in Viet Nam, almost all households combine agriculture with other income 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 earnings, consistently more than 60 per cent of earnings come from agriculture and wages combined. These results reconfirm the fact that over time the share of wages increases and that of agriculture falls. The increase in wage income reflects both the fact that over time more households have a member engaged in wage work as well as an increase in earnings. Only a minority of households have businesses. Yet, for many that do this is a good income source. While many more households receive transfers the amounts are typically smaller. The other components of income reported in Table 10.2 are very small on average, though they can be important for some individual households.

It is important as well to note that the composition of income is relatively stable over time, providing some support for the view that the large increase in

this measure between 2008 and 2010 may have reflected an underestimation of inflation.

The lower panel of Table 10.2 shows a disaggregation between the six of the twelve VARHS provinces where agricultural livelihoods remain very important, and the other six where non-agricultural livelihoods are becoming increasingly important over time.¹ The former provinces are those in the highlands in the north of the country and the Central Highlands; while the latter set groups together provinces close to major cities and/or located on the coast. Table 10.2 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 to one-quarter of income, with business income accounting for another 10–15 per cent. The share of other income is relatively small. The share of wage income has been increasing from 2008 but remains much less important than agriculture. In the second group of provinces, wage income is the biggest source throughout, and it is growing over time. However, agriculture continues to make a significant contribution even if much less than in the former group. In the six less agricultural provinces 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 VARHS collected more detailed information enabling the computation of more precise and more disaggregated components of household income. As well as providing more detail, this may be a more accurate estimate of household income. Table 10.3 reports mean values of per capita real income from the more detailed income measure defined in this way.

Table 10.3 More detailed analysis of household income composition, 2008–14 (%)

	2008	2010	2012	2014
Crops	34.6	23.2	22.9	23.6
Livestock	4.6	3.6	8.0	-7.6
Common property resources	3.4	4.4	2.9	2.1
Household business	12.7	13.7	3.9	12.4
Wages	28.2	31.3	33.0	44.5
Private transfers	8.0	12.1	10.5	10.7
Public transfers	6.8	8.2	8.6	9.9
Other	1.7	3.5	10.4	4.4
Per capita household income	15,483	19,848	22,738	25,051

Source: Authors' computation from VARHS panel database.

¹ The first six provinces are: Lao Cai, Lai Chau, Dien Bien, Dak Lak, Dak Nong, and Lam Dong. The second six are Ha Tay, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, and Long An.

The broad consistency in the levels of the summary estimates seen in the Section 10.2 is quite similar to the more detailed measures. The overall shares of the main income components are also 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 in Table 10.2, and among agricultural earnings from crops dominate with livestock and aquaculture making much smaller contributions on average.

We now turn to the principal interest in this chapter; that is changes in household welfare over time.

10.4 Descriptive Analysis of Changes in Household Welfare

Section 10.2 reported the aggregate change in the three welfare measures considered here. Given the likelihood of diversity of experience within the panel, a much more disaggregated analysis is also called for. This is the focus of the remainder of this chapter. We focus on the measures available for all the five waves; and begin by summarizing the patterns and trends in real per capita food expenditure consumption among the households. This is reported in Table 10.4 disaggregated according to different criteria, some of which will be considered again in the multivariate analysis of Section 10.6.

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 large average growth of food expenditure at an annualized average of 5.7 per cent. Figure 10.1 showed that the 2014 distribution clearly lies to the right of the 2006 distribution. This suggests growth across the distribution, but does not imply that consumption grew for all individual households. Among most provinces, average levels of consumption tend to fluctuate from one year to another, and the fastest growth over the 2006–14 period was experienced in Ha Tay, Quang Nam, and Long An, all provinces located close to important urban centres.

The panel data makes it possible to study mobility over time. Given inevitable measurement error in the data, it makes sense to focus on larger changes. Accordingly, Table 10.5 reports the percentage of households experiencing either: (i) a 20 per cent or greater increase in real per capita food consumption or income between 2006 and 2014, or (ii) a 20 per cent or larger reduction, disaggregated according to the same categories as in Table 10.4. Overall, nearly 67 per cent of households 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. So a majority of households in all categories saw increases of 20 per

Table 10.4 Levels and changes in real per capita food consumption in the 2006–14 VARHS panel

	2006	2008	2010	2012	2014	Annualized growth rate 2006–14, %
<i>By province</i>						
Ha Tay	247.5	288.8	347.5	488.3	477.2	8.6
Lao Cai	235.0	166.0	140.4	215.5	286.7	2.5
Phu Tho	297.3	330.5	380.5	475.2	365.0	2.6
Lai Chau	163.1	187.7	177.2	231.8	198.7	2.5
Dien Bien	195.5	187.9	269.2	275.7	285.2	4.8
Nghe An	236.1	304.2	269.1	395.7	316.6	3.7
Quang Nam	259.1	305.2	315.8	403.3	498.7	8.5
Khanh Hoa	362.9	270.3	467.3	385.0	509.3	4.3
Dak Lak	276.7	289.2	252.4	347.6	371.5	3.8
Dak Nong	346.8	351.1	337.7	446.7	387.4	1.4
Lam Dong	350.8	206.2	330.9	321.4	432.8	2.7
Long An	287.8	303.0	359.6	458.4	526.5	7.8
<i>By education quartile</i>						
Lowest	177.2	194.6	221.1	278.4	296.2	6.6
2	237.2	247.1	299.4	382.5	400.4	6.8
3	286.1	302.3	357.0	430.8	457.4	6.0
Highest	370.5	405.5	404.9	566.1	514.2	4.2
<i>By household size</i>						
1 or 2	288.0	311.7	349.3	450.6	455.5	5.9
3 or 4	173.6	173.5	195.7	250.7	253.4	4.8
5 or 6	288.0	311.7	349.3	450.6	455.5	5.9
More than 6	173.6	173.5	195.7	250.7	253.4	4.8
<i>By ethnicity</i>						
Kinh	288.0	311.7	349.3	450.6	455.5	5.9
Non-Kinh	173.6	173.5	195.7	250.7	253.4	4.8
<i>By remoteness status</i>						
Non-remote	282.4	295.9	337.8	430.0	426.3	5.3
Remote	227.5	259.2	277.5	369.0	392.3	7.1
<i>By illness status</i>						
Not ill	273.4	299.3	323.8	434.4	425.1	5.7
Suffered illness	253.9	261.9	313.1	375.7	401.8	5.9
<i>By migrant status</i>						
No migrants	262.0	278.6	323.3	393.9	388.2	5.0
Migrants	272.8	296.1	313.1	443.4	466.0	6.9
Total	265.9	284.9	319.7	411.6	416.1	5.8

Note: Disaggregated by different criteria (VND '000s).

Source: Authors' computation from VARHS panel database.

cent or more in both variables over the period, though in some instances, such as the case of Lao Cai in the Northern Highlands, only just over half of the households saw increases of this magnitude in their food consumption or income.

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 between 2006 and 2014 even when the average increase was 5.7 per cent a year

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Table 10.5 Percentage of households experiencing significant increases and reductions in food expenditure and income over the period of the surveys

	Food consumption		Income	
	% increasing 20% or more	% falling 20% or more	% increasing 20% or more	% falling 20% or more
<i>By province</i>				
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
<i>By education quartile</i>				
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
<i>By household size</i>				
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
<i>By ethnicity</i>				
Kinh	67.6	16.2	76.6	10.6
Non-Kinh	63.7	23.6	72.3	15.8
<i>By remoteness status</i>				
Non-remote	66.1	18.2	76.1	11.7
Remote	68.4	16.3	75.0	11.3
<i>By illness status</i>				
Not ill	66.7	17.5	76.8	11.4
Suffered illness	67.0	17.8	74.2	12.0
<i>By migrant status</i>				
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

Source: Authors' computation from VARHS panel database.

over eight years. A non-negligible number of households have been getting significantly worse off, while around them many households improved their living conditions substantially. This is much more common in some provinces (often Northern or Central Highlands) and is higher among ethnic minority households (Table 10.5). 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 province compared to other groups. For neither measure is there any reason to think that this just reflects life cycle factors as households age or children leave home; while this might be the explanation in some cases an analysis of the data suggests that there are many other factors.

10.5 Attrition

The issue of attrition was introduced in Chapter 2, where it was noted that the scale of attrition is small in the VARHS data and does not show any systematic pattern according to the variables considered there. In coming to grips with household welfare dynamics, it is important to consider here whether there is any systematic relationship between attrition and the welfare measures used.

A comparison between the average values of the different welfare measures among attrited households and those remaining in the panel is presented in Table 10.6. The number of attrited households is very similar to those already reported in Chapter 2 (any differences being accounted for by the fact that these tables are only computed for the income, consumption and asset measures in focus).

There is no significant difference in the baseline food expenditure or income in any of the sub-panels presented. There are, however, significant differences between attrited and retained households in relation to their asset holdings,

Table 10.6 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
<i>Summary income</i>					
2006 base	2322				
2006-8 panel	2264	58	13,234	13,125	-0.04
2006-8-10 panel	2223	41	14,102	13,107	-0.33
2006-8-10-12 panel	2185	38	12,096	13,124	0.33
2006-8-10-12-14 panel	2160	25	18,012	13,068	-1.28
<i>Food consumption</i>					
2006 base	2322				
2006-8 panel	2264	58	279.8	266.8	-0.36
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	2160	25	291.8	265.9	-0.47
<i>Asset index</i>					
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	2162	25	-0.464	0.042	2.36

Source: Authors' computation from VARHS panel database.

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. It does seem that those with fewer assets are more likely to migrate. Overall though, there is only very limited evidence of systematic patterns of attrition.

10.6 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 consider two different approaches: examining changes between the beginning and end of the panel for households present in all five waves, then looking at wave-to-wave changes for all households present for the two waves in question, within the balanced panel.

What is being estimated here is effectively a growth model at the micro level, where the change in the logarithm of the welfare measures is regressed on their respective level in the previous period and different household characteristics in the previous period, including fixed effects (variously done at the province and district level). In this model the previous period value of the welfare measure is highly likely to be endogenous. Instrumental variables are therefore needed, and for both income and consumption various physical assets owned by the household are relied on. 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 ordinary least squares (OLS).

Table 10.7 presents values for the change in the welfare measures between the beginning and end of the period, while Table 10.8 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–Hausman test. Household ownership of motorcycles 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.

In all cases the lagged level of the welfare measure is significant and negative, as expected in a growth model. Beginning with the regressions which compare 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 of a household having had migrants has a large and strongly significant positive influence on all

Table 10.7 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	-0.5381	-7.83				
Income 2006			-0.3747	-5.04		
Asset index 2006					-0.6330	-23.57
Time worked			-0.0004	-5.13	0.0000	-0.35
Hh size	-0.0687	-1.81	-0.0726	-1.62	-0.0777	-1.38
Females < 5 years	-0.0020	-0.04	0.0802	1.24	0.0688	0.89
Males < 5 years	-0.0137	-0.27	0.0870	1.39	0.1135	1.52
Females 5–15 years	0.0413	1.02	0.1233	2.44	0.2263	3.81
Males 5–15 years	0.1001	2.47	0.1345	2.70	0.3079	5.18
Females 15–59 years	0.0670	1.66	0.1043	2.09	0.0739	1.24
Males 15–59 years	0.0558	1.48	0.1548	3.34	0.1811	3.22
Females 60 years and above	0.0506	0.86	0.1017	1.44	0.0644	0.74
Education per capita	0.0057	0.82	0.0150	1.88	0.0606	7.66
If household has business	-0.0128	-0.41	-0.0057	-0.15	-0.0106	-0.24
If had natural shock	-0.0825	-1.39	0.0550	0.78	0.1352	1.54
If had pest attack	0.0275	0.73	0.0598	1.30	0.0079	0.14
If had economic shock	0.1092	0.56	0.4413	1.92	0.1909	0.67
If had illness shock	-0.0381	-0.97	-0.0654	-1.41	-0.0611	-1.07
Number of groups	-0.0441	-1.65	-0.0287	-0.92		
Number of political groups	0.0442	1.49	0.0386	1.10		
If female-headed	-0.0190	-0.51	-0.0330	-0.74	-0.2130	-3.86
If has red book	-0.0439	-0.97	-0.0471	-0.89	0.1084	1.64
If remote	0.0208	0.62	-0.0288	-0.72	-0.0300	-0.60
If from ethnic minority	-0.0816	-0.97	-0.1644	-1.66	-0.0396	-0.32
Minority*education	0.0048	0.42	0.0069	0.50	0.0014	0.08
If have absent household member	0.1709	5.83	0.1917	5.40	0.0926	2.13
Constant	3.4430	8.31	4.0217	5.58	0.1190	0.33
F stat (first stage)	56.5		64.5			
R square	0.563		0.459		0.379	
Number of observations	2153		2148		2153	

Source: Authors' estimation based on VARHS panel database.

three measures of welfare; though in these models the fact of being from an ethnic minority is only significantly negative in the income model. This variable is also significant in relation to food consumption in an equivalent model including province level fixed effects; the district-level fixed effects have made this variable insignificant in this model.

Overall, household size has an unsurprisingly significant negative association with changes in per capita food consumption and income. 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 welfare. 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.

Welfare Outcomes and Distribution Issues

Table 10.8 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, t-2	-0.3314	-6.72				
Income, t-2			-0.2375	-5.72		
Asset index, t-2					-0.6165	-54.49
Time worked	-0.0001	-2.49	-0.0003	-6.06	0.0001	3.67
Hh size	-0.0085	-0.37	-0.0099	-0.42	0.0752	2.99
Females < 5 years	-0.0143	-0.45	0.0449	1.31	-0.1063	-2.90
Males < 5 years	-0.0831	-2.60	-0.0054	-0.16	-0.1099	-3.01
Females 5-15 years	-0.0265	-1.11	0.0016	0.06	-0.0369	-1.35
Males 5-15 years	-0.0119	-0.49	0.0109	0.42	-0.0291	-1.06
Females 15-59 years	0.0219	0.94	0.0532	2.10	0.0191	0.72
Males 15-59 years	0.0254	1.17	0.0632	2.71	0.0516	2.1
Females 60 and above	0.0310	0.92	0.0304	0.85	-0.0263	-0.68
Education per capita	0.0091	1.94	0.0167	3.61	0.0644	16.09
If household has business	0.0135	0.71	-0.0487	-2.36	-0.0228	-1.15
If had natural shock	-0.0044	-0.22	0.0626	2.84	-0.0113	-0.47
If had pest attack	0.0345	1.89	0.0217	1.11	-0.0495	-2.36
If had economic shock	-0.0030	-0.08	-0.0048	-0.12	-0.1060	-2.52
If had illness shock	-0.0339	-1.47	-0.0641	-2.62	-0.0706	-2.64
Number of groups	-0.0432	-3.68	0.0276	2.30		
Number of political groups	0.0303	2.36	-0.0293	-2.15		
If female-headed	-0.0358	-1.68	-0.0365	-1.62	-0.1930	-7.82
If has red book	-0.0572	-2.35	0.0179	0.72	0.0482	1.77
If remote	-0.0202	-1.09	-0.0276	-1.40	0.0068	0.31
If from ethnic minority	-0.1505	-2.78	-0.1009	-1.77	-0.0474	-0.76
Minority*education	0.0149	2.26	0.0030	0.42	0.0064	0.83
If have absent household member	0.0257	1.49	0.0257	1.4	0.0910	4.56
Constant	1.9853	6.88	2.3974	5.81	-0.5405	-3.26
F stat (first stage)	167.8		237.3			
R square	0.324		0.338		0.287	
Number of observations	8526		8511		8540	

Source: Authors' estimation based on VARHS panel database.

Perhaps of greater interest are the results relating to the entire panel data set (Table 10.8). Again, the instrumental variables strongly pass the test for weak instruments. Similar results are observed here to what was seen in the previous econometric model that compared 2006 and 2014, but there are also 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 the household level), and 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. But in the case of food expenditure this effect is increasingly offset as the level education increases. However, the association with migrants is small here (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 shorter term influences on wellbeing.

Clearly the models used here bring out 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.

10.7 Conclusions

The aim of VARHS has, throughout, been on documenting the wellbeing of rural households 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 to 2014 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. Moreover, 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. One 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 also shows 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 presented here 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. 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). Migration of some household members also appears to have a very positive impact on the remaining household members over the longer term; but 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. It has also been the subject of many high-profile policy interventions. The results in this chapter suggest strikingly that even today being of a non-Kinh ethnicity remains a substantial disadvantage. 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.

Table 10.A1 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 buffalos	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

Source: Authors' computation from the VARHS database.

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11

Gender Inequality and the Empowerment of Women

Carol Newman

11.1 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'.¹ 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.

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

¹ See the 'Introductory Statement on Vietnam's Combined 5th and 6th National Report on the Implementation of the UN Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)' by Mme Ha Thi Khiet: <<http://www.un.org/womenwatch/daw/cedaw/cedaw37/statements/delegations/VIETNAM.pdf>> (accessed 4 April 2016).

among women in public positions. More recently, the World Bank's (2016) report *Vietnam 2035*, also emphasized that progress in relation to gender equality has been made but that there are still differences along gender lines. In this chapter we focus on gender differences in rural Viet Nam for the period 2008 to 2014, highlighting in particular, the heterogeneity in gender inequality for different groups of households and cohorts of women and men.

A large and growing literature emphasizes the value of gender inequality, not only as an end-goal in itself but also in terms of its impact on economic development. For example, Jensen (2012) and Heath and Mobarak (2015) provide evidence that increasing labour market opportunities for women in India and Bangladesh, respectively, had positive impacts on the empowerment of women including delaying marriage and reducing fertility rates. Menon, Rodgers, and Kennedy (2013) and Newman, Tarp, and van den Broeck (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 a human right, promoting gender equality will also contribute to development through the impact that female empowerment has on the welfare of families, and children in particular, in relation to, for example, nutrition, education, and agricultural productivity.²

In this chapter we use the Viet Nam Access to Resources Household Survey (VARHS) to analyse the extent of gender inequality in the welfare of households and individuals living in rural areas. We consider the two distinct groups of women living in rural Viet Nam. We first examine female-headed households, the majority of which are headed by 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 examine the economic situation of female-headed households and consider how they are different to their male counterparts. We find that female-headed households are a very distinct socioeconomic group that is 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

² See van den Bold, Quisumbing, and Gillespie (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.

2014 period. We focus on three sets of outcomes, namely: health, education, and economic activities, and use a cohort analysis that allows us to compare the characteristics of women and men within given age brackets over time.

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 earlier in this section 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 11.2 we examine the characteristics of female-headed households in terms of socioeconomic characteristics, income, and vulnerability. In Section 11.3 we present a cohort analysis using the individual level data focusing on four cohorts: 18–30-year-olds, 31–45-year-olds, 46–60-year-olds, and those aged 61 and over. In Section 11.4 we present measures of female empowerment and relate these measures to household welfare. Section 11.5 concludes.

11.2 Characteristics of Female-Headed Households

Approximately one-fifth of households in the VARHS sample were headed by women. In this section we explore the characteristics of these households. Table 11.1 presents descriptive statistics for a variety of household characteristics disaggregated by the gender of the household head.

Female-headed households were, on average, older than male-headed households and were less likely to have children. They were also much less likely to be married and most female heads (68 per cent) were widows. They were also less likely to be ethnic minorities and were less likely to have tertiary-level education than male-headed households.³

³ In making other comparisons across these groups the distinct features of female-headed households should be borne in mind. Single male-headed households of a similar age would be a natural comparison group but there are not enough of these households in our sample to draw meaningful conclusions. As such, we focus on comparing female-headed households with all other male-headed households in the sample for the remainder of this section.

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Table 11.1 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***
Has 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***
Has higher education	0.10	0.18***	0.12	0.21***	0.10	0.21***	0.13	0.23***
Ethnic minority	0.09	0.24***	0.08	0.24***	0.09	0.23***	0.10	0.24***
<i>n</i>	458	1,716	462	1,719	480	1,701	522	1,659

Note: *** indicates that the difference between female and male headed households is statistically significant at 1% level.

Source: Author's calculations based on VARHS 2008–14 survey data.

Table 11.2 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) ^a	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	35,941	39,487
Loans (000 VND)	10,291	17,687	11,271	20,265***	15,961	20,765	10,021	22,884**
Durables (000 VND) ^b	3,577	4,524***	3,878	5,186***	4,005	5,693***	3,849	5,616***
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***
<i>n</i>	458	1,716	462	1,719	480	1,701	522	1,659

Note: ^a VND = Vietnamese Dong, 22,500 VND approximately equivalent to US\$1; ^b Outliers in the top 99th percentile of the distribution of the value of durables in each year are removed; *** indicates difference between female and male headed households is statistically significant at 1% level and ** at 5% level.

Source: Author's calculations based on VARHS 2008–14 survey data.

Table 11.2 presents descriptive statistics on the income and assets of female-headed households compared to their male counterparts. Female-headed households were less well off than male-headed households. In all years (monthly) income levels were 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 had similar levels of food expenditure per capita to male-headed households, and had 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

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Table 11.3 Sources of income and female-headed households, 2008–14

Head of household	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Agric. Income	0.82	0.91***	0.79	0.88***	0.75	0.86***	0.73	0.85***
HH enterprises 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 ^a	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

Notes: ^a *No activities* refers to households that do not earn an income from any of the economic activities considered here. The main source of income for these households was from public and private transfers. *** indicates difference between female and male headed households is statistically significant at 1% level, ** at 5% level, and * at 10% level. Source: Author's calculations based on VARHS 2008–14 survey data.

and nutrition.⁴ This latter explanation could also account for the fact that despite differences in household income the savings levels of female-headed households were also similar to those of male-headed households. While the actual level was lower in each year the difference was not statistically significant at conventional levels.

Female-headed households were worse off than their male counterparts in terms of other assets. The value of their durable goods⁵ was much lower (significantly so in all years) and it appears that they had less access to credit, with much lower loan amounts than male-headed households. They also had much smaller land holdings (about half that of male-headed households). They were, however, more likely to have a red book (land-use certificate (LUC) for the land that they own). This suggests that securing property rights is more important for female-headed households than male-headed households.

Table 11.3 explores the income sources of female-headed households. They were 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 were more likely to earn income from household enterprises than male-headed households, but in 2012 and 2014 they were 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

⁴ For evidence linking female empowerment to child nutrition see, for example, Fafchamps, Kebede, and Quisumbing (2009), Guha-Khasnobis and Hazarika (2006), Kennedy and Peters (1992), and Thomas (1990).

⁵ Durable goods include TVs, radios, computers, mobile phones, household appliances, motor vehicles, and farm assets.

Table 11.4 Vulnerability of female-headed households, 2008–14

Head of household	2008		2010		2012		2014	
	Female	Male	Female	Male	Female	Male	Female	Male
Natural shock	0.35	0.46***	0.34	0.45***	0.22	0.35***	0.18	0.26***
Economic shock	0.28	0.22***	0.19	0.16	0.21	0.19	0.18	0.13***
<i>n</i>	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.

Source: Author's calculations based on VARHS 2008–14 survey data.

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. Indeed, when we focus on the sample of households that are under 55 in all periods almost all are engaged in some form of economic activity (result not shown).

In Table 11.4 the vulnerability of female-headed households to income shocks is compared to that of male-headed households. In all years female-headed households were 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 were more vulnerable to economic shocks, particularly in 2008 and 2014. This reflects the underlying vulnerability of female-headed households given that the majority were widowed, surviving on much lower income levels than other households.

It is clear from the analysis presented in this section that female-headed households in the VARHS sample were distinct from other households in a number of different respects. They were low-income households typically headed by widows. They had less land and were less engaged in agricultural activities than other households. They also had fewer assets more generally. They did, however, save as much as other households and had similar per capita food consumption levels, suggesting that they were 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.

11.3 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 that records whether or not an individual suffered from any illness in the previous two weeks. For those individuals who 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 (for example, firewood and food grown on common property land), 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.

11.3.1 *Health Outcomes*

Table 11.5 presents differences in health outcomes for men and women in the VARHS balanced panel for the 2008 to 2014 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, 46–60, and 60+ age groups were more likely to report that they had been ill in the previous two weeks. In 2014 there was no gender difference. In terms of the type of illness, males in the 31–45 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).

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Table 11.5 Gender cohort analysis 2008–14, health outcomes

	18–30 years				31–45 years			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Individual								
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
<i>n</i>	1,121	1,102	987	947	923	731	1,009	740
	46–60 years				61+ years			
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
<i>n</i>	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.

Source: Author's calculations based on VARHS 2008–14 survey data.

Overall, it is clear that health outcomes improved for all between 2008 and 2014 with no evidence of gender disparities.

11.3.2 Education Outcomes

Differences between 2008 and 2014 in education outcomes for male and female cohorts are presented in Table 11.6. 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 was 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 continued to outperform males on this measure in 2014 in all age cohorts.

There were significant increases in the years of schooling for both men and women in all age cohorts. The most notable improvements were among 18–30-year-olds. Significant improvements for men are evident in the 46–60 age group and in the over 60s. Again women outperformed men on this outcome across all age cohorts in both 2008 and 2014. One exception was among the 18–30 age group, where, in 2014, there was no statistical difference in the average years of schooling of men and women.

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Table 11.6 Gender cohort analysis 2008–14, education outcomes

	18–30 years				31–45 years			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Individual								
Literate	0.96	0.98	0.93***	0.94***	0.91	0.90	0.87**	0.84***
Years of education	9.22	10.30	8.92**	10.11	7.12	7.85	6.43***	6.96***
<i>n</i>	1,121	1,099	987	946	923	730	1,009	740
	46–60 years				61+ years			
Literate	0.93	0.93	0.88***	0.90**	0.89	0.92	0.63***	0.76***
Years of education	7.22	7.94	5.87***	7.01***	5.60	6.77	2.41***	4.12***
<i>n</i>	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.
Source: Author's calculations based on VARHS 2008–14 survey data.

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.

11.3.3 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 11.7.

There were 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.

Women worked 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 years cohort and the 46–60 years cohort. Women spent significantly more days in waged employment than men. In the 18–45 years cohorts they also spent more time collecting common property resources although the overall number of days spent in this activity was low. Men, on the other hand, particularly those in the 31–45 years cohort, spent more days than women engaged in agricultural activities.

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Table 11.7 Gender cohort analysis 2008–14, economic activities

Individual	18–30 years				31–45 years			
	Female		Male		Female		Male	
	2008	2014	2008	2014	2008	2014	2008	2014
Total days worked	146	139	142	123***	217	195	195***	178***
Days agric.	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***
<i>n</i>	1,121	1,102	987	947	923	731	1,009	740
	46–60 years				61+ years			
Total days worked	192	161	175***	140***	70	60	55**	49**
Days agric.	101	62	112**	69**	47	31	39	26*
Days cpr	6	5	4**	4**	2	3	2	2
Days HH enterprises	31	27	39*	31	12	13	10	11
Days wage	56	68	22***	36***	9	14	4**	10
<i>n</i>	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; cpr = common property resources.

Source: Author's calculations based on VARHS 2008–14 survey data.

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 worked more days than men suggests that they face a greater burden of responsibility for generating income than men. Given that the time use data do 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. Indeed, women in paid employment were much more likely to work in service sector jobs than men in paid employment. For the sample period as a whole, 55 per cent of women in paid employment worked in the services sector compared with 34 per cent of men. Men were much more likely to take up employment in the agricultural sector (41 per cent) compared to women (27 per cent). We explore the extent to which there is evidence that this empowered women in Section 11.4.

11.4 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 on household welfare outcomes measured in various ways. We consider three different measures of

Table 11.8 Indicators of female empowerment, 2008–14

Empowerment indicator	2008	2010	2012	2014
Proportion 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

Source: Author's calculations based on VARHS 2008–14 survey data.

female empowerment. First, following from the analysis presented in Section 11.3, 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 household. 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 11.8 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 11.3, we find waged work made up a greater proportion of women's income in each year. Between 2008 and 2010 the number of households where a female household member made 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 LUC increased 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.

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. 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:

$$wel_{ht} = \beta X_{ht} + \delta_1 empower_{ht} + \alpha_h + \tau_t + \epsilon_{iht}$$

where wel_{ht} is the welfare measure (food consumption per capita) for household h in time t ; 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; $empower$ represents the three different measures of female empowerment; α_h are household fixed effects that absorb all time-invariant household-specific characteristics such as, for example, the ethnicity of the household head; τ_t are time dummies; and ϵ_{iht} is a statistical noise term.

The results are presented in Table 11.9. 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 was lower in bigger households and higher in households with more income. Assets were also highly correlated with household consumption: both durable goods and having an LUC or 'red book' were positively associated with food consumption per capita. One, perhaps surprising, result is that households that experienced economic shocks actually consumed more per capita than other households. It could be that richer households both consume more and have more assets that are vulnerable to shocks. Alternatively, it 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 11.2, are a particularly vulnerable group.

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. This is unlikely to be an income effect as it is controlled for in the regression. The magnitude of the effect is economically meaningfully. A 1 percentage point increase in the proportion of days worked by women in waged employment leads to an 8 per cent increase in per capita household consumption. This is about one third of the magnitude of the impact of a 1 per cent increase in household income on per capita household consumption.

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

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Table 11.9 Female empowerment and welfare, food consumption per capita

	(1)	(2)	(3)	(4)	(5)
<i>Empowerment measures</i>					
Proportion wage work women		0.089*** (0.031)			0.083*** (0.031)
Female manager			0.042** (0.019)		0.048** (0.019)
Joint property rights				0.049** (0.023)	0.047** (0.023)
<i>Household characteristics</i>					
Age	0.012 (0.008)	0.013 (0.009)	0.011 (0.008)	0.012 (0.008)	0.013 (0.009)
Age ²	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Married	0.007 (0.068)	-0.001 (0.083)	0.004 (0.068)	0.007 (0.068)	-0.004 (0.083)
Children	0.019 (0.028)	0.028 (0.029)	0.020 (0.029)	0.019 (0.028)	0.029 (0.029)
Higher education	0.015 (0.034)	0.016 (0.037)	0.014 (0.034)	0.014 (0.034)	0.014 (0.036)
HH size	-0.068*** (0.012)	-0.075*** (0.012)	-0.068*** (0.012)	-0.068*** (0.012)	-0.075*** (0.012)
Income (log)	0.239*** (0.016)	0.225*** (0.015)	0.239*** (0.016)	0.238*** (0.016)	0.224*** (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)	0.026 (0.020)	0.010 (0.021)	0.025 (0.020)	0.026 (0.020)	0.010 (0.021)
Household enterprise	0.028 (0.022)	0.053** (0.024)	0.026 (0.023)	0.028 (0.022)	0.051** (0.024)
Durables (log)	0.037*** (0.010)	0.038*** (0.011)	0.037*** (0.010)	0.037*** (0.010)	0.037*** (0.011)
Red book	0.100*** (0.032)	0.098*** (0.033)	0.099*** (0.032)	0.092*** (0.032)	0.088*** (0.033)
Natural shock	0.008 (0.018)	0.010 (0.018)	0.008 (0.018)	0.008 (0.018)	0.010 (0.018)
Economic shock	0.057*** (0.020)	0.058*** (0.021)	0.056*** (0.020)	0.058*** (0.020)	0.057*** (0.022)
Observations	6,574	6,174	6,574	6,574	6,174
Number of HH	1,774	1,715	1,774	1,774	1,715

Notes: Each model includes household and time fixed effects. Robust standard errors clustered at the household level in parentheses. *** indicates statistical significance at 1% level, ** at 5% level and * at 10% level.

Source: Author's calculations based on VARHS 2008–14 survey data.

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.

11.5 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 from other households. They are low-income households and a large proportion of them are headed by 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 outperformed 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. Interesting from a gender perspective, however, is that women spent more days working than men in all age cohorts, mainly due to significantly more days spent in waged employment. Moreover, for 18–30-year-olds and 46–60-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 were 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 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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12

Children and Youths

Gaia Narciso and Carol Newman

12.1 Introduction

As demonstrated throughout this book, the ongoing process of structural transformation in rural Viet Nam has led to rising incomes and a diversification of economic activities away from agriculture. As incomes rise and rural households become better off, the welfare of children, like other household members, are likely to improve. Improvements in the level and security of household income (see Chapter 10) are 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 (see Chapter 5), children are less likely to spend their time on agricultural work allowing more time for school and study. Where economic transformation empowers women, this is also likely to impact positively on the welfare of children (see Chapter 11).¹ It is also possible, 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 (see Chapter 10), children and youths, as a particularly vulnerable group, are likely to be adversely affected.

In this chapter, we use the Viet Nam Access to Resources Household Survey (VARHS) data to examine how the lives of the children and youths living in rural Viet Nam have been impacted by structural transformation. First, we examine the characteristics of households with children compared to those

¹ 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 (Pitt and Khandker 1998; Duflo 2003; Qian 2008). Newman (2015) shows significant improvements in the empowerment of women in Viet Nam over the last decade, evident through an expansion in access to resources and economic opportunities for women.

without and how these have changed between 2008 and 2014. Second, 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, as well as engagement in labour (agricultural, household enterprise, and waged employment). We also examine whether there is evidence in our data of heterogeneity in welfare gains along both gender and ethnic lines. The latter is of particular relevance given that the World Bank's (2016) report *Vietnam 2035* highlights the significant gaps in economic opportunities for children in poor households, and in particular among ethnic minorities.

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 (VLSS) for the period 1993 to 1998, Edmonds (2005) shows a significant drop in child labour of about 30 per cent over a five-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 gross domestic product (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 VLSS also for the period 1993 to 1998. 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 and 1993 and 1997 and 1998 was linked to a decrease in child labour.

Beegle, Dehejia, and Gatti (2009) use VLSS 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's 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, Dehejia, and Gatti (2009) find no impact of child labour on health, O'Donnell, Rosati, and van Doorslaer (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. Section 12.2 presents descriptive statistics on the characteristics of households with children in the VARHS sample. In Section 12.3, a cohort analysis is conducted to determine how the welfare of children of the same age in 2008 compares to that of children in 2014. The cohort analysis is also disaggregated along gender and ethnic lines. Panel data analysis linking household characteristics and female empowerment to children's welfare outcomes is presented in Section 12.4. Section 12.5 concludes.

12.2 The Characteristics of Households with Children

In 2014, 54 per cent of households in the VARHS sample had children.² 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 12.1 explores the variation in fertility across seven different regions covered by VARHS, namely: Red River Delta (Ha Tay), North (Lao Cai, Phu

² Any household member under the age of 18. We consider different age brackets throughout the analysis: 6–9-year-olds, 10–15-year-olds, and 15–18-year-olds.

Welfare Outcomes and Distribution Issues

Table 12.1 Geographical variation in fertility

	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

Note: unbalanced panel of households.

Source: Authors' calculations based on survey data from VARHS 2008–14.

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 (MRD) (Long An).³ 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.

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 12.2. 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 more likely to have children than

³ It should be noted that our data are not representative of the regions but the rural provinces within each region.

Table 12.2 Characteristics of households with children, 2008–14

	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 ^a	37.45	43.49***	38.55	45.96***	37.34	46.65***	38.36	48.25***
Married ^a	0.85	0.77***	0.84	0.78***	0.85	0.75***	0.85	0.74***
Female ^a	0.18	0.26***	0.18	0.25***	0.17	0.26***	0.19	0.28***
Higher ed. ^a	0.15	0.17	0.17	0.22***	0.22	0.21	0.25	0.24
Ethnic min. ^a	0.28	0.14***	0.27	0.13***	0.26	0.14***	0.25	0.15***
Income (000 VND)	1,111	1,600***	1,400	2,054***	1,665	2,267***	1,771	2,423***
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	37,061	38,162
Loans (000 VND)	15,114	17,476	20,613	15,767*	26,044	15,617**	24,822	14,218**
Durables (000 VND) ^b	4,469	4,127	5,240	4,491***	5,389	4,937*	5,618	4,666***
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

Notes: unbalanced panel of households; ^a refers to household head; ^b Outliers in the top 99th percentile of the distribution of the value of durables in each year are removed; *** indicates difference significant at 1% level, ** at 5% level, and * at 10% level.

Source: Authors' calculations based on survey data from VARHS 2008–14.

Kinh households. This is not surprising given the geographic differences presented in Table 12.1, which show the highest fertility in the north-west, where over 87 per cent of households in the sample are ethnic minorities.

The average monthly per capita income of households with children is lower than in households without children. This is also reflected in the fact that households with children have lower food expenditure per capita in all years.⁴

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, but in 2010, 2012, and 2014 households with children have significantly more durable goods. They also own more land than households without children, at least in 2008 and 2010, but are significantly less likely to hold a land-use certificate (LUC) 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 higher level of loans than households without children in the later years of the sample.

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, suggesting that there are risk-coping mechanisms at work.

12.3 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: 6–9-year-olds; 10–14-year-olds; and 15–18-year-olds.⁵ 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.

⁴ Food expenditure items include pork, beef, chicken, fish, shrimp, fruit, sweets/biscuits, 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.

⁵ We do not report the characteristics of 0–5-year-olds, as we do not find any significant change over time. Six years old is a natural starting age, given that this is the age that most children start school in Viet Nam.

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, and so on. Second, in relation to education, we consider an indicator for whether children attend school and for those above 4 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, Das, and Dutta (2010) and Edmonds and Pavcnik (2005b) highlight the importance of including domestic work as child labour. Unfortunately, the VARHS data do not measure domestic work and household chores in a consistent way over time, and so 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 12.3 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. Girls represent about half the sample in each period suggesting that, at least in our sample, there is no evidence of an imbalance in sex ratios.

Table 12.3 Characteristics of different cohorts of children, 2008–14

Cohort:	6–9-year-olds		10–14-year-olds		15–18-year-olds	
	2008	2014	2008	2014	2008	2014
Year						
Female	0.50	0.53	0.50	0.51	0.54	0.50
Sick in last 2 weeks	0.09	0.06*	0.07	0.03***	0.07	0.03***
<i>Of which:</i>						
Chronic illness	0.12	0.30**	0.09	0.04	0.16	0.10
Mental illness	0.02	0.05	0.09	0.00	0.09	0.10
Other illness	0.88	0.65***	0.85	1.00**	0.75	0.81
Attends school	0.69	0.76***	0.91	0.97***	0.64	0.75***
Years of education	2.07	2.16	5.77	5.91*	8.93	9.58***
Total days of work	6.26	1.85***	21.34	6.70***	64.64	34.40***
Days' work ag.	4.28	1.28***	17.23	5.16***	38.55	15.23***
Days' work cpr	0.52	0.16**	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	1.47	0.41	1.46	0.53	18.14	15.21
n	561	606	1,028	836	1,071	738

Notes: unbalanced panel of households. *** indicates difference significant at 1% level, ** at 5% level, and * at 10% level.

Source: Authors' calculations based on survey data from VARHS 2008–14.

There was 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 6–9 age group there has been a statistically significant increase in the diagnosis of chronic illnesses. The World Bank (2016) also reports a high incidence of respiratory infections among children in Viet Nam due to the deterioration in environmental quality. The increase in chronic illness is not observed in other cohorts.

Children are significantly more likely to attend school in 2014 compared with 2008 in all age cohorts, and children over 10 also 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 4.3 to 1 day a year in the 6–9-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. The number of days worked in waged employment are low for children aged under 15, and have declined over time to on average half a day a year. Declines in waged work are also evident 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. Within this age group most jobs are in the services sector (43 per cent in 2014), followed by manufacturing (32 per cent in 2014), and agriculture and other primary sectors (23 per cent in 2014).

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 6–9-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 6–9-year-olds cohort by expenditure quintile, as measured in 2008. Table 12.4 reports the results. In 2008, only 51 per cent of the children in the bottom quintile attended school, versus 65 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 57 per cent of the children in the bottom quintile attend school in 2014, while 76 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 middle and second richest quintiles show a

Table 12.4 Evolution of education outcomes for children aged 6–9 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	0.51	3.96	0.61	4.45	0.58	5.40	0.57	6.59
2	0.63	4.59	0.70	5.67	0.69	6.40	0.67	7.50
3	0.66	4.67	0.76	5.57	0.77	7.05	0.74	8.10
4	0.66	4.74	0.72	5.86	0.79	7.05	0.73	7.99
5	0.65	4.93	0.76	5.68	0.79	6.81	0.76	7.90

Source: Authors' calculations based on survey data from VARHS 2008–14.

significant increase in the level of school attendance, with around 74 per cent of children attending school in 2014 compared with only 66 per cent in 2008. Moreover, while all groups improved their outcomes over time, the bottom quintile, that is, 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.

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 6–18-year-old age groups. The disaggregation is presented in Table 12.5 for the overall health indicator, the education measures, and time use.

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 6–9-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 6–9 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 had 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.

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 6–9-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 one per annum in 2014. Similarly, in the 10–14 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 benefited 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; World Bank 2016), we also disaggregate the cohort analysis by ethnicity of the household head.⁶ Descriptive statistics are presented in Table 12.6. 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 10–14-year-olds and 15–18-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 are significantly lower in ethnic minority households. In 2014, the average years of schooling attained by children in ethnic minority households in the 10–14-year-old age group was 5.6 compared to six for children in Kinh households. In the 15–18-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. 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

⁶ A full analysis of ethnic minority households is provided in Chapter 13.

Table 12.5 Characteristics of different cohorts by gender of children, 2008–14

	6–9-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	0.09	0.08	0.08	0.04*	0.07	0.06	0.03	0.03	0.06	0.08	0.04	0.02
Attends school	0.67	0.71	0.79	0.72**	0.92	0.91	0.97	0.97	0.64	0.63	0.72	0.77
Years of education	2.04	2.09	2.04	2.31**	5.79	5.75	5.78	6.04**	9.01	8.85	9.48	9.68
Total days of work	7.40	5.13	1.60	2.12	18.63	24.00*	6.24	7.19	62.96	66.58	36.05	32.75**
Days' work ag.	6.24	2.33**	1.48	1.05	14.80	19.60*	5.13	5.19	39.77	37.14	17.38	13.10
Days' work cpr	0.44	0.58	0.12	0.20	1.52	1.74	0.70	0.34**	4.42	3.11*	1.85	1.99
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	1.60
Days' work wage	0.72	2.21	0.00	0.88	1.82	1.11	0.27	0.82	15.67	21.02	14.34	16.07

Notes: unbalanced panel of households. *** indicates difference significant at 1% level, ** at 5% level, and * at 10% level.

Source: Authors' calculations based on survey data from VARHS 2008–14.

Table 12.6 Characteristics of different cohorts by ethnicity of household head, 2008–14

	6–9-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	0.08	0.09	0.056	0.06	0.05	0.07	0.04	0.03	0.08	0.07	0.04	0.02
Attends school	0.68	0.69	0.74	0.76	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	9.24	4.70	2.02	1.78	30.60	17.14***	13.56	3.85***	82.47	57.44***	42.69	30.73**
Days' work ag.	7.82	2.42***	1.77	1.09	26.81	12.87***	11.61	2.46***	64.01	28.27***	30.05	8.69***
Days' work cpr	1.16	0.18***	0.24	0.13	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	0.26	2.10	0.00	0.56	0.68	1.81	0.14	0.70	9.85	21.50***	8.08	18.36**

Notes: unbalanced panel of households. *** indicates difference significant at 1% level, ** at 5% level, and * at 10% level.

Source: Authors' calculations based on survey data from VARHS 2008–14.

among non-Kinh suggests 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.

12.4 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:

$$wel_{iht} = \beta X_{ht} + \delta_1 female_{iht} + \delta_2 age_{iht} + \alpha_h + \tau_t + \epsilon_{iht} \quad (1)$$

where wel_{iht} is the welfare measure for child i in household h in time t ; X_{ht} 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; $female$ is a dummy indicator for whether the child is female; age is the age in years of the child; α_h are household fixed effects; τ_t are time dummies; and ϵ_{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 across time. The vector of household variables included in X_{it} 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 δ_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 12.3.

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 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 12.7.

We first consider the full sample of children aged 6 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.

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, Das, and Dutta (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.

Welfare Outcomes and Distribution Issues

Table 12.7 Panel data analysis of determinants of child welfare, 2008–14, 6–18-year-olds

	(1)	(2)	(3)	(4)	(5)
	Attends school	Years of education	Days worked	Days worked agriculture	Days worked wage
<i>Household characteristics:</i>					
Age	0.018*** (0.006)	0.024 (0.024)	-0.469 (0.909)	0.061 (0.582)	-0.405 (0.622)
Age ²	-0.000 (0.000)	-0.000 (0.000)	0.002 (0.010)	-0.002 (0.007)	0.002 (0.007)
Married	0.017 (0.043)	0.248 (0.171)	-1.115 (4.902)	3.505 (3.085)	-4.266 (3.484)
Female	-0.020 (0.051)	0.077 (0.215)	0.240 (5.334)	1.335 (3.182)	-2.575 (4.214)
Higher ed.	0.040* (0.022)	-0.047 (0.082)	-2.668 (2.711)	-2.984 (2.239)	0.412 (1.567)
HH size	-0.024*** (0.008)	-0.081** (0.038)	0.860 (1.081)	-0.773 (0.764)	1.552* (0.801)
Income	-0.024*** (0.008)	-0.036 (0.036)	6.188*** (1.252)	-0.088 (0.808)	5.001*** (0.872)
Loans	-0.001 (0.001)	-0.005 (0.005)	-0.015 (0.150)	-0.033 (0.100)	0.014 (0.106)
Land area	-0.000 (0.002)	-0.000 (0.007)	-0.103 (0.261)	0.367* (0.212)	-0.435*** (0.144)
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	0.017 (0.016)	0.039 (0.061)	-1.514 (2.287)	-1.696 (1.397)	-4.150** (1.663)
Durables	0.003 (0.004)	0.055*** (0.021)	0.305 (0.711)	0.198 (0.439)	0.243 (0.499)
Red book	0.027 (0.020)	0.232*** (0.079)	0.658 (2.741)	1.179 (1.867)	-1.388 (1.693)
Natural shock	0.017 (0.011)	0.066 (0.052)	2.419 (1.586)	0.537 (1.107)	2.230** (1.133)
Economic shock	0.007 (0.013)	-0.069 (0.053)	2.770 (1.944)	3.139** (1.291)	-0.653 (1.409)
<i>Child characteristics:</i>					
Female	-0.008 (0.013)	-0.018 (0.066)	3.486** (1.731)	2.329** (1.053)	0.701 (1.281)
Age	-0.007*** (0.002)	0.765*** (0.012)	5.946*** (0.269)	2.921*** (0.163)	2.398*** (0.209)
Observations	9,336	8,782	9,343	9,343	9,343
Number of HH	2,030	1,980	2,031	2,031	2,031

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

Source: Authors' calculations based on survey data from VARHS 2008–14.

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 an LUC. 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 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 regression model as in equation (1) for the same set of welfare outcomes. The results are presented in Table 12.8.

Fewer of the household characteristics are statistically significant once the sample is reduced to 10–15-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 10–15 spend working outside of the household, particularly in agriculture.

As highlighted in Section 12.1, 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 (see, for example, Duflo (2003) and Qian (2008)). To explore this possibility in the Vietnamese case we consider two indicator variables for the

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Table 12.8 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>Household characteristics:</i>					
Age	0.023*** (0.008)	0.013 (0.031)	-0.598 (1.162)	0.013 (0.843)	-0.236 (0.578)
Age ²	-0.000*** (0.000)	-0.000 (0.000)	0.010 (0.013)	0.001 (0.010)	0.002 (0.006)
Married	-0.009 (0.063)	0.007 (0.138)	-6.550 (6.981)	-3.858 (6.351)	-0.822 (3.180)
Female	-0.033 (0.065)	-0.104 (0.177)	-8.124 (8.008)	-3.114 (5.507)	-5.870 (5.341)
Higher ed.	-0.018 (0.024)	-0.063 (0.120)	-0.413 (5.283)	-0.800 (4.361)	0.389 (0.512)
HH size	-0.043*** (0.012)	-0.097* (0.051)	0.702 (1.513)	-1.106 (1.305)	1.383** (0.607)
Income	-0.012 (0.008)	-0.024 (0.039)	2.592* (1.449)	-0.439 (1.139)	2.163*** (0.763)
Loans	0.000 (0.001)	-0.005 (0.006)	0.130 (0.189)	0.138 (0.140)	0.039 (0.107)
Land area	-0.004 (0.003)	-0.010 (0.012)	0.032 (0.451)	0.136 (0.428)	-0.093 (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	0.007 (0.015)	-0.022 (0.078)	1.280 (2.831)	-1.545 (2.082)	-1.284 (1.322)
Durables	0.006 (0.005)	0.078*** (0.030)	1.234 (0.865)	0.848 (0.542)	0.404 (0.616)
Red book	0.022 (0.021)	0.151 (0.100)	-1.614 (3.360)	-1.614 (2.699)	-0.605 (1.608)
Natural shock	0.011 (0.012)	0.024 (0.064)	4.218** (1.861)	2.716* (1.527)	1.160 (0.894)
Economic shock	0.023* (0.012)	0.094 (0.062)	2.119 (2.549)	3.570* (2.036)	-1.381 (1.204)
<i>Child characteristics:</i>					
Female	-0.003 (0.015)	-0.010 (0.083)	0.306 (2.114)	0.393 (1.586)	0.740 (1.152)
Age	-0.028*** (0.003)	0.842*** (0.016)	6.183*** (0.473)	4.208*** (0.362)	1.377*** (0.276)
Observations	4,349	4,349	4,350	4,350	4,350
Number of HH	1,421	1,421	1,421	1,421	1,421

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

Source: Authors' calculations based on survey data from VARHS 2008–14.

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

Table 12.9 Panel data analysis of female empowerment and 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	0.032** (0.012)	0.086 (0.072)	0.129 (2.155)	-1.523 (1.917)	1.056** (0.537)
Proportion total days worked by women that are spent in waged employment	0.005 (0.020)	-0.038 (0.115)	-9.530** (3.912)	-9.508*** (3.052)	1.267 (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

Notes: Each model includes household and time fixed effects and the full set of household and individual characteristics included in Table 12.8. Robust standard errors clustered at the household level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors’ calculations based on survey data from VARHS 2008–14.

models. The results are presented in Table 12.9. 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.

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, although it appears that they are also more likely to work more for a wage. 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.

12.5 Conclusions

This chapter investigated how the lives of the children and youths 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 benefited 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. Indeed, the World Bank (2016) highlights inequalities in opportunities for ethnic minority children and stresses the importance of expanding government initiatives to address these inequalities.

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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13

Ethnic Disadvantage

Evidence Using Panel Data

Saurabh Singhal and Ulrik Beck

13.1 Introduction

Viet Nam is an ethnically diverse country with fifty-four officially recognized ethnic groups. The Kinh, the ethnic majority, constitute about 86 per cent of the population. Among the non-Kinh, the largest ethnic groups are the Tay, Thai, Muong, and Khmer, who account for a little less than 2 per cent of the population each (World Bank 2009).

While Viet Nam has witnessed rapid growth and poverty decline since the Doi Moi reforms initiated in 1986, qualitative and quantitative evidence indicates that these gains have not been shared equally across ethnic groups (World Bank 2012; *The Economist* 2015). Using household income as an indicator for welfare, research has found not only that the non-Kinh were systematically worse off than the Kinh but also that this gap widened during the 1990s (Van de Walle and Gunewardena 2001; Baulch et al. 2007; Baulch, Pham, and Reilly, 2012) and the likelihood of them escaping poverty was relatively much smaller (Glewwe, Gragnolati, and Zaman 2002).¹ 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.

¹ Similarly, Pham and Reilly (2009) find significant ethnic wage gaps in the labour market in Viet Nam.

In this study, we use the Viet Nam Access to Resources Household Survey (VARHS) to examine how the welfare of ethnic minorities in Viet Nam has evolved over the period 2006–14. Specifically, we check whether the ethnic gaps still exist, and if so, whether there has been any convergence over time; we also examine the factors constraining the growth of minority households. In line with the existing literature, we find that the non-Kinh continue to lag behind not only in terms of income and consumption, but also on a variety of other indicators of living standards such as access to water and toilets. 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 (CPR). We explore the constraints to growth and income diversification and find several differences that can help explain the welfare gap. The quality of agricultural land and ownership certificate rates are lower for non-Kinh households, and the effects of these 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 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 households into the various ethnic groups based on the ethnicity of the household head. In this study, a household is defined as a Kinh household if the household head belongs to the Kinh ethnicity.² 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 study, we consider the Hoa along with the non-Kinh as we only observe four Hoa households in the VARHS data.

Before proceeding to the analysis, we first present a picture of ethnic differences in key welfare indicators in contemporary Viet Nam. Table 13.1 presents basic demographic information and household characteristics by ethnicity using the 2014 VARHS data. On average, the non-Kinh are significantly more likely to have a household head who is illiterate and a larger household, and the average monthly per capita food expenditure and income of the non-Kinh is nearly half of that of the Kinh. As shown in Chapter 2, another key defining characteristic of the non-Kinh is that they are geographically concentrated in the mountainous Northern region and the Central Highlands. The remainder of this chapter explores the sources and trends of these gaps in greater detail.

² In some cases, the ethnicity of other household members may differ due to inter-marriages. Unfortunately, we are unable to examine such cases.

Table 13.1 Descriptive statistics by ethnicity for 2014

	Kinh	Non-Kinh	Difference
Household head illiterate (%)	4.35	31.24	-26.9***
Household head female (%)	27.06	11.89	15.17***
Household size (mean)	3.9	5.05	-1.15***
Food expenditure, monthly per capita	499.07	283.44	215.63***
Income, monthly per capita	2313.53	1174.87	1138.66***
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	1733	429	

Notes: Food expenditure and Income are in real 1000 VND. *** indicates significance at the 99% confidence level.

Source: Authors' calculations based on the VARHS database.

13.2 Welfare Levels and Trends

Figure 13.1 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 households increased significantly over the period, the level of food expenditures for minority households was significantly lower over the entire period. There are no signs of minority households 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, food expenditures of Kinh households increased by 53.5 per cent (or 5.5 per cent annually) whereas those of non-Kinh households increased by 56.4 per cent (5.7 per cent annually).

The income time series presents a similar picture.³ For both Kinh and non-Kinh households, income per capita increased over the period 2008–14 by annual rates of 7.8 and 8.5 per cent, respectively.

While the raw average growth rates may be similar for the two groups, there is no evidence of convergence 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 caught up with their Kinh counterparts. It is, of course, unrealistic to project current growth rates more than 100 years into the future, but it does illustrate the need

³ Comparable income estimates can only be constructed for the period 2008–14.

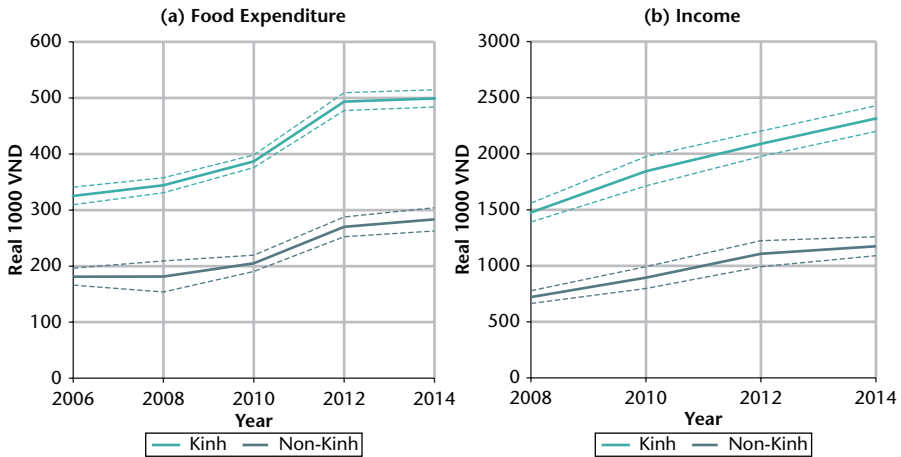


Figure 13.1 Evolution of monthly food expenditure (a) and income (b) by ethnicity in real 1000 VND, 2006–14

Notes: Dashed lines represent 95% confidence intervals. Income data is not available in 2006. Expenditure and income are represented in real June 2014 prices.

Source: Authors' calculations based on the VARHS database.

to focus more on the minority ethnicities moving forward if the expenditure and income gaps are to be closed.

To summarize, non-Kinh households were worse off than Kinh households over the entire period. This was caused by the combination of lower initial levels of income and food expenditure, and similar growth rates for the two groups. A logical next question is whether income evolved differentially for these two groups if one more directly compares households with the same initial levels of income. This can be done by exploiting the panel dimension of the VARHS database. Figure 13.2 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 solid 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 2014.⁴ Similarly, results

⁴ We note that the household-specific growth rates of income one gets from these example households are much higher than average income growth rates. This is not unusual in this type of setup 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.

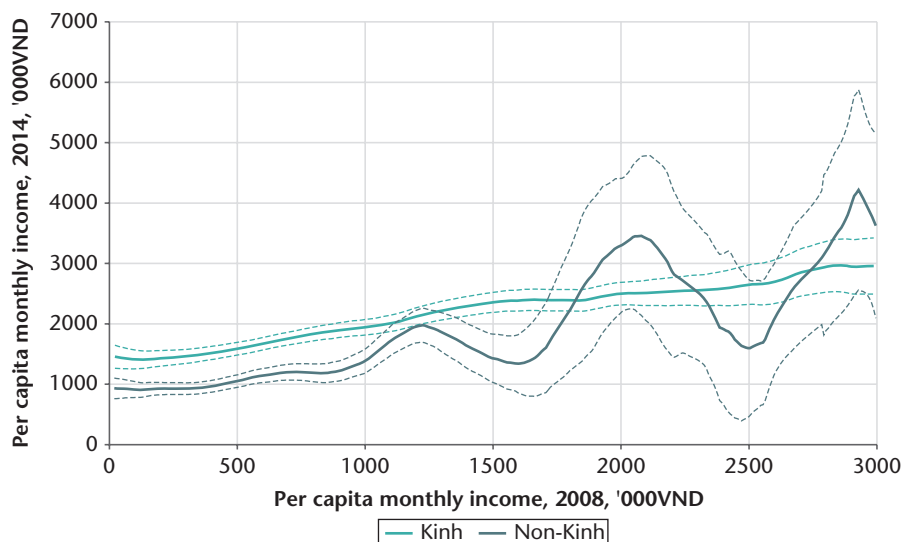


Figure 13.2 Non-parametric estimates of Kinh and non-Kinh income growth, depending on initial income, 2008 and 2014

Notes: 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 percentile of 2008 incomes. All values are in June 2014 prices.

Source: Authors' calculations based on the VARHS database.

from regression analysis in Chapter 10 indicate that, controlling for past endowments and income, the income growth rate of non-Kinh households is significantly lesser than that of the Kinh households.

Welfare is not exclusively determined by monetary indicators such as income and expenditure. Figure 13.3 shows the evolution of a series of asset indicators by ethnicity. Figure 13.3 (a–c) details the evolution of ownership of cows, buffaloes, and pigs that are all used in agricultural production. Perhaps surprisingly, in the study period, non-Kinh households did better in terms of the number of pigs and buffaloes and were on par with Kinh households in terms of the number of cows. How is this connected to the clear expenditure and income discrepancy in favour of 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 cows and buffaloes observed in Figure 13.3 (a and b, respectively). Another possibility is that non-Kinh households with worse access to credit are more likely to utilize

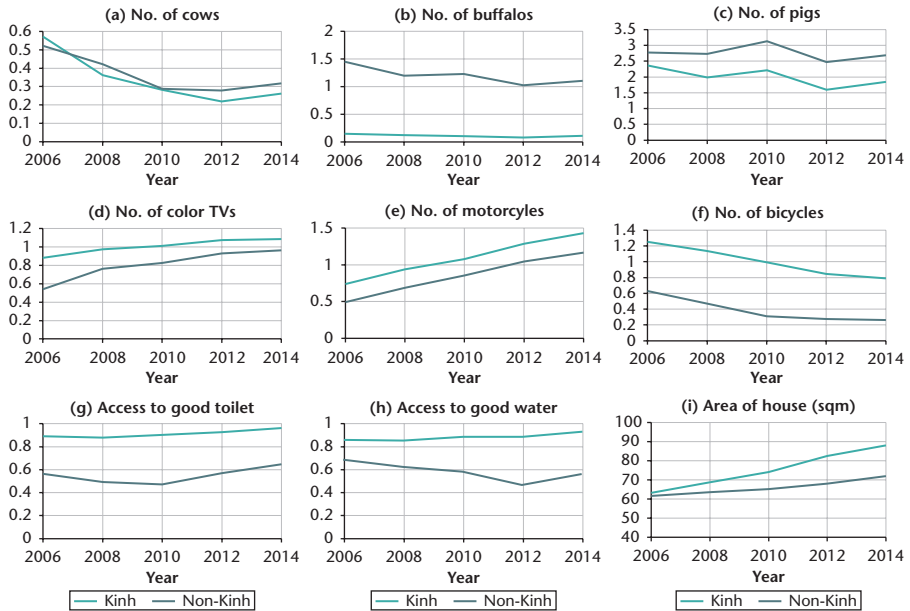


Figure 13.3 Household asset ownership rates by asset and ethnicity, 2006–14

Notes: A good toilet is defined as flush, squat, or a double-vault compost toilet. A good water supply is defined as tap or well water.

Source: Authors' calculations based on the VARHS database.

animals as a store of value to be realized in the event of a negative income shock. The issue of access to credit is discussed in more detail in Section 13.4.

Figure 13.3 (d–f) details the evolution of ownership of three durable consumption assets: colour TVs, motorcycles, and bicycles. Here, the trend is closer to the evolution of monetary indicators: for both Kinh and non-Kinh households, ownership rates of colour TVs and motorcycles increased, but the level of non-Kinh ownership lagged behind throughout the entire period. Ownership rates of bicycles fell for both groups, most likely because of substitution by motorcycles or, more rarely, cars.

Figure 13.3 (g–i) shows three housing indicators: toilets, water supply, and area of house in square metres, respectively. Over the entire period 2006–14, Kinh households improved their outcomes in all three dimensions. In 2014, over 90 per cent had 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 became larger as well: in the span of eight years, the average house size increased by almost 40 per cent. For non-Kinh households, the picture is bleaker: in 2014, less than 60 per cent had a good toilet 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 Kinh households: worryingly, for

non-Kinh households, the proportion of households with 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 were more likely to own a motorbike or a colour TV than to have access to an improved water supply or to a good toilet facility in 2014. Finally, the housing size picture is more optimistic in that the average area increased for both groups. What is less optimistic is the widening of the gap between Kinh and non-Kinh households over the study period. While the square-metre area increased for both groups, it increased much more slowly for non-Kinh households.

Finally, welfare may also be assessed in terms of the educational attainment of children. As discussed in Chapter 12 and the working paper version of this chapter (Singhal and Beck 2015), there are stark persistent ethnic gaps in school attendance and educational attainment (as measured by grade for age) among older age cohorts. This is particularly the case after 15 years of age, which corresponds to the end of junior high school. A possible explanation is a greater reliance on child and adolescent labour as a risk-coping mechanism among minority households (Beck, Singhal, and Tarp 2016).

13.3 Structure of Household Income

In order to better understand the observed lack of convergence between Kinh and 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 CPR different for the two groups? Income diversification is important as it allows households to weather shocks, smooth consumption, and boost income. For the case of rural Viet Nam, Khai and colleagues (2013) show that income diversification over the period 2008–12 led to an increase in household welfare. Similarly, Oostendorp, Trung, and Tung (2009) find that operating non-farm household enterprises significantly increased household income in Viet Nam during 1993–2002 (for a broader discussion, see Chapter 5). We first examine ethnic differences in such diversification using 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 13.2 shows the proportion of Kinh and non-Kinh households that are non-diversifiers. The non-Kinh are more likely to have diversified out of agriculture in 2014: 13 per cent of Kinh households depend solely on agriculture as opposed to 7.7 per cent of non-Kinh households.

While almost all the households rely on agriculture to some degree, they also derive income from wage employment, household non-farm enterprises,

Table 13.2 Income diversification by ethnicity in 2014

	Kinh	Non-Kinh	Difference
Non-diversifiers			
Agriculture only	12.98	7.69	5.29***
Diversifiers			
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	

Notes: The last column reports the *t*-test of proportions. *** indicates significance at the 99% confidence level.

Source: Authors' calculations based on the VARHS database.

and 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 enterprises, and CPR; or (vi) some other combination. Looking at differences across ethnicity for each category in Table 13.2, 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 independently 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.

Next, we move beyond this static view to examine whether patterns of diversification strategies have changed over time. Figure 13.4 (a–c) shows the proportion of Kinh and non-Kinh households that derived income from household enterprises, wage employment, and CPR, respectively, over the period 2006–14. Figure 13.4 (a) shows that while the proportion of Kinh households involved in household enterprises 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 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.

Figure 13.4 (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 exhibited more variability. The picture is completely different when we examine the trends for CPR in Figure 13.4 (c). While the proportion of Kinh households using CPR increased



Figure 13.4 Income diversification, 2006–14

Note: The dummy variable ‘HH enterprise’ takes a value 1 if the household operates at least one enterprise and 0 otherwise. Similarly, the variables ‘Wage employment’ and ‘CPR’ take a value 1 if a household participates in off-farm wage employment and collects CPR, respectively.

Source: Authors’ calculations based on the VARHS database.

modestly over 2006–14, the proportion of non-Kinh more than doubled from 36 per cent in 2006 to 75 per cent in 2014.

In this section, we find that the structure of household income varies significantly between the Kinh and the non-Kinh. As noted earlier in this section, diversification out of agriculture is positively associated with welfare. Since the non-Kinh more likely to diversify (less likely to be solely dependent on agriculture), it begs the question: why does the ethnic gap in income persist? We examine three avenues of diversification: wage employment, household enterprises, and CPR, and find that 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. This indicates that the avenue of diversification matters: despite diversification out of agriculture, a possible explanation for the poor performance of minority households is the low returns from CPR. Furthermore, 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.

13.4 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 established in Section 13.3. We do this by looking at differences in plot characteristics, reported problems regarding agriculture, credit access, remoteness, and social networks.

13.4.1 Land and Agriculture

This section investigates how the agricultural production of non-Kinh households is differentially constrained compared to their Kinh counterparts. This is

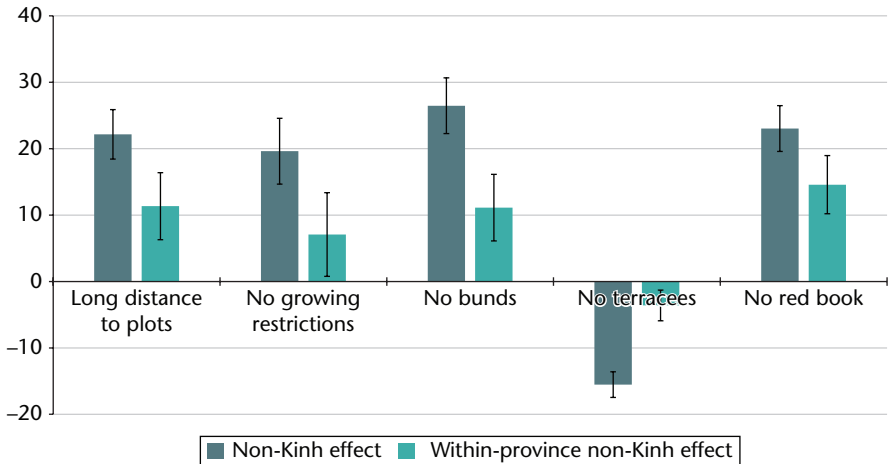


Figure 13.5 Land quality and redbook ownership, 2014

Notes: 'Long distance to plots' is defined as the share of plots that are more than 1 km away from the residence. Categories of 'No growing restrictions', 'No bunds', 'No terraces', and 'No red book' are the share of plots on which there are no growing restrictions, no soil or rock bunds present, no 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 percentage. Black bars indicate 95% confidence intervals. Within-province non-Kinh effects are calculated by including province fixed effects in the regressions.

Source: Authors' calculations based on the VARHS database.

done by analysing differences in land quality and ownership status and self-reported problems faced pre- and post-production.

Figure 13.5 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 13.1, non-Kinh households are not equally distributed between the provinces. Rather, the non-Kinh 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 13.5 also includes estimates that 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. The effects of these factors 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

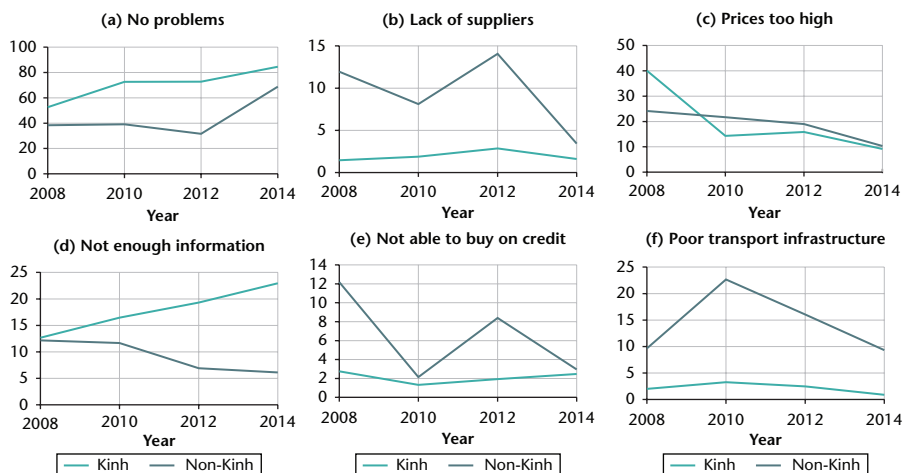


Figure 13.6 Most important constraints *before* harvest as reported by households by year, 2008–14

Notes: Some categories with very few answers are left out. Shares are reported in percentage.

Source: Authors' calculations based on the VARHS database.

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 '0'. 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 additional constraints in terms of access to their land, the quality of the land they own, and tenure security compared to their Kinh counterparts.

We next turn to the problems that households face before harvest (Figure 13.6) and after harvest (Figure 13.7). In both cases, Kinh households are more likely to report no problems than non-Kinh households. For instance, in 2014, 85 per cent of Kinh households reported facing no problems before 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 13.6, non-Kinh farmers are more likely to face a lack of suppliers, not being able to buy on credit, and to face poor transport infrastructure. Kinh farmers, on the other hand, are increasingly impeded by lack of information, a trend not observed for non-Kinh households, possibly because they are facing other and more pressing problems. In 2008, almost 40 per cent of non-Kinh farmers reported facing very high input prices; in 2014, this fell to around 10 per cent for both Kinh and non-Kinh farmers. In terms of problems after

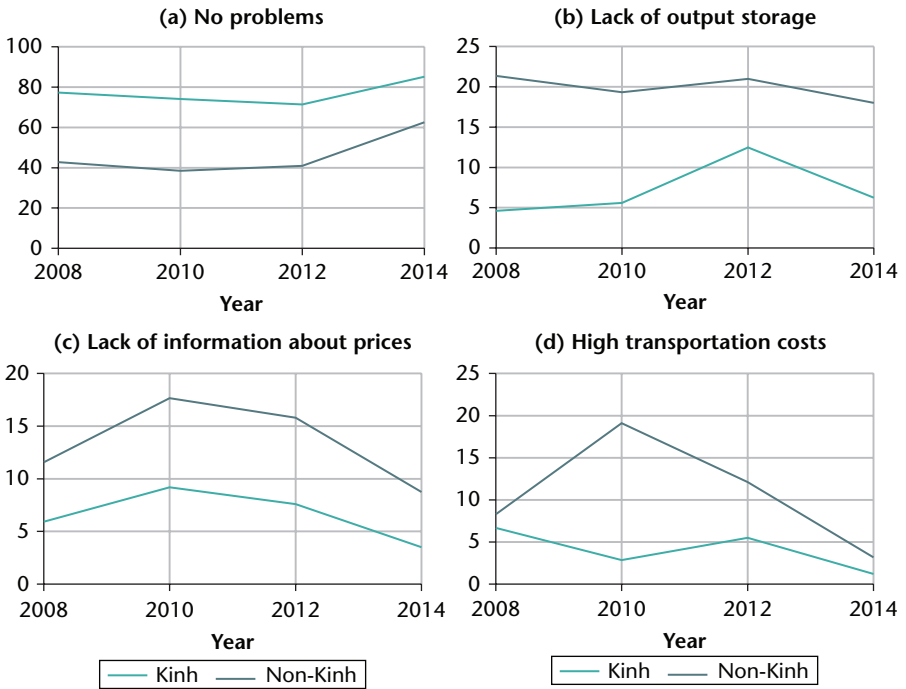


Figure 13.7 Most important constraints *after* harvest as reported by households by year, 2008–14

Notes: Households were asked to list up to two problems. Some categories with very few answers are left out. Shares are reported in percentage.

Source: Authors' calculations based on the VARHS database.

harvest, more non-Kinh farmers are concerned about lack of output storage, information about prices, and high transportation costs, even though the last seems to be of less importance in later years.

Overall, 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.

13.4.2 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 13.8 shows some information on loans. Figure 13.8 (a), which shows the share of households that borrowed money in the last two years, indicates

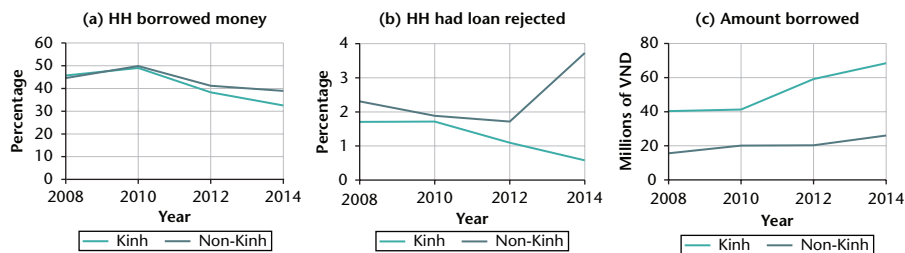


Figure 13.8 Access to credit by ethnicity, 2008–14

Notes: Shares are reported in percentage. The figures in (c) are calculated conditional on receiving a loan and are reported in million Vietnamese Dong. ‘HH’ is abbreviation for household.

Source: Authors’ calculations based on the VARHS database.

that, in the later part of the study period, and especially in 2014, a larger share of non-Kinh households borrowed money. At first glance, this would indicate that ethnic minority households do not have worse access to credit. However, Figure 13.8 (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, during which almost 4 per cent of non-Kinh households had a loan rejected in the previous two years, whereas 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 because of difficulties in making ends meet is very different from borrowing for investments.

Figure 13.8 (c) looks into the types 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 increased over time: in 2014, the average non-Kinh loan size was reduced to less than a third of the size of the loans of Kinh households.

To summarize, the picture is not as positive as a quick glance at Figure 13.8 (a) seems to indicate: although more non-Kinh households got loans in the study period, more non-Kinh households also had loan applications rejected and, when they did get a loan, it was substantially smaller. Most worryingly, the discrepancy appears to have increased over time.

13.4.3 Remoteness

As mentioned in Section 13.1, 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 and infrastructure and increased transportation costs. Over the years, the government has

targeted several programmes such as the Socio-Economic Development Program for the Communes Facing Greatest Hardships in the Ethnic Minority and Mountainous Areas ('Program 135' or 'P135') to support infrastructure development and public services in such areas.⁵

Although there have not been any rigorous evaluations of such policies, we examine whether minority households continue to systematically differ in their access to infrastructure due to their geographical location. In this section, 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 13.9 shows the additional distance that ethnic minorities have to an all-weather road and to a People's Committee.

The finding that ethnic minority households are, on average, more remotely located can simply be due to the fact that population density is lower in these parts of the country. In order to rule this out, Figure 13.9 also presents the effects of belonging to an ethnic minority, using Kinh households within

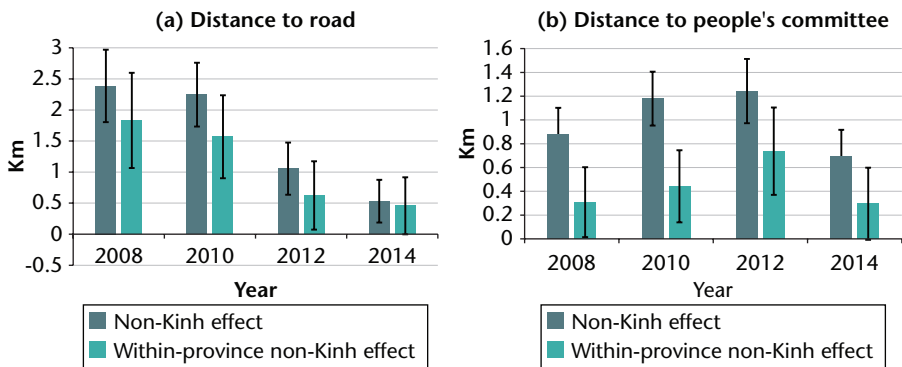


Figure 13.9 Additional distances for non-Kinh households by year, 2008–14

Notes: 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% confidence intervals.

Source: Authors' calculations based on the VARHS database.

⁵ The first phase of P135 was implemented over 2001–5 and the second phase over 2006–10. Cuong, Tung, and Westbrook (2014) assess the second phase and find that minority households in targeted communes experienced a larger decline in poverty than those in control communes.

the same provinces for comparison. We do this by running a year-specific regression that includes province fixed effects, similarly to the regression in Section 13.4.1.

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 fallen over time. In 2014, the within-province effect was statistically indistinguishable from '0'. So while non-Kinh households still, on average, live 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—tend to 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 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 in 2014 is statistically indistinguishable from '0', once province fixed effects are taken into account.

13.4.4 *Social Networks*

The final aspect of constraints we investigate is the social network of ethnic minority households. Figure 13.10 explores the extent of social segregation of Kinh and non-Kinh households 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 a household's network with 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 13.10 shows the difference between these two shares for Kinh and non-Kinh households. The positive number for Kinh households implies 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 implies that they have fewer contacts among Kinh households (and, therefore, more contacts among

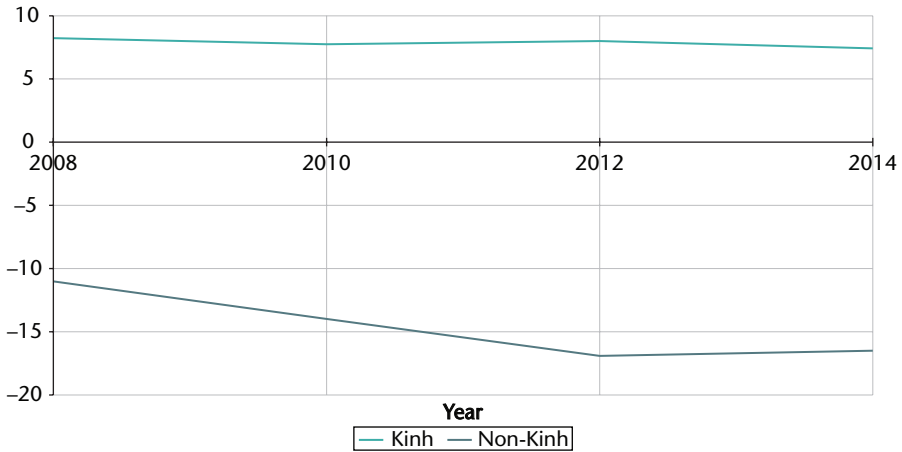


Figure 13.10 Over- and under-representation of links to Kinh farmers compared to the commune average, 2008–14

Notes: Households were asked to name up to three contacts that they depend on for money in case of emergencies. The figure shows the average share of those links in percentage 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% Kinh farmers and 85% of these 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). The share of Kinh households in the commune is only available for 2014. This share is assumed to be constant over time and is used for all years.

Source: Authors' calculations based on the VARHS database.

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 reduces over time; if anything, it appears that minority households get further isolated towards the end of the study 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 13.1, 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.

13.5 Differences within the 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 households vary on account of differences such as

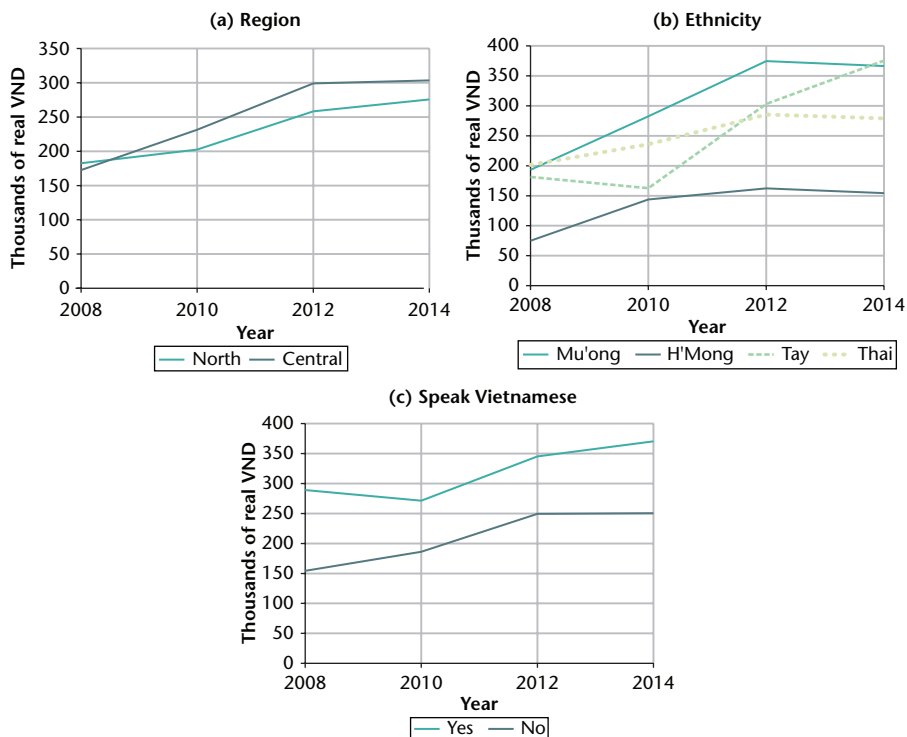


Figure 13.11 Differences in monthly per capita food expenditures in real 1000 VND within minorities by (a) region, (b) ethnicity, and (c) language, 2008–14

Note: In (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.

Source: Authors' calculations based on the VARHS database.

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 in Section 13.1, 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 the 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 mountainous Northern 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 13.11 (a) shows how 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 Highlands grew a lot faster than that of the non-Kinh in the Northern Mountains. This finding is consistent with those derived from the Viet Nam Household Living Standards Survey (VHLSS) data that the Central Highlands experienced a higher reduction in poverty rates in the 2000s (World Bank 2012).

Next, we examine whether the growth trajectories of minority groups vary by ethnicity. The non-Kinh consist of fifty-three officially recognized ethnic groups. In order to have meaningful results, we limit our analysis to those minority ethnic groups where we have at least forty-five 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, comparative data can also shed further light on the economic stagnation among minority households discussed in the preceding paragraph.

In Figure 13.11 (b), we examine how real per capita monthly food consumption has evolved over 2008–11 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 consumption rates of the Tay were similar to that of the Thai in 2008, and appear to have stagnated in 2010, consumption grew rapidly since then and was significantly higher than that of the Thai in 2014 (p -value=0.025).

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, and migrating, and may prompt them to drop 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 13.11 (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. A recent step in this direction has been a pilot programme to provide mother tongue-based bilingual education to ethnic minorities in an effort to improve learning outcomes for the non-Kinh and reduce school drop-out rates (UNICEF 2011).

13.6 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 (CEMA) 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 (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 non-Kinh households belonging to one of Viet Nam's fifty-three 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 signs of convergence in welfare between the two groups: the relative difference in food expenditure and household income in 2014 is almost identical to the difference observed in 2006. Similarly, on other indicators the evidence continues to be 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 more likely to diversify into non-farm activities, but 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 to 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 have grown faster than those in the northern mountains; the Tay and the Muong have fared better than the Thai and H'Mong; and minority households that speak Vietnamese have done 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.

Acknowledgements

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Part IV

Lessons and Policy

14

Lessons Learnt and Policy Implications

Finn Tarp

14.1 Introduction

This volume started in Chapter 1 by setting the scene for one of the most impressive national performances in modern-day socioeconomic development. And Viet Nam has indeed made great strides in its effort to transition from a centrally planned economy to a more market-based institutional and economic system. Chapter 2 provided, in turn, further background information on the quantitative dataset on which the detailed studies in Chapters 3–13 are all based—the Viet Nam Access to Resources Household Survey (VARHS). To reiterate, the VARHS has, over the years, produced a unique 5-wave panel data set, covering a balanced sample of 2,162 households from 12 provinces, surveyed every 2 years from 2006 to 2014.¹

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—subscribed to by the United Nations—means in actual practice in the context of the 2030 sustainable development agenda. This is so especially when the international discourse is tuned in on the ambition of ‘leaving no one behind’. Arguably, Viet Nam is a particularly instructive country to study and learn from. Not long ago Viet Nam had an economic structure that was comparable to that of many African countries today; and much has been realized in this still relatively poor, yet dynamic Southeast Asian country since Doi Moi began in 1986, just thirty years ago.

Viet Nam admittedly sets a high bar when it comes to socioeconomic achievements. As such, it illustrates aspirations other countries may wish to adopt and even target. The Viet Nam experience certainly carries with it a

¹ The data set is freely available from the following webpage: <https://www.wider.unu.edu/VARHS>.

series of lessons about how the development process can be managed. Importantly, while impressive, we have argued throughout in this volume that Viet Nam could do even better moving forward. This is not because the group of authors who have contributed to this book 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, put 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 was to help identify these challenges more specifically, to get to know them in-depth, and to reflect on what the key policy implications are for Viet Nam and beyond, to other developing countries. Summarizing and outlining these implications is the purpose of this concluding chapter.

Chapter 1 provided institutional background and reviewed the macroeconomic situation and development progress of Viet Nam in a comparative regional perspective as an antecedent to the core chapters of the book. Based on standard data available from international sources, I noted the stellar performance Viet Nam has shown when it comes to the reduction of poverty, based on a robust process of transformative economic growth. The experience of Viet Nam strongly confirms the key role growth and transformation has to play in meaningful development. I 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 take an active stance and respond. Other countries are well advised to take note of the fact that passive adaptation to exogenous events and influences is not the way to go. 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 my assessment that such problems are not on the horizon in Viet Nam. I, furthermore, believe these broad lessons should be carefully considered and adapted as required to specific national circumstances across the developing world more generally, and in the developed world as well!

At the same time, the macroeconomic overview in Chapter 1 identified early on a few thorny characteristics which seem to reflect underlying sector and microeconomic issues to which I return in Section 14.2: (i) agriculture value added per worker appeared, based on the international data, available to have remained stagnant in Viet Nam over the past decade; (ii) information technology (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 Chapters 1 and 2 we proceeded to the core of the volume, and in eleven chapters we addressed three broad themes in socio-economic development:

- the process of rural institutional and 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.

I turn to these three themes, or parts, one by one in Sections 14.2, 14.3, and 14.4, before my final remarks and observations in Section 14.5. To put this into perspective, I note upfront 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 2030 sustainable development agenda, the mandate of United Nations University World Institute for Development Economics Research (UNU-WIDER), and indeed the future development of Viet Nam; so the Viet Nam experience carries, as noted, a series of implications which policy makers in other countries and in the international development community should consider carefully.

14.2 Rural Transformation

Development is interlinked with structural and institutional transformation of the economy, in the balance between its sectors, and in the nature of economic activity of its people and the gradually evolving institutions which influence their behaviour. If the economy does not transform and institutions do not adapt progress is stifled and economic collapse may ensue. This volume included three studies of these processes. In Part I we first asked in Chapter 3 which insights the VARHS commune questionnaire furnishes as a complement to the macroeconomic picture discussed in Chapter 1. We then proceeded in Chapter 4 to investigate the nature and characteristics of the ongoing diversification, commercialization, and transformation of the agriculture sector relying on household-level and institutional information. Thirdly and finally we analysed in Chapter 5 what is happening in the non-farm rural economy. Non-farm activity will, in the

years to come, have to absorb an increasing share of the labour force if development is to proceed and succeed.

Chapter 3 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, and this insight is a clear lesson also in other contexts. At the same time, 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, and highlights the key and active attention the pursuit of spatial balance must play in less fortunate circumstances than those of Viet Nam. To be sure, Viet Nam continues to face the challenge of ensuring that its development becomes more regionally balanced, and this a challenge that is at the root of social upheaval and unrest elsewhere in the world. This topic must therefore be centrally placed in any meaningful 2030 agenda at national levels.

Looking ahead, it also emerges from VARHS 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, and elsewhere, this means that the basic policy message is: keep up the momentum. Accelerated development is not only desirable, it is a key tool to help peoples and nations to adapt effectively. 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 rather 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. I believe the policy lessons for other countries are indeed quite similar. This implies, for example, that forward-looking investment programming, education, and regional development policies must be much more explicitly designed with climate change in mind.

For the time being, agriculture continues, as demonstrated in Chapter 4, to play a critically important institutional and economic role in rural Viet Nam. This is why attention to value added per worker in the rural sector is a critical indicator. While the macro-evidence, provided in Chapter 1, is gloomy in this regard, the more specific data and sources of information referred to in Chapter 4 painted a somewhat more positive picture and interpretation. Further analytical work on this topic is therefore evidently needed in Viet Nam as is the case elsewhere. Chapter 4 also highlighted that 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, but certainly not only, 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 and institutional development to better integrate such households into the market economy and its institutions. This is, in turn, also the way to avoid marginalizing groups of people to which I return in the remainder of this section. The lessons for other countries, such as those on the African continent, which have, in many cases, paid much less targeted attention to agricultural development, are clear and persuasive.²

Other characteristics uncovered in Chapter 4 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 in this section. 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 areas not yet fully covered. The general lesson is that development policy and strategy had better focus on the development of effective market institutions, alongside an explicit goal of furthering production for sale (domestically and internationally).³

Chapter 5 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, especially so as diversification is found to be welfare improving and because the data show that moving into operating household enterprises is an effective way forward. But the success of entrepreneurial activities hinges on appropriate access to finance, quality training and education, and effective market access and integration.

An important policy implication that goes well beyond the specific context of Viet Nam is therefore that the role for the government is to shape an environment that will help generate and cultivate enterprises both in terms

² See Arndt, McKay, and Tarp (2016) for a comprehensive elaboration of this argument.

³ This insight is also emerging clearly from the research on industrial development that has emerged in recent years, see, for example, Newman et al. (2016).

of ease of starting a business and in promoting access to, for example, credit based on solid financial and economic cost-benefit analysis. 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 and the quality and reach of existing infrastructure will, in the final analysis, be critical for the ability of families to find suitable jobs outside agriculture.

14.3 Access to Resources

Four dimensions of households' access to resources and associated institutional developments 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 socioeconomic and institutional environment. It is hoped that the lessons learnt from these chapters will find their way into policy development elsewhere in the developing world.

Chapter 6 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; an insight that has a wide-ranging set of implications.

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/control the land they are tilling. It is, according to this perspective, worrisome that a significant number of plots still remain without a red book (land-use certificate or 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, keeping a close eye on monitoring that this does not lead to landlessness among the poorest. The lack of progress in this policy area is, by now, likely to be a constraint to growth in value added per worker in the agriculture sector, and it is an illustrative example of the need for coming to grips with how institutions need to adapt to underpin further economic progress; a topic of widespread importance in many countries aiming to move out of low-income status.

Turning to issues of labour and migration, Chapter 7 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 1 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 that 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.

These insights mean that a key policy implication is that existing constraints on voluntary migration should be removed, or at least made more flexible, particularly for poorer households; a finding that is of widespread relevance elsewhere as well. Members in such households may have the desire to leave their home community to find productive work elsewhere, 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 information and communication technology (ICT), as discussed in Chapter 8. While focused on ICT, this chapter hints in the conclusion that mechanization of agriculture should remain a policy concern; an observation that is in line with the need referred to elsewhere to boost agricultural productivity. 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 particularly significant in international comparison.

Moreover, the VARHS provinces lag behind the national average, and in 2014, households that did not own phones were much more likely to be female-headed, poor, and less educated than households with phones. This is a telling caution that policies should harness the potential of IT services and the Internet to provide information and education, especially in remote and poorer regions and to disadvantaged people and families. Another associated policy that merits attention is the use of IT in promoting e-governance, which

is a topic that is likely to become of increasing importance in Viet Nam in the coming years.

It is not only physical and human capital that are important to growth and productivity. The same goes for social capital, as validated in Chapter 9, where a variety of social, political, and institutional 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 9 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, in spite of strong public commitment to principles of equity.

These findings highlight the critical importance of social and economic policies geared towards furthering fair, predictable, and transparent socioeconomic principles where all members of society are subject to the rule of law, and where 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 well-being of a human body, and even its life if proper care and treatment is not initiated in time. In socioeconomic contexts, similar dangers exist if corruption and societal values are allowed to degrade, leading to institutional decay and a vicious circle that undermines development.

It is against this background that these highly relevant topics and their policy implications have, in recent years, attracted increasing attention in development policy analysis. Moreover, an important finding from the VARHS is that the subjective wellbeing of Vietnamese rural people is far below the levels one might expect, given the general economic progress. This should give reason for pause and reflection, and it stresses both the need for further research and the crucial importance of adopting integrated approaches to development policy and strategy, reflecting particular national characteristics and possibilities. This topic is closely related as well to the topic of welfare outcomes, to which I now turn.

14.4 Welfare Outcomes

The ultimate indicator of whether a society (rich or poor), and the economic and institutional policies it pursues, is succeeding, is whether more and better ways of living and welfare for all its citizens are furthered and generated. It is

widely appreciated that welfare economics is no easy and straightforward field of economics. Professor Amartya Sen was awarded the Nobel Prize ‘for his contributions to welfare economics’; he reminds us that we need to go beyond what he terms ‘welfarism’.⁴ 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, Professor Sen rightly emphasizes the need to take a broader view. We have in VARHS followed this advice by carefully addressing issues related to gender, children and youths, and ethnicity, in addition to the more standard topics of welfare dynamics and aggregate household inequality.

Focusing first on Chapter 10, 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. Similarly, the number of households classified as poor according to the Ministry of Labour, Invalids and Social Affairs (MOLISA) has declined over 2006–14. There is, however, considerable volatility over time even for per capita food consumption. Similarly, there is significant spatial variation.

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 truly inclusive progress in the years to come. Accordingly, subsequent chapters focus on gender, children and youths, and ethnic minorities; issues which are highly relevant in other national contexts as well.

Chapter 11, on gender and the empowerment of women, brings out clearly the fact 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. This indicates that female empowerment is a strong pathway to improving welfare. These findings suggest

⁴ See Atkinson (1998).

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 in this section; they are illustrative of the kinds of policy implications that are relevant across a wide range of development contexts, further elaborated on by Grown, Addison, and Tarp (2016).

Turning to Chapter 12, 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 benefited 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 in Viet Nam—and, by implication, elsewhere.

These observations are interlinked with Chapter 13, on ethnicity. Over the period 2006–14, the non-Kinh population continued to lag behind Kinh households in terms of income and food consumption. While the gap has not widened, it is still there and has remained relatively constant. Moreover, the structure of household income varies significantly between the Kinh and the non-Kinh. It also seems that the non-Kinh are more likely to diversify out of agriculture, and the non-Kinh households that do diversify are more likely to depend on common property resources (CPR). This is different from Kinh households, which 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 Muong fared better than the Thai and Hmong, and minority

households that speak Vietnamese did better than those that do not. Implications for public action are clear and compelling.

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 (CEMA) and specifically targeting poverty in remote and inaccessible areas under policies such as the Socioeconomic 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. Such policy needs are generally an illustration of what needs to be done elsewhere as well.

14.5 Final Remarks

In this chapter I have identified a series of the more important findings, and policy implications which emerge from the VARHS 2006–14 panel data and the analyses contained in this volume. I 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. 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 and perspectives 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 keep in mind 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 US\$1 a day in 1986 is today very close to earning US\$8 a day. Almost three decades have passed since Doi Moi was initiated and average growth has indeed been quite close to 6.9 per cent per year. In contrast, a person who earned US\$10 dollars a day in 1986 will by now be earning US\$80. 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 what has happened. The gap between them has

widened very significantly. The ancient Greek philosopher Plato was already aware of the relative nature of human insight, that is, that different interpretations of the same reality may exist—see his dialogue *The Republic*, written around 380 BC.⁵

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 due to the particular combination of disadvantageous characteristics identified in Chapter 10. And this is so 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 significant 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, which is clearly generalizable to a wide set of developing country contexts, is:

- Maintain a robust 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 may not be 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:

⁵ A study of this topic in global context is Niño-Zarazúa, Roope, and Tarp (2016).

- 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, over time, 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 balanced 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. Unnecessary constraints to enterprise growth should be addressed with a view to promoting an efficient allocation of resources, 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 socioeconomic 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.

I maintain that these 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 inoptimal 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 throughout this volume and in these concluding remarks—is critical. This will require a focus on fair, predictable, and transparent socioeconomic 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 thirty years, grown from a very low level since the crisis of the mid-1980s. This means that Viet Nam has benefited from ‘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 compared to other countries worldwide.

This volume has made an effort to come to grips with a range of important development issues for the twelve provinces included in the VARHS dataset—and for Viet Nam as a whole—and I hope this effort will help inform policies that will lead to higher welfare and standards of living for future generations in Viet Nam. From a more methodological point of view, this book has highlighted the importance of carefully collecting data on the same households over time to better understand the transformations occurring at the household level.

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.⁶

⁶ See <<https://www.goodreads.com/quotes/212215-practical-men-who-believe-themselves-to-be-quite-exempt-from>>. Accessed 8 August 2016.

The VARHS was, as noted in the Preface, set up to help generate context-specific knowledge and evidence as well as increase 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. 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 2030 sustainable development agenda call for a data revolution—and I note that it is not often that the international community calls for revolutions!

A final policy recommendation in this study is that Viet Nam would be well advised to keep in mind the fact 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. I hope the rising dragon and its leaders 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.

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